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JACARANDA KEY CONCEPTS IN VCE

HEALTH & HUMAN DEVELOPMENT 3&4

SIXTH EDITION | UNITS



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Sixth edition published 2020 by
John Wiley & Sons Australia, Ltd
42 McDougall Street, Milton, Qld 4064

First edition published 2010
Second edition published 2012
Third edition published 2014
Fourth edition published 2016
Fifth edition published 2018

Typeset in 11/14 pt Times LT Std

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ISBN: 978-0-7303-7155-7

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Printed in Singapore by
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This textbook contains images of Indigenous people who are, or may be, deceased. The publisher appreciates that this inclusion may distress some Indigenous communities. These images have been included so that the young multicultural audience for this book can better appreciate specific aspects of Indigenous history and experience.

It is recommended that teachers should first preview resources on Indigenous topics in relation to their suitability for the class level or situation. It is also suggested that Indigenous parents or community members be invited to help assess the resources to be shown to Indigenous children. At all times the guidelines laid down by the relevant educational authorities should be followed.

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ABOUT THIS RESOURCE

Jacaranda Key Concepts in VCE Health and Human Development provides students and teachers with the most comprehensive resource on the market. Not only is it explicitly aligned to the Study Design, it is a suite of engaging and purposeful resources.

Formats

Jacaranda Key Concepts in VCE Health and Human Development comes in the following formats:

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The eBookPLUS is an electronic version of the student text

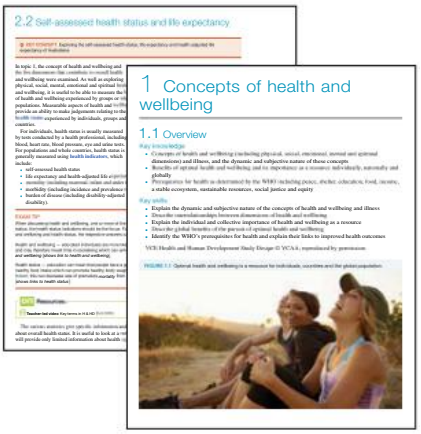
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Fully aligned to the VCE Health and Human Development Study Design

Have confidence that you are covering the VCAA curriculum with:

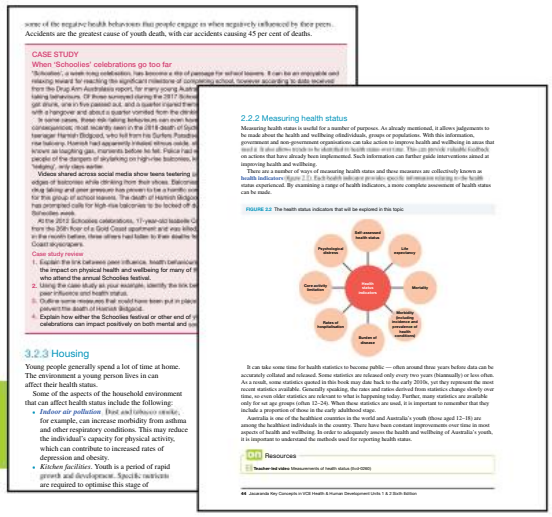
- key knowledge and skills stated at the start of each topic
- key concepts visible at the start of every subtopic
- exercises for each subtopic
- every key skill is broken down and explained in an annotated example
- practice SACs for each outcome
- exam practice questions at the end of each topic.



Engaging resources and rich media

A variety of online and offline resources to encourage students of all learning styles, including:

- videos and interactivities embedded at the point of learning
- case studies that add context to the material by linking to real-life examples
- graphs and figures that concisely display relevant data.

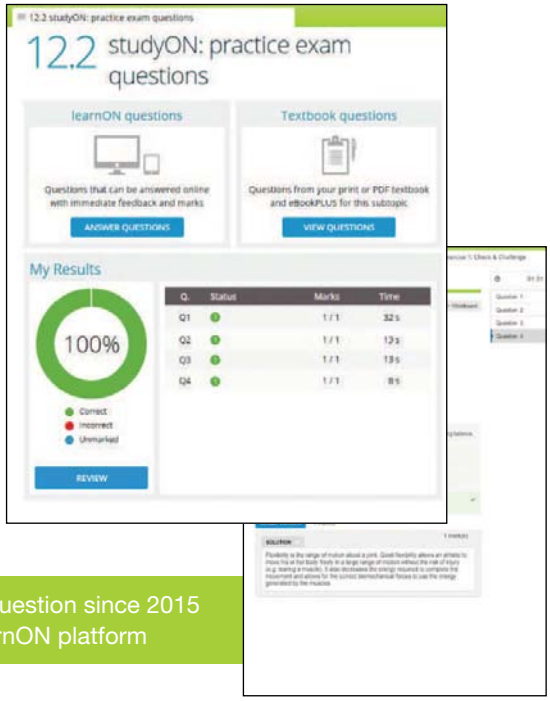


Teacher-led videos explaining the 20 most difficult concepts in the course

Inspiring students to become independent learners

This resource, with the immersive digital platform learnON, encourages self-driven student learning.

- Sample responses for every question provide students with immediate feedback.
- Progress tracked automatically in learnON allows students to reflect on their learning.
- studyON included in learnON and as a printable exam revision booklet.



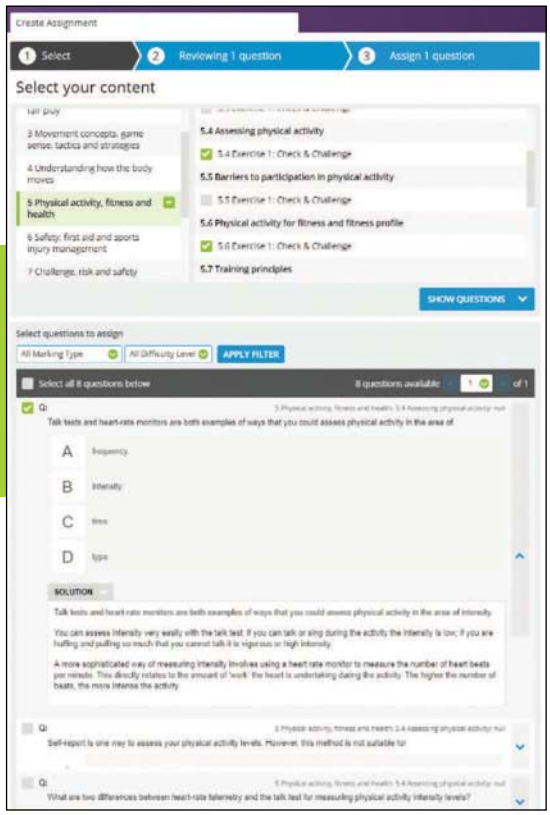
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Every past VCAA exam question since 2015 all in one place in the learnON platform

A wealth of teacher resources

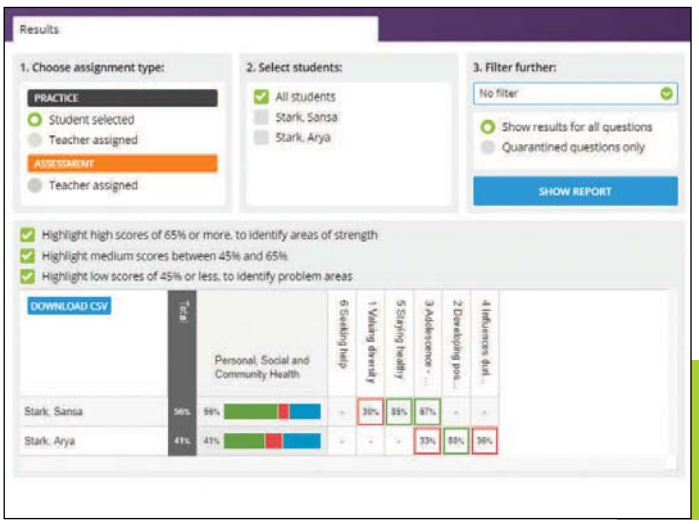
Key Concepts in VCE Health and Human Development empowers teachers to teach their class their way with an extensive range of teacher resources, including:

- test maker
- visibility of student results
- quarantined topic tests and SACs
- work programs.



Test Maker

Quickly and easily assign questions to your students from the massive pool of VCAA and Jacaranda questions



Visibility of student results

Detailed breakdown of student performance allows you to identify strengths and weaknesses across various topics and sub-topics.

ACKNOWLEDGEMENTS

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UNIT 3
AUSTRALIA'S HEALTH IN A GLOBALISED WORLD

AREA OF STUDY 1

Understanding health and wellbeing

OUTCOME 1

Explain the complex, dynamic and global nature of health and wellbeing, interpret and apply Australia's health status data and analyse variations in health status

1 Concepts of health and wellbeing 3

2 Measuring health status 48

3 Factors influencing health status and burden of disease 81

4 Variations in health status between population groups 127

AREA OF STUDY 2

Promoting health and wellbeing

OUTCOME 2

Explain changes to public health approaches, analyse improvements in population health over time and evaluate health promotion strategies

5 Changes in Australia's health status 190

6 Australia's health system 232

7 Targets of health promotion in Australia 264

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1 Concepts of health and wellbeing

1.1 Overview

Key knowledge

- Concepts of health and wellbeing (including physical, social, emotional, mental and spiritual dimensions) and illness, and the dynamic and subjective nature of these concepts
- Benefits of optimal health and wellbeing and its importance as a resource individually, nationally and globally
- Prerequisites for health as determined by the WHO including peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity

Key skills

- Explain the dynamic and subjective nature of the concepts of health and wellbeing and illness
- Describe interrelationships between dimensions of health and wellbeing
- Explain the individual and collective importance of health and wellbeing as a resource
- Describe global benefits of the pursuit of optimal health and wellbeing
- Identify the WHO's prerequisites for health and explain their links to improved health outcomes

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FIGURE 1.1 Optimal health and wellbeing is a resource for individuals, countries and the global population.



KEY TERMS

Chronic condition any disease or condition that lasts a long time (usually longer than six months). It usually can't be cured and therefore requires ongoing treatment and management. Examples include arthritis and asthma.
Civic participation refers to involvement in a community group such as a union, professional association, political party, environmental or animal welfare group, human and civil rights group, or body corporate or tenants' association.
Communicable diseases infectious diseases which are transmitted from the environment; including through air, water, food and other infected organisms (including other humans)
Dimensions of health and wellbeing these are the variables that influence an individual's level of overall health and wellbeing. The variables, frequently referred to as dimensions, are physical, social, emotional, mental and spiritual.
Disease a physical or mental disturbance involving symptoms, dysfunction or tissue damage
Dynamic continually changing
Emotional health and wellbeing relates to the ability to express emotions and feelings in a positive way. Emotional health and wellbeing is about the positive management and expression of emotional actions and reactions as well as the ability to display resilience. Emotional health and wellbeing is the degree to which an individual feels emotionally secure and relaxed in everyday life.
Equilibrium a state of balance and/or calmness
Health and wellbeing the state of a person's physical, social, emotional, mental and spiritual existence, characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged
Illness a subjective concept related to personal experience of a disease or injury
Infirmity the quality or state of being weak or ill; often associated with old age
Mental health and wellbeing the current state of wellbeing relating to a person's mind or brain and the ability to think and process information. A mentally healthy brain enables an individual to positively form opinions, make decisions and use logic.
Pandemic the spread of infectious disease through human populations across a large region such as multiple continents or worldwide
Pathogens bacteria, viruses and other microbes that can cause disease
Physical health and wellbeing relates to the functioning of the body and its systems; it includes the physical capacity to perform daily activities or tasks
Productivity relates to the efficiency of production of goods and services. Productivity is measured by the amount of output produced per unit of input
Social health and wellbeing relates to the ability to form meaningful and satisfying relationships with others and the ability to manage or adapt appropriately to different social situations. It also includes the level of support provided by family and within a community to ensure that every person has equal opportunity to function as a contributing member of the society.
Spiritual health and wellbeing relates to ideas, beliefs, values and ethics that arise in the minds and conscience of human beings. It includes the concepts of hope, peace, a guiding sense of meaning or value, and reflection on your place in the world.
Subjective influenced by or based on personal beliefs, feelings or opinions
Vector a living thing that carries and transmits pathogens to other living things

on Resources

studyON

To access key concept summaries and past VCAA exam questions, download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0002).

1.2 Concepts of health and wellbeing and illness

KEY CONCEPT Understanding the dynamic and **subjective** nature of the concepts of health and wellbeing and illness

The concepts of 'health and wellbeing' and 'illness' are explored in this section.

1.2.1 What is health and wellbeing?

Understanding the concept of **health and wellbeing** is important for gaining an accurate awareness of the quality of people's lives in Australia. This understanding allows areas for improvement to be identified and targeted. A deep understanding of health and wellbeing will also allow for predictions to be made about the likely effect that introduced strategies and actions will have on the people they are targeting. Health and wellbeing are concepts that were usually considered separately in the past. In modern society, however, they are often considered together, and refer to the overall state of a person's physical, social, emotional, mental and spiritual existence and is characterised by an **equilibrium** in which the individual feels happy, healthy, capable and engaged.

In this section, the terms 'health' and 'wellbeing' will first be explored separately. Once each term is explored and discussed, the concept of 'health and wellbeing' becomes clearer.

In the past, health was often seen as relating to the body (the physical dimension), and more specifically the absence of **disease**. If a person was not sick or in pain, they were seen to be in a good state of health. In 1946 the World Health Organization (WHO) developed the first globally accepted definition of health which viewed health as a positive concept:

Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or **infirmity**.

THE WORLD HEALTH ORGANIZATION (WHO)

When delegates first met to form the United Nations in 1945, establishing a global health body was discussed. The World Health Organization officially came to life in 1948 as the branch of the United Nations concerned with promoting health and wellbeing globally. More than 60 years later, the WHO stands as a global health force offering leadership on global health matters, providing direction for research and technical support to countries, and gathering evidence on and assessment of health trends.

FIGURE 1.2 The WHO headquarters in Geneva, Switzerland



This definition was significant because it was the first time that health had been considered as being more than physical health. It also acknowledged that the absence of disease is only one aspect of health, emphasising that health is a positive concept and not only related to whether a person is sick or not.

Although the WHO definition moves beyond the physical characteristics of health, it is still limiting because it doesn't give everyone the opportunity to be considered healthy. 'Complete' wellbeing in all dimensions is difficult to achieve and beyond the capacity of most people.

Forty years after this definition was drafted, it was clarified by adding that 'to reach a state of complete physical, mental and social wellbeing,

FIGURE 1.3 Health and wellbeing moves beyond the physical aspect and includes social, emotional, mental and spiritual health and wellbeing.



an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment'. Being healthy is essential in realising aspirations and satisfying needs and, according to the WHO, 'health is, therefore, seen as a resource for everyday life, not the objective of living'.

The clarification provided by the WHO makes the concept of health more inclusive and achievable. The notion of complete wellbeing is clarified by stating that health is an individual concept and will differ from person to person depending on many factors, such as health outcomes, biological and sociocultural factors, and the environments in which people live.

Although not identified in the original WHO definition, emotional and **spiritual health and wellbeing** are dimensions that have been an increasing focus as aspects of overall health and wellbeing and will therefore also be considered in this section.

The WHO definition of health makes reference to the concept of 'wellbeing'. Wellbeing is related to health and has been used frequently in recent years to describe how well an individual is living. Like health, wellbeing is not just the absence of disease or illness. Wellbeing is a concept that takes health outcomes into account, but also considers other factors in a person's life such as happiness and life satisfaction. Wellbeing is sometimes described as how a person feels about themselves and their life.

As health and wellbeing are closely related concepts, they will be considered together in this study and will be taken to refer to the state of a person's physical, social, emotional, mental and spiritual existence and is characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged (see figure 1.4).

FIGURE 1.4 Overall health and wellbeing includes the five dimensions of health and how an individual feels about their life.



All aspects of an individual's life contribute to their overall level of health and wellbeing. The Better Health Channel identifies a range of factors that are particularly influential on the overall level of health and wellbeing experienced (see figure 1.5). Some of these factors, for example 'a sense of belonging', relate specifically to a dimension of health and wellbeing (in this case, spiritual). Other factors, such as 'regular exercise', influence a dimension of health and wellbeing by enhancing the level of fitness (in this case, physical).

The health and wellbeing experienced by an individual is **dynamic**, meaning that it is constantly changing. These changes are often gradual and may not be obvious as they are happening. For example, gaining weight, the changing nature of relationships, improvements in self-esteem and developing a sense of purpose in life all relate to health and wellbeing, and often occur over a long period of time. Health and wellbeing can also change quickly. It can be good one moment but then events such as accidents, illness, relationship breakdown and stressful events can alter the state of health and wellbeing rapidly. Health and wellbeing also has the potential to improve quickly. A person with a migraine who is experiencing poor health and wellbeing can rest and possibly take medication that can return them to good health and wellbeing.

FIGURE 1.5 The Better Health Channel identifies a range of factors that are particularly influential on overall health and wellbeing.



In modern times, the concept of health and wellbeing is viewed in many different ways and is therefore said to be **subjective**. Although not being sick is still a fundamental aspect of health and wellbeing for most people, a number of factors influence the way people view health and wellbeing such as age, fitness, body weight, social networks, income, occupation, education, media and culture. For example:

- **Physical health and wellbeing** often deteriorates over time, so an elderly person may view health and wellbeing as the ability to carry out tasks independently such as living in their own home, cooking, cleaning, washing, shopping and socialising. As people get older, the absence of disease may be particularly important in relation to health and wellbeing.
- A person with a **chronic condition** may see health and wellbeing in relation to the management of their condition. If their condition is being adequately managed and is having minimal impact on their life, they may see themselves as experiencing good health and wellbeing.
- An elite sportsperson may view health and wellbeing as the absence of sport-related injuries, the ability to train at full capacity, high levels of fitness and the ability to compete at the highest level.
- Parents of young children may view health and wellbeing as a concept related to their ability to function in their job, spend time with their children and provide for their family.

- A year 12 student may see health and wellbeing as a concept related to their academic performance, sporting participation and physical and social functioning.
- A person living in a community with severe health concerns, such as in an aged care facility or nursing home, might consider themselves in a state of positive health and wellbeing if they are less sick than their peers, even if they have a serious disease or illness.
- Indigenous Australians often relate optimal health and wellbeing to having a strong connection to the land and their past (see the following case study on Indigenous perspectives).

CASE STUDY

Indigenous perspectives on health and wellbeing

Land is fundamental to the wellbeing of Aboriginal people. The land is not just soil or rocks or minerals, but a whole environment that sustains and is sustained by people and culture. For Indigenous Australians, the land is the core of all spirituality and this relationship and the spirit of 'country' is central to the issues that are important to Indigenous people today.

All of Australia's Aboriginal people were semi-nomadic hunters and gatherers, with each community having its own territory from which they 'made their living'. These territories or 'traditional lands' were defined by geographic boundaries such as rivers, lakes and mountains. They understood and cared for their different environments, and adapted to them.

> *We cultivated our land, but in a way different from the white man. We endeavoured to live with the land; they seemed to live off it. I was taught to preserve, never to destroy.*
> Aboriginal elder Tom Dystra

Indigenous knowledge of the land is linked to their exceptional tracking skills based on their hunter and gather life. This includes the ability to track down animals, to identify and locate edible plants, to find sources of water and fish.

Aboriginal and Torres Strait Islander people identify themselves through their land areas, their relationship to others and their language and stories — which may be expressed through ceremony, the arts, family, religion, and sports. Cultural heritage is passed on from one generation to the next.

FIGURE 1.6 The land is particularly important for the health and wellbeing of Indigenous Australians.



There were about 600 different clan groups or 'nations' around the continent when Europeans arrived, many with distinctive cultures and beliefs. Their 'territories' ranged from lush woodland areas to harsh desert surroundings. Different groups developed different skills and built a unique body of knowledge based on their particular environment.

The system of kinship put everybody in a specific relationship to each other as well special relationships with land areas based on their clan or kin. These relationships have roles and responsibilities attached to them.

Kinship influences marriage decisions and governs much of everyday behaviour. By adulthood people know exactly how to behave, and in what manner, to all other people around them as well as in respect to specific land areas. Kinship is about meeting the obligations of one's clan, and forms part of Aboriginal Law, sometimes known as the Dreaming.

Language is vitally important in understanding Indigenous heritage as much of their history is an oral history. Hundreds of languages and dialects existed (although many are now extinct), and language meaning, as well as geographic location, is used today to identify different groups.

Source: Adapted from http://www.australia.gov.au/about-australia/australian-story/austn-indigenous-cultural-heritage.

Case study review

1. Explain ways that land promotes health and wellbeing of Indigenous Australians.
2. How does Tom Dystra compare the use of land between Indigenous and non-Indigenous Australians?
3. Discuss how kinship can promote health and wellbeing among Indigenous Australians.

1.2.2 Illness

Illness is a concept that relates to negative aspects of health and wellbeing. Disease is a term that is often associated with illness and, although these concepts are related, they are not the same. According to the Australian Institute of Health and Welfare (2014), 'a disease is a physical or mental disturbance involving symptoms, dysfunction or tissue damage, while illness is a more subjective concept related to personal experience of a disease'. Just as wellbeing relates to how an individual feels about and experiences their health, illness relates to how a person feels about, and experiences, disease and injury.

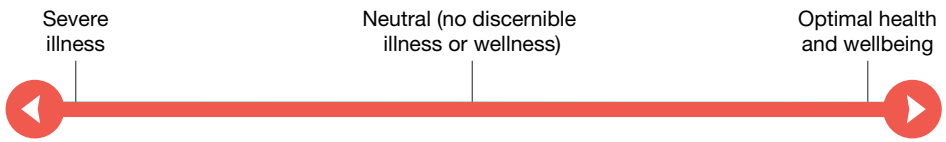
Diseases can be physical or mental in nature and can range from mild discomfort to severe pain. Injuries also vary significantly in their severity. Just like health and wellbeing, the level of illness changes constantly as a person experiences disease or injury. These changes may be rapid and produce obvious changes, such as the breaking of a bone, or gradual and difficult to notice, such as the healing of a broken bone. Many diseases and injuries follow a particular course and may get worse initially, and then over time, often have the potential to improve with treatment and rest causing levels of illness to change as well.

Although some diseases and injuries are chronic, others can come and go, which further contributes to illness being a dynamic concept.

Different people may experience diseases and injuries in different ways. This can affect the level of illness experienced and reflects the subjective nature of this concept. An individual's level of illness may be influenced by a range of factors including the number and severity of the diseases experienced, the age of the individual and past experiences of disease and injury. For example, a person with a high threshold for pain may experience a lower level of illness than a person with a low threshold for pain, even if their diseases are the same. An elderly person may be more physically fragile than a younger person, so the disease may take a greater toll, contributing to higher levels of illness for the elderly person. Two people with the same disease may experience different levels of illness as a result of their past experiences with disease.

The concepts of health and wellbeing and illness can be considered as a continuum, with optimal health and wellbeing at one end, and severe illness down the other (see figure 1.7). Those in the middle of the continuum would not be experiencing optimal health and wellbeing or severe illness, but would sit somewhere in between.

FIGURE 1.7 Health and wellbeing and illness can be considered as a continuum.



1.2 Activities

1. Draw and annotate a picture of a person displaying characteristics of good health and wellbeing. Compare your results with others in the class.
2. Conduct a survey to collect information on what health and wellbeing means to a range of people. Collate your results and prepare a brief report summarising your findings.

1.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the WHO definition of health? Why might this definition have its limitations?
2. Why was the WHO definition of health significant when it was written?
3. Briefly explain what is meant by 'health and wellbeing'.
4. Identify the five dimensions of health and wellbeing.

5. How is health and wellbeing different from illness?
6. Briefly explain the difference between disease and illness.

1.2 Exercise 2 APPLY your knowledge

1. Devise your own definition of health and wellbeing. Share your results with others in the class.
2. Select three factors identified in figure 1.5 and brainstorm ways that each one could impact on overall health and wellbeing.
3. (a) Discuss why health and wellbeing is said to be subjective.
   (b) Identify five factors that may influence the way an individual views health and wellbeing.
4. Select two factors from part (b) and explain how each may influence how the individual views health and wellbeing.
5. Use examples to discuss the dynamic nature of illness.
6. Briefly explain why health and wellbeing and illness can be considered on a continuum.
7. Brainstorm factors that could contribute to different levels of illness experienced by two people with the same disease.

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1.2 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

1.3 Dimensions of health and wellbeing

KEY CONCEPT Exploring the dimensions of health and wellbeing

The WHO definition of health acknowledges that there are a range of **dimensions of health and wellbeing** — namely the physical, mental and social dimensions. In recent years, there has been an increased focus on the emotional and spiritual dimensions of health and wellbeing, which will also be considered in this section.

The physical dimension of health and wellbeing is often the easiest to observe and as a result, is the main focus of individuals, groups, government organisations and non-government organisations. Most statistics relating to health and wellbeing also tend to focus on the physical dimension. However, it is important to remember that the physical dimension is only one part of health and wellbeing, and as the social, emotional, mental and spiritual dimensions also contribute to a person's overall level of health and wellbeing, they will also be discussed in this section and referred to throughout the remainder of this book.

1.3.1 Physical health and wellbeing

'Physical health and wellbeing relates to the functioning of the body and its systems; it includes the physical perform daily activities or tasks capacity to. Physical health is supported by factors such as regular physical activity, consuming a balanced diet, having appropriate rest/sleep, maintaining an ideal body weight, and the absence of illness, disease or injury' (VCAA, 2017).

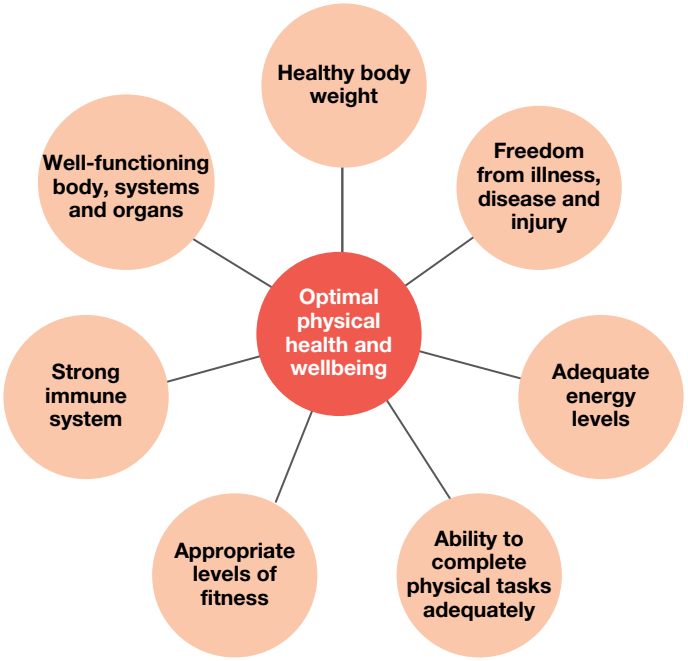
EXAM TIP

The five dimensions of health and wellbeing are defined in the VCAA document 'Advice for Teachers'. The definitions provided are quite detailed and do not necessarily have to be memorised. The definition of each dimension in the key terms section of this topic provide a summary version, with the whole definition included as each dimension is discussed. The mark allocation should be used as a guide to determine how much detail to include for any 'definition' or 'explanation' question.

Simply 'not being sick' is perhaps the most basic level of physical health and wellbeing, but there are many other aspects of the physical dimension. A person may be free from disease and injury, but may not have enough energy or strength to complete the tasks they need to. They may be unfit or overweight, all of which relate to physical health and wellbeing. It is only when the whole body and its systems are functioning to the best of their ability that a person can be considered as having optimal physical health and wellbeing.

Having a balanced diet, doing regular physical activity and getting enough rest and sleep are all factors that support physical health and wellbeing. Although these factors *promote* physical health and wellbeing, it is important to note that they are not specifically part of the body or its systems and are therefore not considered to be characteristics of physical health and wellbeing.

FIGURE 1.8 Characteristics of optimal physical health and wellbeing



Someone with optimal physical health and wellbeing may demonstrate the characteristics displayed in figure 1.8.

1.3.2 Social health and wellbeing

'**Social health and wellbeing** relates to the ability to form meaningful and satisfying relationships with others and the ability to manage or adapt appropriately to different social situations. It also includes the level of support provided by family and within a community to ensure that every person has equal opportunity to function as a contributing member of the society. Social health and wellbeing is supported by strong communication skills, empathy for others and a sense of personal accountability' (VCAA, 2017).

FIGURE 1.9 A supportive network of friends is an aspect of optimal social health and wellbeing.

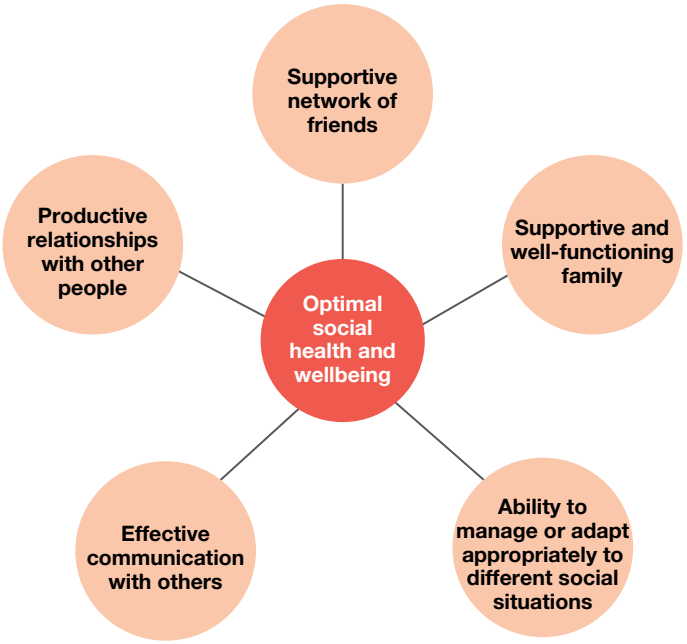


The quality of relationships that individuals have with others is a key aspect of social health and wellbeing. Humans are social beings, and interacting with others is an important aspect of human existence. Sometimes these interactions are positive and add value to life. When an individual has a supportive group of friends, a supportive and well-functioning family and maybe an intimate relationship with another person, their social health and wellbeing is optimal. At other times, such interactions may not be as effective: a person may be in conflict with friends and family, or in the process of breaking up with a partner. Under these circumstances, social health and wellbeing would not be considered optimal. Like all dimensions of health and wellbeing, there will be changes over time. When optimal social health and wellbeing is not being experienced, there is potential for improvement.

Throughout the course of a typical day, most people will find themselves in a range of social situations, interacting with school friends, family members, employers, coaches and teachers. Being able to effectively adapt to different social interactions by adjusting behaviour and communication enhances social experiences and contributes to higher levels of social health and wellbeing.

Factors relating to optimal social health and wellbeing are identified in figure 1.10

FIGURE 1.10 Characteristics of optimal social health and wellbeing



1.3.3 Emotional health and wellbeing

'**Emotional health and wellbeing** relates to the ability to express emotions and feelings in a positive way. Emotional health and wellbeing is about the positive management and expression of emotional actions and reactions as well as the ability to display resilience. Emotional health and wellbeing is the degree to which an individual feels emotionally secure and relaxed in everyday life' (VCAA, 2017). Characteristics associated with optimal emotional health and wellbeing are identified in figure 1.11.

FIGURE 1.11 Characteristics of optimal emotional health and wellbeing

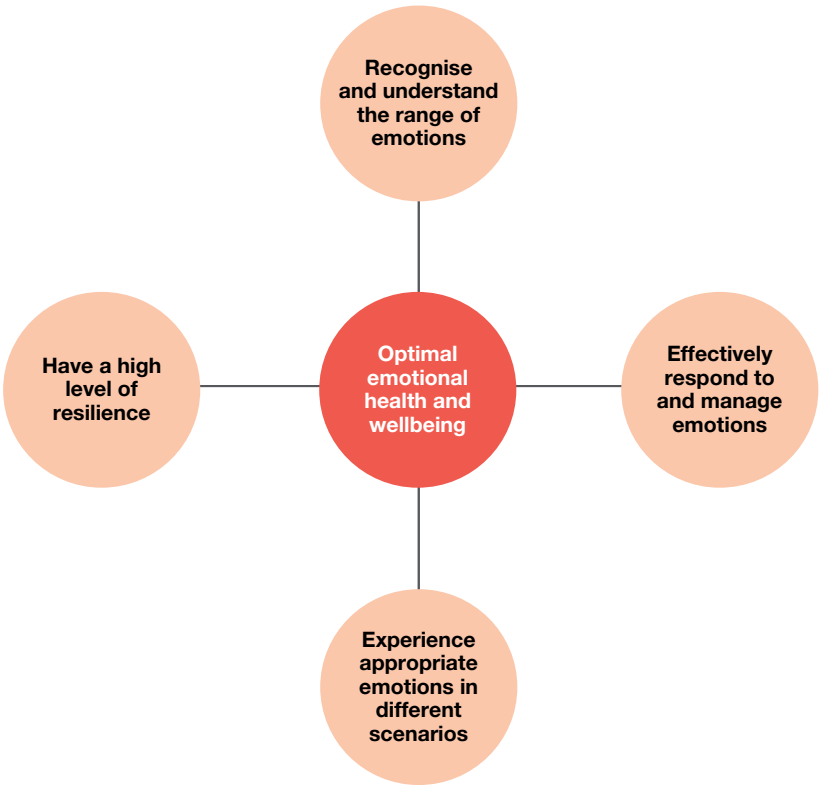


FIGURE 1.12 Humans experience a range of emotions. When experienced at appropriate times, emotional health and wellbeing is more likely to be optimal.



Experiencing a variety of emotions is part of human life. Researchers have identified a range of emotions, including:

- anger
- fear
- sadness
- disgust
- embarrassment
- surprise
- happiness
- excitement
- satisfaction
- amusement.

Although the basic emotions are experienced by most people at some stage in their lives, they often experience them in different ways and in different circumstances. Consider embarrassment. Some people may feel embarrassed in a situation that would not cause embarrassment to others. They may also experience different degrees of embarrassment ranging from slight discomfort to severe anxiety. The situations in which embarrassment is experienced, and the manner in which it is experienced, are often influenced by the individual's level of emotional health and wellbeing.

People rarely experience one emotion on its own and are more likely to experience a mix of emotions. For example, changing schools as a child might trigger a range of emotions ranging from excitement to anxiety. These emotions can exist at the same time or occur one after the other. An emotionally healthy individual would recognise these emotions and be able to manage them effectively.

The manner in which people recognise and respond to the emotions they experience can either promote or detract from their overall health and wellbeing. When an individual can accurately identify the emotion

experienced, acknowledge why they are feeling a certain way, and act on the emotion in a responsible and mature manner, emotional health and wellbeing is said to be optimal. This does not mean that the individual only experiences positive or desirable emotions such as happiness and amusement. Emotions such as anger, sadness and fear are an important part of life and are appropriate in many scenarios. They can assist in identifying aspects of life that require attention. Research shows that experiencing and accepting such emotions is vital to our overall health and wellbeing, and trying to block these emotions can actually contribute to poor health and wellbeing. However, if these emotions become excessive, irrational, distressing or interfere with daily activities, emotional health and wellbeing can be adversely affected.

Resilience relates to the ability to effectively deal with adverse or negative events and the associated emotions that occur throughout life. Such events include the death of a loved one, relationship breakdown, conflict with family and friends, financial stress and job loss. When these events occur, it is natural to experience a range of negative emotions. A resilient individual will recognise, process, acknowledge and respond to these emotions effectively which assists in recovering from negative experiences. An individual's level of resilience can fluctuate over time and is influenced by a range of factors including levels of stress and social support. Having high levels of resilience is a key component of optimal emotional health and wellbeing.

1.3.4 Mental health and wellbeing

'**Mental health and wellbeing** is the current state of the mind or brain and it relates to the ability to think and process information. A mentally healthy brain enables an individual to positively form opinions, make decisions and use logic. Mental health and wellbeing is about the wellness of the mind rather than illness. Mental health and wellbeing is associated with low levels of stress and anxiety, positive self-esteem, as well as a sense of confidence and optimism' (VCAA, 2017). The human mind is a complex thing, and it is what sets us apart from other animals. The way the mind functions determines mental health and wellbeing. When stress levels are low and a person feels relaxed and positive about themselves and life, mental health and wellbeing can be said to be optimal. Conversely, if a person is stressed and experiencing negative thought patterns about themselves, others, or the world in general, mental health and wellbeing may not be optimal.

Mental disorders are often associated with poor mental health and wellbeing, but these concepts are not the same. Mental disorders relate to conditions that significantly impact thought processes and mental functioning, such as depression and anxiety. Mental health and wellbeing, on the other hand, relates to the overall functioning of the mind and can be positive or negative. All people have a level of mental health and wellbeing, whereas only some people have a mental disorder. Mental disorders have the potential to contribute to high levels of illness if they are not managed appropriately.

FIGURE 1.13 Stress levels contribute significantly to the overall level of mental health and wellbeing experienced.



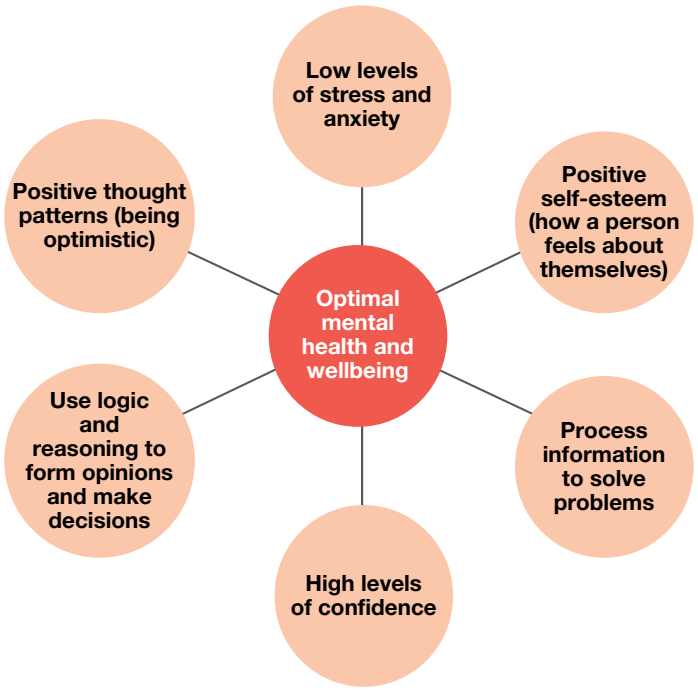
Self-esteem refers to how people feel about themselves. Having positive self-esteem means that people feel good about themselves. Self-esteem influences behaviour, as those with positive self-esteem are more likely to speak their mind and act independently and responsibly.

Confidence relates to believing in one's own worth and ability to succeed. Having confidence can help people accept challenges, such as volunteering to give a speech, and increase their chances of success because they are not concentrating on failure.

Individuals may have different levels of confidence in different aspects of their lives. Although it is based on past experiences, confidence can change rapidly as a result of factors such as one's personal appearance or comments made by others.

As with the other dimensions of health and wellbeing, there are a number of characteristics relating to the mental health and wellbeing experienced by an individual. These are summarised in figure 1.14.

FIGURE 1.14 Characteristics of optimal mental health and wellbeing



WHAT IS THE DIFFERENCE BETWEEN EMOTIONAL AND MENTAL HEALTH AND WELLBEING?

Although emotional and mental health and wellbeing are related, they are not the same. Emotional health and wellbeing relates to appropriately experiencing, identifying and managing emotions, whereas mental health and wellbeing relates to the nature of feelings and thoughts that a person is having. Good emotional health and wellbeing does not mean that emotions and feelings are always positive. In fact, experiencing only positive emotions and feelings can indicate that emotional health and wellbeing is not optimal. As humans, we all experience negative events which can, and should, cause us to experience negative emotions and feelings. During these times, mental health and wellbeing may not be optimal, but if the emotions and feelings experienced are appropriate for the given situation, emotional health and wellbeing can be considered positive.

Experiencing stress is an aspect of mental health and wellbeing, but the manner in which the individual recognises and deals with the associated emotions relates to emotional health and wellbeing. For example, the stress of the loss of a loved one is an event that often causes mental health and wellbeing to be impacted in a negative way. The person may feel sad and experience grief. An emotionally healthy person can identify and acknowledge these feelings and manage them appropriately.

'Emotions' and 'mood' are two terms that are often interpreted as meaning the same thing, but they are distinct concepts. Emotions usually relate to emotional health and wellbeing, and moods often relate to mental health and wellbeing. Emotions are often experienced in the short term, but they can be intense. Emotions are also likely to have a distinct and identifiable cause such as a disagreement with a friend, the loss of a loved one, experiencing success at school or being around people who make you happy. Mood is more closely related to mental health and wellbeing, and is usually milder than an emotion but longer lasting. In many cases, the cause of a mood is difficult to identify. For example, a person might feel particularly gloomy or optimistic for a number of days without any specific reason.

1. Using examples, explain the difference between mental and emotional health and wellbeing.
2. Does optimal emotional health and wellbeing mean never feeling sad or down? Explain.

1.3.5 Spiritual health and wellbeing

'Spiritual health and wellbeing is not material in nature, but relates to ideas, beliefs, values and ethics that arise in the minds and conscience of human beings. Spiritual health and wellbeing includes the concepts of hope, peace, a guiding sense of meaning or value, and reflection on a person's place in the world. Spiritual health and wellbeing can be highly individualised; for example, in some traditions, spiritual health and wellbeing may relate to organised religion, a higher power and prayer, while in other practices it can relate to morals, values, a sense of purpose in life, connection or belonging' (VCAA 2017).

A sense of belonging is a human need. A sense of belonging occurs when a person feels like a member or a part of the society or world in which they live. Belonging assists in seeing value in life and can help in dealing with painful experiences. Individuals who have a sense of belonging realise that everyone goes through hard times and that they are not alone. They are also more likely to feel supported in times of need. When individuals feel that they are connected to others and to the world in general, they are more likely to find positive aspects in negative events and deal with these situations in a more positive manner. Many people join clubs or organisations to help satisfy the need to belong, but this can also occur in informal ways such as friendship groups and daily interactions with others. All people can make a difference to the world they live in and doing this promotes feelings of belonging. People often find a sense of belonging in a range of different settings, including:

- family
- friendship groups
- volunteer groups
- sporting and social clubs
- the workplace
- school
- place of worship (such as temple, church, mosque or synagogue).

Establishing values and beliefs is a key component of spiritual health and wellbeing. Values relate to what an individual feels is important in life, and can include valuing family connections or freedom of speech. Beliefs relate to what an individual feels to be true or right, even though the belief may be unproven such as the belief in life after death. Examples of values and beliefs are shown in tables 1.1. and 1.2. Both values and beliefs guide the behaviours of individuals and influence the decisions they make. If a person values physical fitness for example, they may be less likely to binge drink or overconsume unhealthy foods. Living according to one's values and beliefs can assist in promoting a sense of satisfaction with life.

TABLE 1.1 Examples of values

Values
Education
Tidiness
Fitness
Listening
Acceptance
Creativity
Career success
Wealth
Manners
Appearance
Fun
Socialisation

TABLE 1.2 Examples of beliefs

Beliefs
God exists.
The mind can cure the body.
All people are created equal.
The planet is a resource to be used for human gain.
There is life after death.
Heaven exists.
It is wrong to steal.
Animals have rights.
Immigration should be encouraged.
People evolved through evolution.
Wealth should be shared equally.
Success is achieved through hard work.

Finding meaning and purpose in human existence and determining what is meaningful in our own lives are related to values and beliefs, which are key characteristics of spiritual health and wellbeing. Meaning and purpose relate to an individual's sense of who they are and why they were born. Throughout history, humans have asked themselves what are sometimes referred to as 'life's ultimate questions':

- Who am I?
- Why am I here?
- What is the meaning of my life?

FIGURE 1.15 Peace and harmony are characteristics of spiritual health and wellbeing, and they can be promoted by practices such as yoga and meditation.



Although these questions may not be asked specifically or consciously, they form the basis for which people decide what they value and what they want to do and achieve in their life. The answers to these questions formulate an individual's meaning and purpose in life. Examples of purpose include:

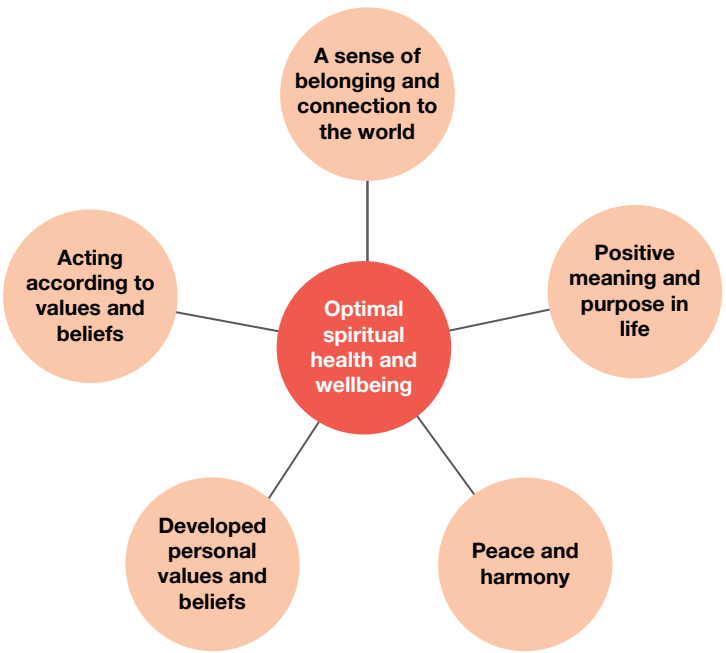
- To tear down the walls that separate people who have significant disabilities from people who are able bodied.
- To speak up for the rights of all living creatures to ensure that all can live in harmony.
- To assist children in realising their true potential by challenging them and encouraging them to be their best.
- To create music that brings joy to people from all walks of life.

Peace and harmony are often characteristic of positive spiritual health and wellbeing. Accepting that we cannot control all that happens in our life, and looking for positives in all situations, can contribute to a level of health and wellbeing that enables people to deal more effectively with misfortune.

Many people associate religion with spirituality. Religion provides a structured and organised form of spirituality, but spirituality exists for many people without connection to an organised religion.

Characteristics of optimal spiritual health and wellbeing are shown in figure 1.16.

FIGURE 1.16 Characteristics of optimal spiritual health and wellbeing



EXAM TIP

When linking to a dimension of health and wellbeing, ensure a link is made to a specific aspect of the dimension. For example, if explaining how income can influence physical health and wellbeing, you will be required to link to a specific part of this dimension, for example:

> Earning a decent income can mean that individuals have money for resources such as nutritious food. This increases the ability of people to consume a healthy diet which promotes a healthy body weight and provides optimal levels of energy.

Although food intake will influence physical health and wellbeing, it is not a part of this dimension and if a specific link is not made to an aspect of physical health and wellbeing such as body weight or levels of energy, full marks cannot be awarded.

1.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Define the five dimensions of health and wellbeing. Give two examples of characteristics that relate to each.
2. Classify each of the following examples as a physical, social, emotional, mental or spiritual dimension of health and wellbeing.
   (a) A sense of belonging to a community group
   (b) Having an asthma attack
   (c) Positive thought patterns
   (d) Recognising the difference between embarrassment and anxiety
   (e) Experiencing productive relationships with school mates
   (f) Having adequate levels of energy
   (g) Experiencing positive self-esteem
   (h) Having effective communication with others
   (i) Experiencing sadness at appropriate times
   (j) Establishing and acting according to values and beliefs

1.3 Exercise 2 APPLY your knowledge

1. 'Religion and spirituality are the same thing'. Discuss this statement.
2. Brainstorm the range of factors that you feel influence your own level of health and wellbeing. Remember that health and wellbeing is not just physical.
3. Physical health and wellbeing is the most significant dimension of health and wellbeing. To what extent do you agree with this statement?

studyON

1.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

1.4 Interrelationships between the dimensions of health and wellbeing

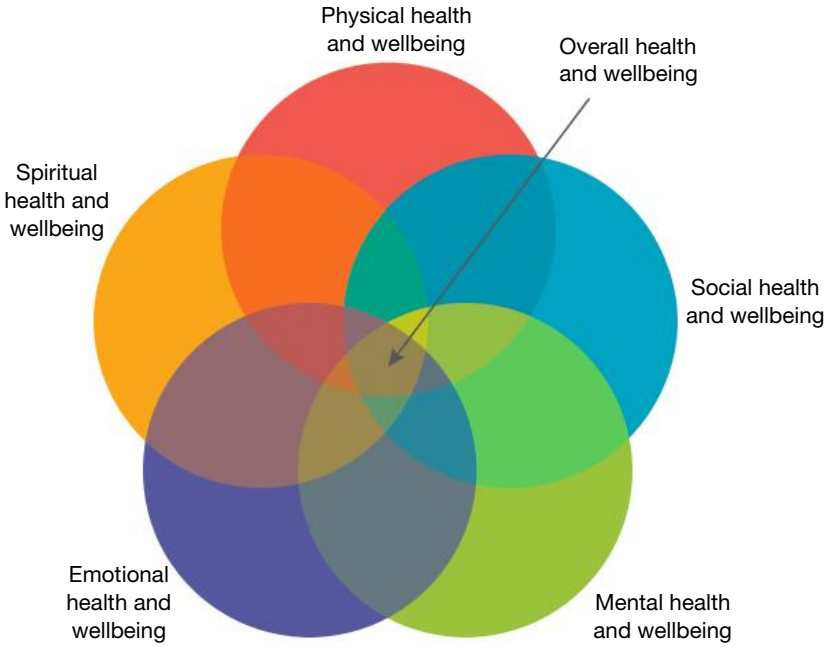
KEY CONCEPT Understanding the interrelationships between the dimensions of health and wellbeing

The five dimensions of health and wellbeing are interrelated; that is, they all affect each other. Although they will not all be affected in the same way or to the same degree, a change in one will usually have some

effect on the other four. For this reason, all five dimensions need attention in order to achieve optimal health and wellbeing.

Overall health and wellbeing is determined by the combined levels of health and wellbeing in the five dimensions as shown in figure 1.17. Each circle represents a dimension of health and wellbeing. They all influence each other, and all combine to produce the overall level of health and wellbeing experienced.

FIGURE 1.17 The five dimensions of health and wellbeing are interrelated and therefore affect each other.



When all five dimensions are as good as they can be, health and wellbeing is said to be optimal. Optimal health and wellbeing therefore refers to the highest level of health and wellbeing an individual can realistically attain at any particular time. However, everyone is born with a different genetic potential and is influenced by different environments. As a result, every individual's level of optimal health and wellbeing will be different.

Exactly how do the dimensions of health and wellbeing affect each other? It is impossible to state exactly how an individual's health and wellbeing will be affected by a particular event because everyone is unique and each situation is different. We can, however, predict *possible* effects on health and wellbeing.

It is useful to explore the manner in which the five dimensions of health and wellbeing can influence each other. Table 1.3 shows a mix of both positive and negative impacts on health and wellbeing, but remember that the impact on each dimension will largely depend on the individual and scenario in question. It is also possible to explore the possible impacts on the five dimensions of health and wellbeing in one particular scenario. Consider a person who has suffered a broken leg (physical health and wellbeing) and is recovering in hospital (figure 1.18). While in hospital and during the recovery phase, their health and wellbeing could be affected in numerous ways:

FIGURE 1.18 This individual's social, emotional, mental and spiritual health and wellbeing may be affected by his physical health and wellbeing.



- Physical health and wellbeing
  - may not be able to exercise, so fitness levels reduce
  - could gain weight as physical activity levels decrease
  - immune and other body systems may be affected by the food given in hospital (this could have positive or negative effects on health and wellbeing, depending on what the diet was like before)
- Social health and wellbeing
  - might make new friends in hospital
  - may get a lot of visits from family members they would not normally see
  - will not be able to socialise and interact with friends at school and during leisure time
- Mental health and wellbeing
  - may be depressed about missing out on socialising with friends and family
  - may experience negative thought patterns if they feel like they are a burden on their family
- Emotional health and wellbeing
  - could experience a range of emotions including frustration or feelings of loneliness and respond to these emotions appropriately
  - might be happy or sad to miss out on school and recognise these emotions accurately
  - may learn to deal with any negative emotions they are experiencing, therefore developing resilience
- Spiritual health and wellbeing
  - may feel supported by family and friends which can promote a sense of belonging and connection to the world around them
  - may accept that some aspects of life are out of their control, thereby promoting a sense of peace and harmony.

TABLE 1.3 How the five dimensions of health and wellbeing can influence each other

	Physical	Social	Mental	Emotional	Spiritual
Physical		When an individual has adequate levels of energy, they are physically able to participate in activities with friends which can enhance relationships.	An individual who is fit and physically capable of carrying out daily tasks is more likely to feel good about themselves and have positive self-esteem.	An individual who is sick may experience emotions such as fear and anger and respond appropriately to these emotions.	A person who is able to function physically due to adequate energy levels is more able to participate in community activities, which can enhance feelings of belonging.
Social	Strong social networks have been shown to reduce smoking rates and obesity, which can reduce the risk of a range of conditions including cardiovascular disease.		Having a close network of friends allows people to share problems with others, which can reduce stress.	Close social bonds allow individuals to be themselves and share their emotions with others which can assist in responding appropriately to them.	When a person has social bonds, they are more likely to feel connected to the world in which they live.

	Physical	Social	Mental	Emotional	Spiritual
Mental	Stress can lower immune system function and increase the risk of infectious diseases.	If a person is optimistic, they are more likely to interact in a positive way with friends and family, developing stronger relationships.		When using logic and reasoning, an individual may be better able to think clearly and fairly judge the emotions they are experiencing.	Stress is characterised by excessive self-focus. When an individual is focusing on themselves, they are less likely to feel connected to their community.
Emotional	If an individual can recognise that they are feeling sad and are taking action to deal with this emotion, they are more likely to participate in their normal activities such as exercise, which can enhance fitness.	An individual who can express their emotions can share their feelings with friends, which can promote more meaningful friendships.	If an individual can process emotions effectively, they may feel better about themselves, which enhances self-esteem.		Experiencing appropriate emotions (both positive and negative) can assist in a person feeling connected to their world and the events that occur in it.
Spiritual	When an individual has purpose in life, they are more likely to take care of themselves physically so they can fulfil their purpose. This can promote a healthy body weight.	If an individual feels connected to their society, they are more likely to treat people fairly, which can enhance relationships.	Believing that life has a positive meaning and purpose can enhance self-esteem and a sense of optimism.	If a person acts according to their values and beliefs, they may feel more comfortable with the emotions they experience throughout life.	

In the examples given, not all of the effects on health and wellbeing are negative. Sometimes a negative event can produce positive effects on one or more of the dimensions of health and wellbeing. You may have noticed that there is a range of effects on the various dimensions of health and wellbeing. It is also important to note that the effect on health and wellbeing will not always have a physical cause. For example, a relationship breakup (non-physical cause) can lead to a loss of appetite which can influence energy levels (physical health and wellbeing). If the newly single individual used to spend a lot of time with their partner's friends, they may now have to find a new group of friends (social). The person may experience a loss of confidence and doubt their own worth (mental). They may experience emotions such as loss, loneliness and anger (emotional). The groups in which they feel they belong may change (spiritual).

EXAM TIP

When showing interrelationships, it is important to ensure that the impact on the first dimension is used to show how the next dimension can be affected. If a particular scenario is required as the starting point (for example, being

educated), simply linking this scenario to each dimension does not show interrelationships. Interrelationships are only shown when the impact on one dimension of health and wellbeing is used to explain an impact on the second dimension. For example:

> Being educated means that the individual is more likely to understand the benefits of regular physical activity and therefore exercise regularly. Regular physical activity promotes levels of fitness which is an aspect of physical health and wellbeing. Being fit can enhance self-esteem which promotes mental health and wellbeing. Optimal self-esteem can mean that the individual is less likely to avoid social situations which can promote relationships and improve social health and wellbeing.

The following case study about Sandy looks at the effect of excessive stress on health and wellbeing.

CASE STUDY

Sandy's story

Sandy is a 26-year-old accountant who works for a large corporation in the city. She has many responsibilities and generally copes with these very well. Recently, she was given a large contract to work on. The demands of the contract are substantial, and her work life has begun to dominate her free time as well as her working hours. Sandy has been feeling more stressed at work. Despite this, she has felt good about herself for being trusted to work on this contract.

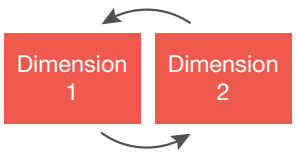
Sandy has found that she has had to cut back on her social activities and other things she enjoys, such as being a part of the local netball club and spending time with her family. Missing such interactions has made her feel disconnected and sad at times, but she has been able to manage these emotions. She has also reduced the amount of time spent at the gym and preparing healthy meals, which has caused her to gain some weight.

Case study review

1. Identify one example from Sandy's story that relates to each dimension of health and wellbeing.
2. For each dimension, identify how Sandy's health and wellbeing might have recently changed and justify your response.
3. Explain how the dimensions of health and wellbeing may be interrelated in Sandy's case.

EXAM TIP

When showing interrelationships between two dimensions of health and wellbeing, ensure you provide an example of how each dimension can affect the other:



The following provides an example of this:

A person has positive self-esteem (mental health and wellbeing). With positive self-esteem, individuals are less likely to avoid social situations which can enhance relationships promoting social health and wellbeing. With meaningful relationships, people can share any problems they have with others which can reduce levels of stress, promoting mental health and wellbeing.

1.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Discuss what it means when the dimensions of health and wellbeing are said to be interrelated.
2. Explain what is meant by 'optimal health and wellbeing'.

1.4 Exercise 2 APPLY your knowledge

1. Brainstorm reasons why every person has a different level of optimal health and wellbeing.
2. Either on your own or with a partner, brainstorm ways in which:
   (a) physical health and wellbeing could affect social, emotional, mental and spiritual health and wellbeing
   (b) social health and wellbeing could affect physical, emotional, mental and spiritual health and wellbeing
   (c) mental health and wellbeing could affect physical, social, emotional and spiritual health and wellbeing
   (d) emotional health and wellbeing could affect physical, social, mental and spiritual health and wellbeing
   (e) spiritual health and wellbeing could affect physical, social, emotional and mental health and wellbeing.
3. Use the following examples to show how two dimensions of health and wellbeing are interrelated.
   (a) Earning an income
   (b) Contracting influenza (the flu)
   (c) Having a close group of friends
   (d) Feeling a part of a community group
   (e) Having positive thought patterns and an optimistic outlook on life
4. 'When a person experiences a negative event (such as a relationship break-up), all the impacts on the various dimensions of health and wellbeing will be negative.' To what extent do you agree with this statement?

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1.4 Exercise 3 studyON: Past VCAA exam questions online only

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1.5 Optimal health and wellbeing as a resource

KEY CONCEPT Exploring the importance of health and wellbeing as a resource individually, nationally and globally

In 1986 the World Health Organization stated that to reach an optimal level of health and wellbeing, 'an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health (and wellbeing) is, therefore, seen as a resource for everyday life, not the objective of living'.

With this is mind, it becomes clearer that health and wellbeing is both a resource and an outcome. As a resource, optimal health and wellbeing can provide benefits for individuals, countries and the world as a whole.

on Resources

Teacher-led video Health and wellbeing as a resource (tlvd-0255)

1.5.1 Importance of health and wellbeing as a resource individually

Similar to other traits such as knowledge, social skills and creativity, health and wellbeing is a characteristic of human existence. Like these traits, health and wellbeing can be used to enhance human life, but cannot be directly traded or sold for goods and services.

On a basic level, optimal health and wellbeing reduces the risk of illness and premature death. The Australian Institute of Health and Welfare (2013) estimates that 4.5 million years of healthy life were lost in Australia in 2011 from either premature death or time lived with disease or injury.

As a result of reducing the risk of premature death, disease and injury, optimal health and wellbeing increases the ability of individuals to live free from pain and concentrate on activities that improve their lives such as studying, working and socialising. Optimal health and wellbeing also decreases stress and anxiety and promotes positive emotions such as happiness.

Being healthy can assist in creating a cycle of wellbeing. It allows individuals to work more effectively and improve their lives, which in turn promotes health and wellbeing. Optimal health and wellbeing benefits individuals in a number of ways (see figure 1.20).

FIGURE 1.19 Optimal health and wellbeing promotes restful sleep, which further enhances health and wellbeing by giving people more energy to participate in activities that enhance their lives.

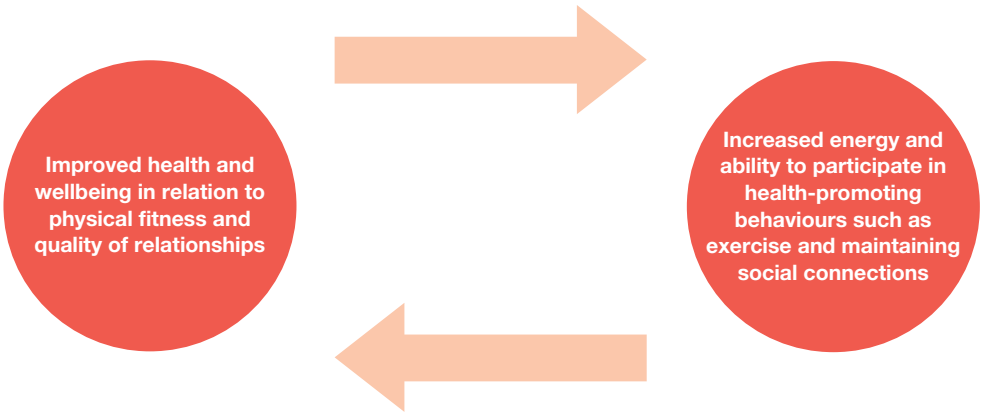


FIGURE 1.20 The importance of health and wellbeing for individuals



All of these processes contribute to improved health and wellbeing, which increases the ability of individuals to further promote or improve their health and wellbeing as the example in figure 1.21 illustrates.

FIGURE 1.21 Optimal health and wellbeing is a resource that can be used to further promote the health and wellbeing of individuals.



Optimal health and wellbeing also reduces healthcare costs for individuals. Disease and injury can incur significant health-related costs such as doctor's consultations and medication and individuals are often required to make financial contributions towards these costs. As a result, optimal health and wellbeing increases the amount of money that can be spent on other things such as education, housing, food, leisure pursuits and social activities.

Experiencing optimal health and wellbeing can improve quality of life. The individual may experience an increased ability to participate in health-promoting activities and behaviours, and is more likely to view life in a positive manner. This can mean that life is lived to the highest level possible.

As well as promoting health and wellbeing in individuals, a population with optimal levels of health and wellbeing provides benefits at both country and global levels.

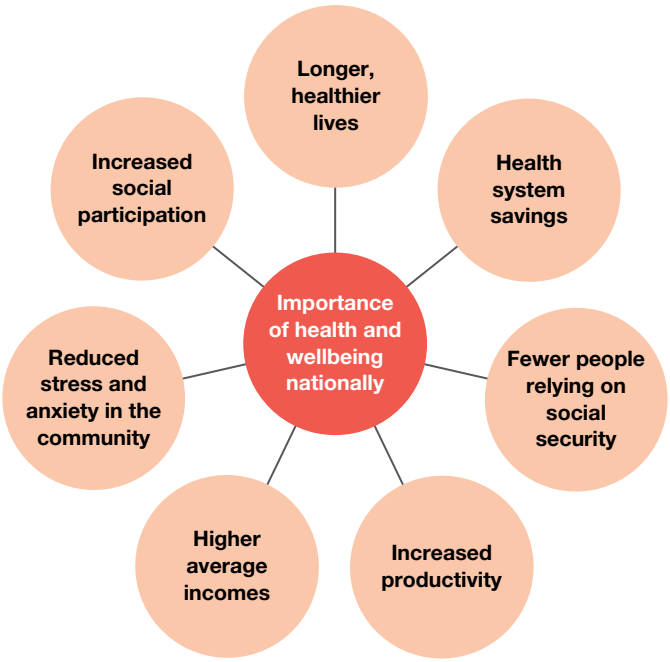
1.5.2 Importance of health and wellbeing as a resource nationally

In addition to its importance to individuals, optimal health and wellbeing has a number of social and economic benefits for a country's population as a whole (see figure 1.22).

Populations with optimal levels of health and wellbeing experience greater economic benefits such as higher average incomes, greater productivity, less absenteeism from work, less reliance on social security, and reduced healthcare and associated caring costs. Other benefits of optimal health and wellbeing for countries include improved life expectancy and other health outcomes, reduced levels of stress in the community, more participants in social activities such as community activities and volunteering, and less strain on the health system (contributing to shorter waiting lists for elective surgery for example).

The most basic way to examine the importance of health and wellbeing at a national level may be through measurable indicators. The measurable costs of health and wellbeing are often related to aspects of the

FIGURE 1.22 The importance of health and wellbeing nationally



physical dimension, but it is important to remember that illness in relation to any dimension will impact on the person as a whole and also contribute to lower levels of health and wellbeing for the population.

Optimal health and wellbeing decreases reliance on the health system, and this has economic benefits. Doctors' consultations, medication and other health services cost Australians over $180.7 billion in 2016–17. Many of these costs could be saved if all people experienced optimal health and wellbeing. In fact, the Royal Australian and New Zealand College of Psychiatrists estimated the economic cost of mental illness alone to be close to $100 billion a year. Savings due to improved health and wellbeing could be used to promote quality of life in Australia by making more money available for resources such as education, improving infrastructure including housing and transport systems, the development of new industries by confident individuals challenging themselves and trying new things, and providing social security for those experiencing hardship.

When populations are experiencing optimal health and wellbeing, they are more equipped to work productively. This increases **productivity** as individuals are more likely to be engaged with their job and work to the best of their ability. According to the report *The Health of Australia's Workforce* (Medibank Private 2005), it has been estimated that 'the healthiest Australian employees are almost three times more productive than their colleagues'. Further, 'employees with poor overall health status are far more likely to be absent from work, and are nine times more likely to have sick days, compared to healthy employees'. Optimal health and wellbeing therefore increases the ability of people to work and earn an income, and this in turn increases the economy of the country through higher taxation revenue. Fewer people rely on social security payments as a result of reduced unemployment, further enhancing the economy of the country.

The importance of optimal health and wellbeing from a social perspective is often difficult to measure, but is just as important as the economic benefits.

Optimal health and wellbeing reduces the risk of premature death and the development of illness and disease. As well as improving health indicators and outcomes from a population perspective, improved health and wellbeing serves to reduce levels of stress and anxiety that communities experience as a result of loved ones experiencing premature death, disease or injury. The health system also benefits from optimal health and wellbeing as the number of encounters with the health system (such as doctors' consultations and hospital admissions) reduces, thereby shortening waiting times for those who do require healthcare.

A population experiencing good health and wellbeing is more likely to participate in meaningful employment. Having a healthy and productive workforce assists in reducing the pressure on the workforce as a whole. When fewer people are taking time off work, all people can concentrate on their own jobs. This further decreases stress and other work-related pressures.

Levels of social participation are higher in populations experiencing optimal health and wellbeing. Social participation promotes feelings of belonging and also acts to provide vital resources and services to a society through activities such as volunteering and **civic participation**. Other examples of social participation include involvement in formal activities provided by organised groups such as sport or physical recreation groups, arts or heritage groups, and religious or spiritual groups or associations; and informal activities with friends and families, including social gatherings and the provision of support and care for those in need, such as the sick or immobile.

FIGURE 1.23 Good health and wellbeing contributes to productive employment.



Optimal health and wellbeing can create a cycle through generations. Parents experiencing good health and wellbeing have an increased capacity to adequately care for and raise their children. As a result, their children are more likely to experience optimal health and wellbeing themselves. This produces future generations who are able to provide for themselves and their families, and contribute to the society and country in which they live.

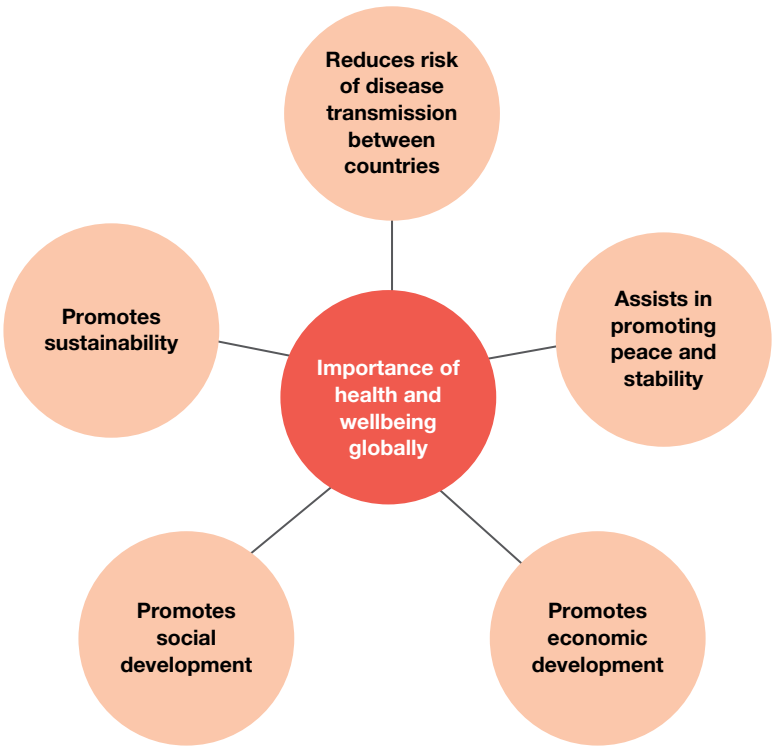
1.5.3 Importance of health and wellbeing as a resource globally

As well as being an important resource for populations within countries, optimal health and wellbeing provides a range of benefits for the population on a global scale as shown in figure 1.24.

Optimal health and wellbeing can reduce the risk of infectious or **communicable diseases** spreading between countries. Infectious or communicable diseases refer to diseases that are passed from one person to another from either direct or indirect contact:

- direct contact — through touch (e.g. chicken pox), sexual intercourse (e.g. syphilis, HIV), saliva and droplets from coughing (e.g. influenza), and through human waste such as faecal or oral transmission (e.g. hepatitis A)
- indirect contact — through water (e.g. cholera), food (e.g. E. coli), blood (e.g. hepatitis B and HIV), and **vectors** such as mosquitoes (e.g. malaria).

FIGURE 1.24 The importance of health and wellbeing as a resource globally



Given favourable conditions, these diseases can spread quickly from person to person and can result in a **pandemic**, where the disease spreads across large geographical regions and affects a high proportion of the population in a relatively short period of time. Pandemics can have serious consequences for the global population including significant rates of disease and premature death, reduced workforce participation and productivity, the shutdown of non-essential services, disruptions to travel and the transport of goods, food shortages, school closures, and the breakdown of law and order. In times of crisis such as in the event of a pandemic, people are often unable to go about their daily activities and instead shift their focus to survival, which impacts on all aspects of life.

With globalisation and the increase in affordable transportation, these diseases have the potential to spread more quickly today. As a result, reducing infections and maintaining good health and wellbeing are increasingly important.

Populations experiencing good health and wellbeing contribute to world peace and security. When populations are healthy, they are more likely to be able to work for the benefit of themselves, their country and the planet. They can be productive and have an increased ability to access the resources they require for a decent standard of living such as employment, education, food, water, shelter and healthcare. When populations are not in a positive state of health and wellbeing, they may resort to extreme measures in an

attempt to access these resources to ensure their survival. This can contribute to conflict on a national and international level.

Optimal health and wellbeing on a global scale can also promote sustainability. When people have their needs met and feel good about themselves, they are more likely to live their lives in a sustainable manner. They can work productively and provide for their families. The government will generate a greater amount of taxation revenue which can be used to promote sustainable energy, water and agricultural systems.

Children are often the most vulnerable to poor health and wellbeing. When health and wellbeing is poor, children cannot focus on education or thrive in a manner that will promote social and economic development and sustainability in the future.

Good health and wellbeing is essential for optimal trade between countries. Healthy populations are better equipped to produce goods and services that can be traded on the global market. Global trade is increasingly important for the economic development of many countries. It generates revenue that helps the governments of trading countries to provide their populations with essential resources and services such as education, public housing, healthcare and infrastructure. Poor health and wellbeing can therefore have significant impacts on the social and economic development of a country, especially on low-income countries that often do not have the economic or social resources to deal with the negative consequences of poor health and wellbeing.

FIGURE 1.25 Good health and wellbeing improves access to education for children around the world.



CASE STUDY

Pandemics

Pandemics, which are large disease outbreaks that affect several countries, pose major health, social, and economic risks. A severe pandemic can result in millions of deaths, and even the most conservative estimates suggest that pandemics destroy up to 1% of global GDP, which is comparable to other top-priority threats, such as climate change. Recent economic work estimates that the annual global cost of moderately severe to severe pandemics is roughly $US 570 billion, or 0.7% of global income.

The last 30 years have seen a steady increase in the frequency and diversity of disease outbreaks. With unprecedented mobility of people, products, and food, the myriad of disease-causing microorganisms are also increasingly mobile. No nation is immune to this growing global threat that can be posed by an isolated outbreak of an infectious disease in a seemingly remote part of the world. Most of these outbreaks are caused by pathogens of animal origin that are transmitted to people, such as Ebola and avian flu. While outbreaks are inevitable, strong health systems can allow countries to better detect and respond to diseases and prevent an outbreak from becoming a pandemic.

The world is still doing too little

It is not a question of if, but when we will face the next major pandemic — yet we are still stuck in an unsustainable cycle of panic and neglect. While progress has been made since the recent Zika and Ebola crises, a report by the International Working Group on Financing Preparedness, established by the World Bank, finds that most countries are still not adequately prepared for a pandemic. Many countries chronically underinvest in critical public health functions like disease surveillance, diagnostic laboratories, and emergency operations centers, which enable the early identification, response, and containment of outbreaks. This is especially short-sighted given the low cost of preparedness relative to the devastating impact of a pandemic.

In low- and middle-income countries that have calculated the cost of financing preparedness the investment required is up to $1 per person per year.

The purpose of robust pandemic preparedness is universal health security, protecting all people from threats to their health. Universal health security is an essential part of the World Bank Group's (WBG) ultimate goal of achieving universal health coverage, where everyone can access the quality health services they need without suffering financial hardship, by 2030. Universal health security both depends on and complements broader efforts to strengthen health systems and make them more resilient. It is also critical to attaining the Sustainable Development Goals and the WBG's twin goals of ending poverty and boosting shared prosperity.

Source: http://www.worldbank.org/en/topic/pandemics.

Case study review

1. Briefly explain what is meant by:
   (a) a pandemic
   (b) universal health coverage.
2. Brainstorm ways that reducing pandemics could contribute to each of the following globally:
   (a) health and wellbeing
   (b) social benefits
   (c) economic benefits.

1.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Discuss ways that optimal health and wellbeing can act as a resource:
   (a) individually
   (b) nationally
   (c) globally.
2. Explain how optimal health and wellbeing can create a positive cycle:
   (a) for individuals
   (b) through generations.

1.5 Exercise 2 APPLY your knowledge

1. Imagine you only had the energy or capacity to fulfill three benefits identified in figure 1.20.
   (a) Which three would you choose?
   (b) How could missing out on the other benefits impact your health and wellbeing?
2. Explain why promoting good health and wellbeing is a priority for many governments.
3. Discuss what each of the following quotes is saying about health and wellbeing as a resource.
   (a) 'A man too busy to take care of his health is like a mechanic too busy to take care of his tools.' — Spanish proverb.
   (b) 'It is health that is real wealth and not pieces of gold and silver.' — Mahatma Gandhi
   (c) 'Healthy citizens are the greatest asset any country can have.' — Winston Churchill
4. In pairs (or individually), and without using answers already used in question 1 of test your knowledge, brainstorm:
   (a) how optimal social health and wellbeing can act as a resource for individuals
   (b) how optimal mental health and wellbeing can act as a resource for countries
   (c) how optimal physical health and wellbeing can act as a resource for the world.

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1.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

1.6 Prerequisites for health part 1

KEY CONCEPT Understanding the prerequisites for health — peace, shelter, education and food

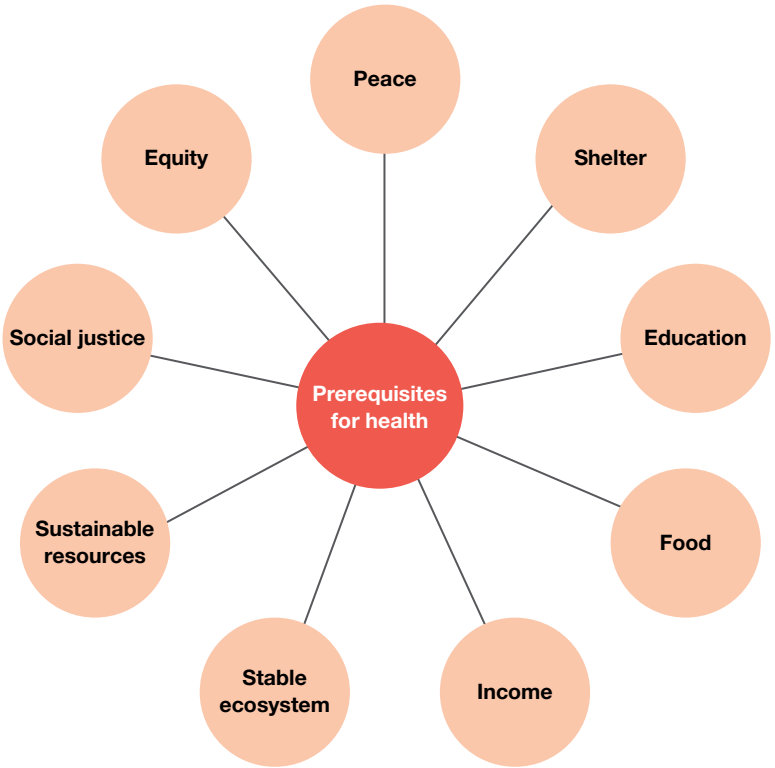
In 1986, the World Health Organization held an international health conference in Ottawa, Canada. One of the key objectives of this meeting was to provide guidance to governments and other groups on how to improve the health and wellbeing of all people worldwide. The resulting document is referred to as the Ottawa Charter.

The Ottawa Charter identifies specific prerequisites or basic conditions and resources that must be available if any gains in health and wellbeing are to occur. Identifying prerequisites assists governments and other groups that work towards providing all people with the basic necessities for a decent life. The prerequisites are shown in figure 1.26.

Many of these prerequisites impact each other, so individuals and communities who have access to one of them often experience an increased ability to access the others. For example, a peaceful society is more conducive to attending school to receive an education. An education increases the ability to gain meaningful employment and earn an income. An income can be used to purchase shelter and food.

The prerequisites can impact health and wellbeing in countless ways, and it is not possible to address all impacts in this section. As a result, a selection of impacts will be explored for each prerequisite.

FIGURE 1.26 The prerequisites for health under the Ottawa Charter



1.6.1 Peace

Peace can be defined as the absence of conflict. When a community or country is experiencing peace, there is a decreased risk of premature death, serious injury, disability and other adverse effects that are usually associated with conflict. Peace therefore promotes the physical health and wellbeing of all people.

From an individual perspective, the risk of injury and premature death associated with conflict decreases during times of peace, and the accompanying reduction in levels of stress and anxiety can enhance mental health and wellbeing. A peaceful environment increases the ability of people to move freely around their community and go about their daily activities such as working, accessing food, going to school and socialising. This enhances their choices, allows them to pursue their purpose in life and further promotes health and wellbeing.

Peace promotes the preservation of infrastructure including roads and other transport systems, agriculture, water and electricity systems, healthcare facilities, schools and places of employment — all

of which are often destroyed during conflict. Access to food and water lowers the risk of disease, and access to infrastructure provides opportunities for socialisation and leisure activities, reducing levels of stress and anxiety, allowing people to feel secure and safe, and promoting feelings of belonging in the community. As a result, all dimensions of health and wellbeing are promoted.

FIGURE 1.27 Infrastructure, including transport systems, are more likely to be preserved during times of peace.

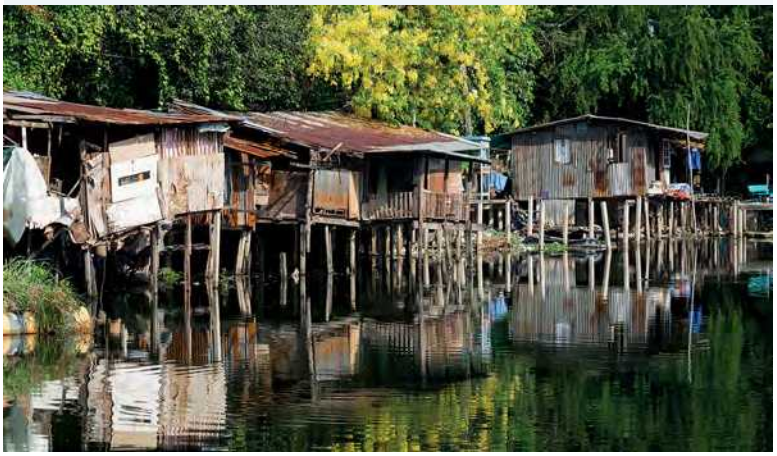


A peaceful country increases the capacity of governments to provide resources and services that promote health and wellbeing. As resources are not being used to sustain a war effort, they can be invested in governance, education, healthcare, trade development, social security and infrastructure, all of which promote social and economic development which in turn promotes optimal health and wellbeing.

1.6.2 Shelter

Shelter describes a structure that provides protection from the outside environment. Adequate shelter is a basic human right and provides a number of benefits to health and wellbeing. These include protection from the elements, privacy, safety and security, reduced risk of disease, reduced stress and anxiety, ability to focus on employment or education, and more time to pursue a purposeful and meaningful life.

FIGURE 1.28 Adequate shelter is a basic human requirement yet many people do not have access to it.



Many geographical regions experience extreme weather events which contribute to hundreds of thousands of deaths each year. Adequate shelter can provide protection from such occurrences and assist in promoting mental health and wellbeing by reducing levels of stress and anxiety as exposure to extreme weather is decreased.

Protection from adverse weather can promote adequate sleep, which in turn can increase the ability to pursue employment and education in the waking hours. Adequate sleep also increases the capacity of individuals to participate in activities that add value to life, such as socialising and participating in the life of their community. This promotes social health and wellbeing.

Adequate shelter promotes feelings of privacy, safety and security by reducing the ability of others to enter the living space of residents, and this enhances mental wellbeing by reducing stress and anxiety. Inadequate shelter on the other hand is a key contributor to crimes against people, including assault and theft.

Shelter acts to promote physical health and wellbeing by providing protection against the spread of infectious diseases. Diseases such as malaria are spread by mosquitoes, which can easily target people who are not protected by adequate shelter. Children are particularly susceptible to such conditions, which can result in premature death or a reduced ability to gain an education and lead a fulfilling life.

Having adequate shelter also means that people do not have to spend energy and time in searching for a place to sleep and finding protection from the elements. This allows more time to pursue employment and education. Shelter further facilitates education by providing children with a place to study and prepare for school.

Having adequate shelter can promote spiritual health and wellbeing by providing stability in an individual's life and contribute to a sense of belonging in the community in which they reside. Finally, adequate shelter also often includes other resources that can promote health and wellbeing such as toilet facilities, clean water, electricity and cooking facilities.

1.6.3 Education

Education impacts health and wellbeing in numerous ways. Education empowers individuals and increases their ability to earn an income, understand health promotion messages, exhibit healthy behaviours, and find meaning and purpose in life. As a result, educated people often have greater access to the resources required to experience high levels of health and wellbeing.

Education is often a key requirement for obtaining meaningful and well-paid employment that promotes economic development and increases the ability of individuals to afford resources such as food, shelter and healthcare, all of which promote health and wellbeing. Meaningful employment also promotes mental health and wellbeing by improving self-esteem and provides a sense of purpose and meaning in life, which enhances spiritual health and wellbeing.

Educated individuals are more empowered to take control of their lives. Educated women for example are particularly advantaged in relation to having a say in the decisions that affect their lives, such as if and when they get married and whether or not to have a family. This can promote mental health and wellbeing by reducing stress and anxiety and reduce the risk of the maternal issues that can occur from having babies at a young age, enhancing physical health and wellbeing.

Access to education promotes literacy. Literacy refers to the ability to read and write, and literate individuals are more likely to participate in health promoting behaviours such as eating well, exercising regularly, maintaining social connections and accessing healthcare when required.

1.6.4 Food

Adequate food intake is both an essential requirement for life and a basic human right. 'The state in which all persons obtain nutritionally adequate, culturally appropriate, safe food regularly through local non-emergency sources' (VicHealth) is referred to as food security. Food security enhances physical health and wellbeing as it increases the ability of individuals to consume the required nutrients, which is important for the functioning of the human body. It provides the energy required for individuals to complete daily tasks and reduces the risk of undernutrition. Some of the nutrients in food are important for increasing immunity to disease. With food security, individuals spend less time looking for food and are less likely to experience stress because they know there is food available. This can promote mental health and wellbeing.

FIGURE 1.29 Food provides the energy that is required for many aspects of life, including physical activity and socialisation.



Access to appropriate and nutritious food helps to provide adequate levels of energy. Adequate energy increases the capacity of children to attend school and learn. Improved health and wellbeing due to adequate nutrition enables individuals to work and earn an income. This ultimately contributes to the improvement of the economy of a country.

A range of foods and the nutrients within them are essential to prevent undernutrition. Undernutrition contributes to a range of negative impacts on people, especially children, including:

- stunting — a low height for age
- wasting — a low weight for height
- nutritional deficiencies — insufficient amounts of nutrients such as protein, vitamins and minerals.

Stunting, wasting and nutritional deficiencies contribute to a range of physical and mental problems which can reduce the capacity for education and productive work later in life. Those who are undernourished are more likely to experience mental disabilities, poverty and premature death.

Adequate nutrition can lead to improvements in an individual's intellectual capacities. For example, optimal intake of iodine and polyunsaturated fats promote intellectual functioning. As a result, individuals may develop the intellectual skills required for employment in later life, and the awareness or skills to access knowledge that will help them to understand the importance of health-related factors such as nutrition, hygiene and the symptoms of disease.

Adequate nutrition promotes optimal immune system function. The immune system works constantly to fight off **pathogens**, thereby helping to prevent illness and promote health and wellbeing. Many pathogens are opportunistic, meaning that they are more likely to infect people who are experiencing reduced immune system function, especially children. As a result, adequate nutrition is a significant protector against premature death and poor health and wellbeing.

In 2017, there were more than 800 million people around the world experiencing ongoing food insecurity that hindered their ability to lead a healthy, active life. As a result of the number of people experiencing food insecurity, a significant amount of time and energy is spent trying to acquire food or money to buy food. Consequently, less time is spent on activities that promote health and wellbeing such as attending school or work, or on the pursuit of leisure activities.

Access to safe food also decreases the risk of foodborne diseases. Unsafe food containing harmful bacteria, viruses, parasites or chemical substances, causes more than 200 diseases — ranging from diarrhoea to cancers. According to the WHO (2017), an estimated 600 million — almost 1 in 10 people in the world — fall ill after eating contaminated food and 420 000 die every year, impacting the ability of people to experience optimal health and wellbeing.

1.6 Activities

1. Access the **Homelessness** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Food** weblink and worksheet in the Resources tab then complete the worksheet.

1.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. In which document were the prerequisites for health identified?
2. Identify the nine prerequisites for health according to the World Health Organization.
3. What is the purpose of identifying prerequisites for health?
4. Define 'peace'.
5. Explain what is meant by 'shelter'.

1.6 Exercise 2 APPLY your knowledge

1. Select the prerequisite from this section that you believe has the greatest impact on health and wellbeing and justify your choice. Discuss your response with other class members.
2. Explain how peace may promote two dimensions of health and wellbeing.
3. Discuss how education may promote physical and social health and wellbeing.
4. Use the provision of food to show how social and mental health and wellbeing can interrelate.
5. Explain how adequate shelter may promote two dimensions of health and wellbeing.

studyON

1.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

ON Resources

Digital documents Homelessness worksheet (doc-32187)
Food worksheet (doc-32188)

Weblinks Homelessness
Food

1.7 Prerequisites for health part 2

KEY CONCEPT Understanding the prerequisites for health — income, a stable ecosystem, sustainable resources, social justice and equity

The previous section explored a number of prerequisites for health and wellbeing, including peace, shelter, education and food. This section examines income, a stable ecosystem, sustainable resources, social justice and equity.

1.7.1 Income

Income is an underlying factor for many health and wellbeing outcomes. From an individual perspective, income increases the ability to afford resources such as healthcare, recreation, transport and education. From a population perspective, income increases the capacity of governments to provide social services and resources such as public housing, education, and health care; social security; infrastructure; recreation facilities such as parks and gardens; and law and order. All of these resources and services promote health and wellbeing.

FIGURE 1.30 A decent and reliable income enables individuals to participate in activities they enjoy, such as bushwalking and other outdoor pursuits.



Healthcare often requires a patient to make some payment. Having a decent and reliable income allows individuals to more easily afford healthcare such as immunisations, medication, checkups and surgery. As a result, many conditions can be prevented or effectively treated and this promotes physical health and wellbeing.

Having access to money means that people are better able to afford activities that they enjoy such as recreational pursuits and socialising. This can promote mental health and wellbeing by reducing stress and

anxiety and social health and wellbeing by giving people more choices in relation to the social activities in which they participate.

Income increases the ability of people to access transport such as bicycles, motor vehicles and public transport. Transport is often required to access a range of resources such as education, employment, recreation, healthcare and food, all of which work to enhance health and wellbeing.

An income increases the capacity of parents to send all of their children to school. Unlike Australia, in many countries it is girls who miss out on an education when financial resources are scarce. Adequate incomes mean that all children have the opportunity to attend school and achieve higher levels of education. Income and education often form a cycle so that those with higher incomes can often afford higher levels of education than those on lower incomes, and higher levels of education increase the ability of individuals to earn higher incomes. Both income and education contribute to improved health and wellbeing outcomes.

Governments receive income from the taxes paid by individuals and businesses. When average incomes of individuals and businesses are high, the revenue that the government has available to spend on infrastructure and services is also likely to be high. Governments are responsible for providing a range of resources and services that promote health and wellbeing:

- Public housing is an important source of shelter for many individuals, and a government with a high income is better equipped to provide it. Housing provides protection from the elements, provides a sense of safety, thereby promoting physical and mental health and wellbeing.
- With an adequate income, governments can provide basic public health and education systems. This promotes the health and wellbeing of all people as those in need are generally prioritised, not just those with the ability to pay.
- Social security relates to benefits provided by government to those in need. Such benefits come in many forms which include food, income, healthcare and housing. The income a government receives directly influences its ability to provide such resources, and in turn influences the level of health and wellbeing experienced among the population.
- Infrastructure such as roads, telecommunications and ports (both air and shipping) promote all dimensions of health and wellbeing by increasing the ability of individuals to receive an education, gain employment, trade their goods and generate an income. Such infrastructure also increases access to other health promoting resources such as education, food, water and sanitation, and health facilities.
- Governments can provide recreation facilities such as public pools, basketball courts, parks and gardens that work to prevent illness. Being physically active promotes physical health and wellbeing by improving fitness and maintaining a healthy body weight. Citizens can socialise in these settings, and this promotes social interaction and social health and wellbeing.
- Governments with adequate income can commit more money to maintaining law and order by providing a police force and judicial system. This assists in ensuring human rights are upheld, which can reduce stress and anxiety and thereby promote mental health and wellbeing.

FIGURE 1.31 For governments, adequate income allows the provision of services such as public healthcare.



1.7.2 A stable ecosystem

An **ecosystem** is a community that consists of all of the living and non-living components of a particular area. The living components include plants, animals and micro-organisms such as bacteria, and the non-living components include weather, rocks, soil and watercourses.

A stable ecosystem occurs when balance is achieved between the environment and the species that live in an environment. Stability indicates that all living things are having their needs for food, water, shelter and reproduction met without causing detrimental effects to the natural environment. Every ecosystem will experience fluctuations in the balance or stability that it experiences, but changes should not be too pronounced to ensure stability is preserved.

As living beings, humans are a part of an ecosystem. We rely on many other components of the environment to survive and experience optimal health and wellbeing. For example:

FIGURE 1.32 A stable ecosystem is required to provide many resources required for human life such as clean water.



- Plants and animals are made up of organic matter which is used for food and provides energy, improving physical health and wellbeing.
- Plants and animals provide opportunities for employment such as the fishing and agriculture industries. This improves incomes which can be used to enhance all dimensions of health and wellbeing.
- Predictable weather patterns contribute to effective farming which promotes health and wellbeing by improving food security
- Human shelter is often made from natural materials such as timber and stone.
- Clean water and air are products of the ecosystem in which we live and are vital for human survival.
- Sources of renewable energy such as water, wind and waves are increasingly important as non-renewable resources such as coal and oil reserves decline.
- Natural fibres used for clothing and other goods are derived from the ecosystem.
- Natural environments are often used as a source of relaxation and recreation. This contributes to feelings of connectedness to the natural world, which enhances spiritual health and wellbeing.
- Many substances used to manufacture medicines are sourced from the natural environment.

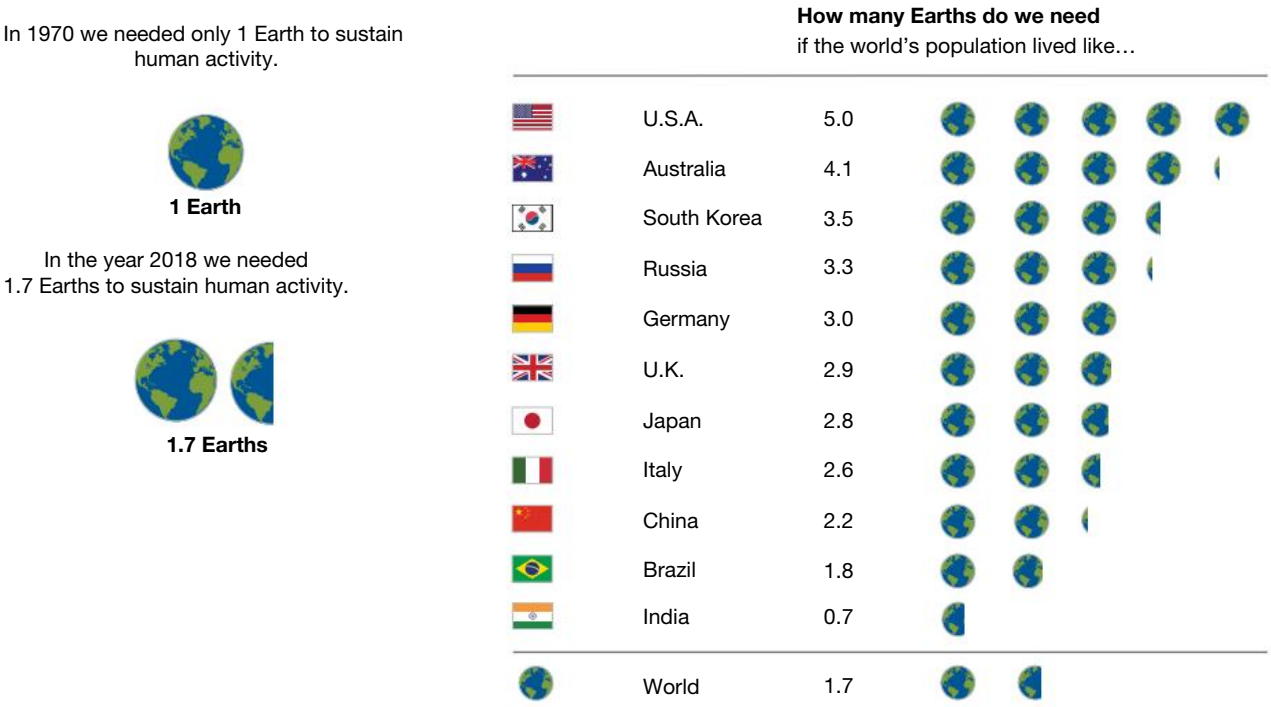
A balanced ecosystem means that these resources are available for human use and can regenerate as quickly as they are used. An ecosystem that is not balanced can mean that resources are used faster than they can regenerate, which can have significant impacts on human health and wellbeing by reducing the availability of essential resources for human use.

1.7.3 Sustainable resources

Sustainability is defined by the United Nations as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs.' Sustainable resources therefore relate to ensuring that the resources used to promote health and wellbeing in the present are available for future generations, so they too can experience a good quality of life. Resources required for energy production, food and water supply, employment, housing and healthcare are examples of materials that must be sustainable if current standards of health and wellbeing are to be maintained. As of 2018, these resources are not being used in a sustainable manner and this poses serious threats to health and wellbeing globally (see figure 1.33).

Many resources that are currently used for energy production such as oil, gas and coal, can take millions of years to regenerate. So once these resources are used, they are not available for future generations. The transition to sustainable energy production such as wind and solar power will assist in satisfying energy needs into the future, allowing future generations to enjoy uninterrupted access to resources such as heating, cooling, electricity and transport. These resources are often required to engage in activities such as education, employment, sleep, food production and recreation, which all work to promote health and wellbeing. For example, adequate heating and cooling can promote productivity at school and this in turn can promote emotions such as contentment, which enhances emotional health and wellbeing.

FIGURE 1.33 Explanation of Earth Overshoot Day, the date at which humanity's use of natural resources exceeds what the Earth can regenerate in that given year.



Sustainable food and water sources are required for human survival and optimal health and wellbeing. Agriculture currently accounts for over 35 per cent of total land use on Earth and over 70 per cent of total freshwater use. As the population of the world continues to increase, the need for fertile land and fresh water will continue to rise. Sustainable use of land and water is therefore required to ensure that future generations have a reliable food and water supply to prevent disease and enhance physical health and wellbeing.

FIGURE 1.34 Wind and solar power are examples of sustainable resources.



Fisheries are another source of food and income for billions of people around the world. Fish populations are decreasing due to overfishing and habitat destruction. If this trend continues, food availability and income generation will be negatively impacted, reducing the ability of many people to achieve optimal health and wellbeing.

Forests and other natural environments provide resources such as timber for building shelter and other structures, clean air for respiration and disease prevention, fibres used for manufacturing and clothing, and substances used for medicine production. Ensuring the sustainability of natural environments is therefore essential to provide these essential resources and promote an adequate standard of living in the future.

1.7.4 Social justice

Social justice can be defined in a number of ways, but the common underlying theme is equal rights for all, regardless of personal traits such as sex, class and income, ethnicity, religion, age or sexual orientation. Social justice means that all people are treated fairly, including women and girls in both their private and

public life. Social justice includes economic justice, a key aspect of which includes the ability of all people to earn a decent wage and build material wealth. Social justice includes celebrating diversity and promoting the health and wellbeing of all people.

The Australian government's concept of social justice reflects this understanding, defining a socially just Australia as one in which there is:

- a fair distribution of economic resources
- equal access to essential services such as housing, healthcare and education
- equal rights in civil, legal and industrial affairs
- equal opportunity for participation by all in personal development, community life and decision-making.

When society is just, all people have the same access to resources and opportunities, including:

- formal education
- meaningful employment and fair pay
- adequate shelter
- social security
- food and water
- healthcare
- recreation and leisure activities
- community participation.

The importance of these resources for health and wellbeing have already been discussed. Equality of access to these resources is an issue that continues to impact the lives of billions of people globally. Equal access to these resources ensures that every person has the same opportunity to promote their health and wellbeing, and the outcomes of a person's life are not dictated by factors out of their control such as ethnicity, sex or age.

1.7.5 Equity

Equity is a concept that relates to fairness and social justice, but has a particular focus on disadvantaged groups. As already discussed in this section, a range of resources are required to promote health and wellbeing, and all people should have access to the resources they require for a decent standard of living.

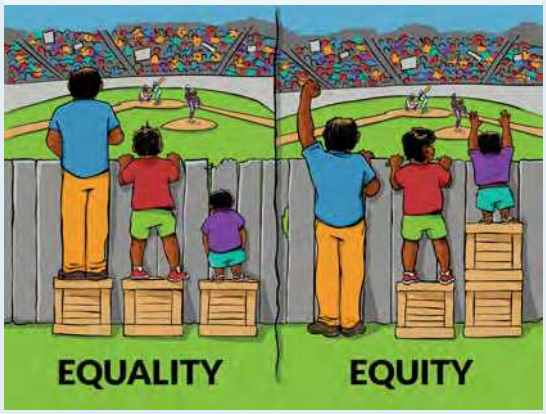
In basic terms, equity means that disadvantaged groups are targeted to improve their quality of life and achieve minimum standards of living. All people in the community should have access to fundamental resources, and governments should implement laws and policies that ensure no person is disadvantaged in their ability to access such resources.

WHAT IS THE DIFFERENCE EQUITY AND EQUALITY?

Equity and equality are two terms that are often used interchangeably and, even though they are related, they are distinct concepts. Social justice has a stronger focus on equality than equity.

- Equity relates to fairness. It is about ensuring every person can access the resources they need to lead a good life and experience a high level of health and wellbeing. Equity includes taking unfair circumstances into account, so that those who are disadvantaged are given the opportunity to participate in life on a level playing field.
- Equality relates to all things being equal. Equality is important when all people experience the same conditions such as income, education and occupation.

FIGURE 1.35 A visual representation of the difference between equality and equity



These concepts can be explored further by considering the financial assistance provided by the government (often referred to as social security or social protection) as an example:

- Equality would be achieved if all people in Australia received the same amount of government assistance regardless of their income, education, home ownership status, level of health and wellbeing experienced including chronic illness or disability, and access to healthcare.
- Equity is reflected when the amount of government assistance provided takes into consideration a person's specific circumstances such as income and access to resources such as employment. Equity means that those who need the most assistance receive more support.

1. Briefly explain the difference between equity and equality.
2. Other than social security, discuss an example that illustrates the concepts of equality and equity.
3. Explain why equity is important for achieving health and wellbeing from a population perspective.

Equity relates to a need for fairness in relation to an acceptable quality and standard of living. It goes beyond enforcing laws, and ensures that all people can share in the benefits of a society. This can work to reduce feelings of segregation and thereby enhance feelings of belonging and promote spiritual health and wellbeing.

Equity promotes health and wellbeing by ensuring access to:

- education
- employment
- human rights
- resources such as healthcare.

In order to promote health and wellbeing, equity is a key consideration within and between generations. It also extends to issues of social justice and the sustainable use of resources.

Equity as a concept is fundamental to health and wellbeing. Billions of people around the world, such as the homeless, Indigenous people and those living in poverty, do not experience the same level of health and wellbeing as the rest of the population. Promoting equity improves opportunities for these groups and increases their ability to achieve optimal health and wellbeing. For example, equity means that all people can achieve a minimum level of income. This money can be used for food, shelter and health care, which can reduce the risk of developing disease, promoting physical health and wellbeing. It can also mean that they feel valued which can promote self-esteem and enhance mental health and wellbeing.

EXAM TIP

When making links between two or more prerequisites and health outcomes, it is important to ensure you don't 'double dip'. Double dipping is a term used in Health and Human Development to describe an answer that has used two similar responses and therefore shows limited understanding. For example, if you are required to link both income and food to health and wellbeing, each response should show a different aspect of understanding. If the first response discusses how income can be used to purchase food, which in turn provides energy, therefore promoting physical health and wellbeing, there is a risk of double dipping when making the link between food and health and wellbeing. To ensure double dipping does not occur, do not use food in the income link and instead, include reference to another resource, such as being able to afford social activities, adequate shelter or health care and then link to the dimension of health and wellbeing from there.

1.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Briefly explain the following terms and include one example that relates to each:
   (a) ecosystem (b) sustainability (c) social justice (d) equity.
2. Explain what is meant by a stable ecosystem and discuss why stable ecosystems are important for human life.

1.7 Exercise 2 APPLY your knowledge

1. Explain how generating an income can assist governments in promoting the health and wellbeing of a country's population.
2. Explain how having an adequate income can promote the health and wellbeing of individuals.
3. Explain how a stable ecosystem may promote three dimensions of health and wellbeing.
4. Explain the difference between social justice and equity.
5. Explain why equity is a key consideration in achieving optimal health and wellbeing globally.
6. Select two prerequisites from subtopic 1.6 and two from subtopic 1.7 and explain how they are interrelated; that is, how they can impact each other.

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1.7 Exercise 3 studyON: Past VCAA exam questions online only

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1.8 Topic 1 review

1.8.1 Key skills

KEY SKILL Explain the dynamic and subjective nature of the concepts of health and wellbeing and illness

To provide an adequate explanation of the dynamic and subjective nature of health and wellbeing and illness, an explanation of the concepts (health and wellbeing; illness) is a good starting point.

When explaining any key term, it is important to include all the crucial aspects of the concept. Frequent use of these terms is a good way to gain an understanding of what they mean and when they should be used. When explaining a key term, try to avoid an explanation that is too narrow. For example:

- An explanation of health and wellbeing could acknowledge that there are many aspects or dimensions to health and wellbeing but all relate to the state of a person's existence in relation to the physical, social, emotional, mental and spiritual dimensions and how the person feels about their life.
- An explanation of illness could include that it is a concept related to personal experience of a disease or injury.

The following is an example of an explanation of health and wellbeing:

Health and wellbeing is not just the absence of disease, although this is an aspect of optimal health and wellbeing. Good health and wellbeing is a subjective concept that means different things to different people. Broadly, health and wellbeing relates to a person's physical, social, emotional, mental and spiritual being, and is characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged.

It is also beneficial to be able to explain each dimension of health and wellbeing because these are crucial components of this concept. In addition, it is useful to provide examples that relate to each dimension so that their possible impacts on health and wellbeing can be predicted in a particular scenario. For example, it is useful to know that physical health and wellbeing refers to 'a state of physical well-being in which a person is physically able to perform their daily activities without restrictions'.[1] Physical health and wellbeing includes the physical capacity to perform tasks, physical fitness, body weight, blood pressure and energy levels.[2]

1. A definition or explanation of physical health and wellbeing is provided.
2. A range of factors that relate to physical health and wellbeing are identified.

This skill also requires an explanation of the dynamic and subjective nature of health and wellbeing and illness.

To satisfy this part of the skill, it is important to acknowledge that health and wellbeing and illness are dynamic and therefore undergo constant change and can also change quickly. The following example discusses the dynamic nature of these concepts:

The concepts of health and wellbeing and illness are dynamic, which means that they are constantly changing and the way in which an individual views them can change over time.[3] Events that contribute to changes in health and wellbeing and illness include:

3. An introduction of the dynamic nature of the concepts is provided including an understanding of the term 'dynamic'.

- Recovery from disease. A person who is experiencing a high level of illness and poor physical health and wellbeing due to having a disease may access medication or surgery that can cure the condition or relieve symptoms, which reduces pain and increases levels of energy. This improves physical health and wellbeing and contributes to a decrease in illness.
- Forming new relationships. If an individual has few social connections, they may experience poor social health and wellbeing. If they make new friends, this can provide opportunities for social interaction which improves social health and wellbeing.
- Personal achievement. A person who is experiencing poor emotional health and wellbeing may achieve at school, work or in the community for example, by being elected as a leader or being promoted, which can promote a sense of pride that then enhances emotional health and wellbeing. Personal achievement can also promote self-esteem, which is an aspect of mental health and wellbeing.
- Community participation. A person experiencing poor spiritual health and wellbeing may become involved in community activities such as volunteering to deliver meals to the elderly, which can promote a sense of belonging, and this can then enhance spiritual health and wellbeing.[4]

4. Specific examples of how health and wellbeing and illness can change are provided.

Similarly, incidents such as infection, conflict, the loss of a loved one, social isolation and sadness can cause negative impacts on the dimensions of health and wellbeing and illness.

The way an individual views health and wellbeing and illness is also dynamic and can change throughout life as a result of a range of factors such as age, disease, living conditions, employment and levels of energy. This reflects the subjective nature of these concepts.[5]

5. The fact that an individual's view of health and wellbeing and illness can change over time is outlined.

An example of an explanation of the subjective nature of these concepts could be:

The concepts of health and wellbeing and illness are subjective which means they mean different things to different people.[6]

6. An introduction to the subjective nature of the concepts is provided including an understanding of the term 'subjective'.

For example, a student may view health and wellbeing as a concept related to their ability to complete school tasks and maintain social connections. Whereas a parent may view health and wellbeing as a concept related to their ability to provide for their family and run an efficient household.[7]

7. Specific examples of the subjective nature of health and wellbeing are provided.

An individual with a high threshold for pain may not view illness as related to the presence of disease, but rather an inability to function normally, whereas a person with a low threshold for pain may view illness as the presence of any disease.[8]

8. Specific examples of the subjective nature of illness are provided.

Practise the key skill

1. Explain what is meant by the terms 'dynamic' and 'subjective'.
2. Provide three examples of characteristics associated with optimal emotional health and wellbeing.
3. Explain the subjective nature of physical health and wellbeing.
4. Explain the dynamic nature of the concept of illness.

KEY SKILL Describe interrelationships between dimensions of health and wellbeing

In order to master this key skill, it is important to be able to explain each dimension of health and wellbeing (physical, social, emotional, mental and spiritual) and to be able to identify examples of characteristics that relate to each. A useful approach is to practise identifying the dimensions of health and wellbeing in case studies or in examples drawn from personal experience.

When describing the interrelationships between the dimensions of health and wellbeing, it might be necessary to describe the possible effects on health and wellbeing in a scenario or context that is totally unfamiliar. Again, practising identifying possible effects on health and wellbeing can be beneficial. Start by thinking of something (a set of circumstances such as relationship breakdown, illness or stress) that could affect one of the dimensions and then brainstorm ways that the dimensions of health and wellbeing could be affected by it. When doing this, remember that all five dimensions of health and wellbeing will be affected including the dimension where the initial effect occurred. For example, a condition such as rheumatoid arthritis (which relates to physical health and wellbeing) will lead to other impacts on physical health and wellbeing (such as reduced fitness) as well as impacting on social, emotional, mental and spiritual health and wellbeing.

In the following scenario, Brooke has just broken up with her boyfriend of six months and is feeling upset and anxious. During the course of the relationship, Brooke had begun to associate with her boyfriend's friends. She now feels that she has neglected her own friends and that it may be difficult to re-establish links with them.

The following response explains how Brooke's breakup may have affected her health and wellbeing.[9]

9 If the question doesn't specify, try to cover a range of dimensions of health and wellbeing.

As Brooke is feeling upset and anxious, she may not be eating properly or exercising. This may affect her fitness levels and her body weight (an aspect of physical health and wellbeing).[10] She is upset and anxious (mental health and wellbeing). She may experience emotions such as grief for her relationship and learn how to recognise this emotion (emotional health and wellbeing). Her friendship circle has been thrown into turmoil (social health and wellbeing) and she may feel that she no longer belongs to a social group (spiritual health and wellbeing).[11]

10 Link the example to the dimension of health and wellbeing.

11 The other four dimensions of health and wellbeing are also addressed.

Practise the key skill

5. Explain how having chicken pox could affect the dimensions of health and wellbeing.
6. Use the condition 'depression' to show how social and spiritual health and wellbeing can interrelate.
7. Discuss how regular exercise could contribute to interrelationships between physical and mental health and wellbeing.
8. Brendan left school at the end of year 10 to start an apprenticeship. Use this example to show interrelationships between dimensions of health and wellbeing.

KEY SKILL Explain the individual and collective importance of health and wellbeing as a resource

This skill requires links to be made between good health and wellbeing, and positive outcomes for both individuals and countries.

The first step in developing this skill is understanding aspects of optimal health and wellbeing in relation to each dimension. For example, optimal mental health and wellbeing includes:

- low levels of stress
- high self-esteem
- positive thought patterns
- high levels of confidence.

Once aspects of optimal health and wellbeing are known, links can be made between each aspect and benefits for individuals or countries. For example:

- Low levels of stress allow individuals to focus on activities that improve their life such as studying, working or socialising.
- Low levels of stress also improve immune system function and promote physical health and wellbeing by decreasing the risk of contracting infectious diseases. This decreases the amount of money that must be spent by the individual on healthcare including doctor's consultations and medication.
- High self-esteem encourages people to do their best in all aspects of their life, including work. This can contribute to higher performance at work and a higher income. Income is a resource that can be used for healthcare, food, clothing, shelter and socialising, which all enhance quality of life.
- Positive thought patterns reduce the risk of developing mental illnesses such as depression. This decreases the economic costs to the community and country of treating these diseases.
- Confidence contributes to individuals challenging themselves and trying new things. This can assist in developing new industries, contributing to economic growth on both personal and national levels.

It is important to practise making links between each dimension of health and wellbeing and benefits for both individuals and countries because a range of possible links exist. Consider the following example where the importance of optimal health and wellbeing is discussed in relation to individuals.

Optimal physical health and wellbeing means that a person is less likely to experience an infectious or chronic condition.[12] With less illness, individuals are more equipped to work and earn an income.[13] This income can then be used to provide resources such as food, shelter, clothing and adequate healthcare, which can further promote health and wellbeing by reducing levels of stress (mental health and wellbeing), provide adequate levels of energy for socialising (physical and social health and wellbeing), give the individual a sense of purpose in life (spiritual health and wellbeing), and assist in experiencing positive emotions such as satisfaction (emotional health and wellbeing).[14]

12 An aspect of optimal health and wellbeing is identified.

13 A link is made between the aspect of health and wellbeing and a benefit for the individual.

14 Specific links to aspects of improved quality of life and increased health and wellbeing are made.

Practise the key skill

9. Explain how optimal social health and wellbeing can be a resource for individuals and countries.
10. Explain how spiritual health and wellbeing can be a resource nationally.

KEY SKILL Describe global benefits of the pursuit of optimal health and wellbeing

To demonstrate this skill, benefits of optimal health and wellbeing on a global scale must be understood.

Although the initial focus of a response may be on individuals, the benefit to large numbers of individuals around the world experiencing optimal health and wellbeing must be addressed in order to satisfy this skill. In this sense, the focus shifts from an individual perspective to a global context. For example, to explain the global benefits of reduced rates of communicable diseases, a response may reflect the following:

Reduced rates of communicable diseases such as malaria mean that fewer people experience the symptoms associated with this condition and therefore fewer people will die as a result.[15] With people in better physical health and wellbeing, they have an increased capacity to work and to be productive members of society. With more people being productive, a greater amount of resources such as food and shelter can be provided to meet the needs of the community.[16] This works to decrease conflict between countries as more people are able to access the resources they need for a decent standard of living, and this increases their ability to lead lives they value and promotes health and wellbeing.[17]

15 An example of health and wellbeing in a global context is identified.

16 Links are established between the example of health and wellbeing and the benefits for individuals and communities

17 Benefits of optimal health and wellbeing on a global scale are identified.

Practise the key skill

11. Explain how optimal health and wellbeing can promote economic development globally.
12. Besides economic development, outline two global benefits of optimal health and wellbeing.

KEY SKILL Identify the WHO's prerequisites for health and explain their links to improved health outcomes

The first step to achieving this skill is to be able to recall the nine prerequisites for health as identified by the World Health Organization:

- peace
- shelter
- education
- food
- income
- a stable ecosystem
- sustainable resources
- social justice
- equity.

The use of **mnemonics** or acronyms can be used to assist in remembering such lists. For example:

- **Pe**ople **sh**ould **e**njoy **ed**ible **food** **in**cluding **so**me **sustainable** **st**ew
- **Pe**ace / **Sh**elter / **E**quity / **Ed**ucation / **Food** / **In**come / **So**cial justice / **Sustainable** resources / **St**able ecosystem

Although knowledge of the prerequisites is still required, remembering this mnemonic can assist in recalling at least the first letter of each one.

Once the prerequisites can be identified, links must be made from each one to improved health and wellbeing outcomes. In order to make such links, an understanding of each prerequisite is essential so possible impacts on health and wellbeing can be discussed. For example, peace[18] means that infrastructure is less likely to be destroyed.[19] This increases the capacity of individuals to access resources such as water. Water assists in promoting physical health and wellbeing by keeping people hydrated.[20]

18 One of the prerequisites is identified.
19 An impact of the prerequisite is stated.
20 A specific link to improved health and wellbeing is made.

Practise the key skill

13. Explain how each of the following can promote health and wellbeing:
    a. income
    b. a stable ecosystem
    c. equity.

1.8.2 Topic summary

Concepts of health and wellbeing and illness

- Health and wellbeing is a concept that refers to the state of an individual's physical, social, emotional, mental and spiritual existence and is characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged.
- Health and wellbeing is a dynamic concept which means it can change regularly and/or quickly.
- Health and wellbeing is viewed in many different ways and is therefore said to be subjective.
- A range of factors influence how an individual views health and wellbeing including: age, fitness, body weight, social networks, income, occupation, education and culture.
- Indigenous Australians place significant importance on the land and their ancestry in relation to their health and wellbeing.

Dimensions of health and wellbeing

- The five dimensions of health and wellbeing are physical, social, emotional, mental and spiritual.
- Physical health and wellbeing relates to the functioning of the body and its systems; it includes the physical capacity to perform daily activities or tasks. Factors that relate to physical health and wellbeing include body weight, fitness, energy levels and the absence or presence of disease or illness.
- Social health and wellbeing is the ability to form meaningful and satisfying relationships with others and the ability to manage or adapt appropriately to different social situations.
- Emotional health and wellbeing is defined as the ability to recognise, understand and effectively manage and express emotions as well as the ability to display resilience.
- Mental health and wellbeing relates to the state of a person's mind or brain and the ability to think and process information. Optimal mental health and wellbeing enables an individual to positively form opinions, make decisions and use logic. Mental health and wellbeing relates to the current state of the mind, the nature of the feelings experienced and how a person feels about themselves.
- Spiritual health and wellbeing relates to ideas, beliefs, values and ethics that arise in the minds and conscience of human beings. It includes the concepts of hope, peace, a guiding sense of meaning or value, and reflection on a person's place in the world. Spiritual health and wellbeing can also relate to organised religion, a higher power and prayer, values, a sense of purpose in life, connection or belonging.

Interrelationships between the dimensions of health and wellbeing

- The five dimensions of health and wellbeing are interrelated; that is, they all affect each other.
- Overall health and wellbeing is determined by the combined levels of health and wellbeing in the five dimensions.
- When all five dimensions are as good as they can be, health and wellbeing is said to be optimal.

Optimal health and wellbeing as a resource

- Optimal health and wellbeing is a resource for individuals, countries and the global population.
- For individuals, optimal health and wellbeing reduces illness and increases the capacity for people to work towards what they want out of life such as employment, socialising and caring for others.
- For countries, optimal health and wellbeing reduces health-related expenditure, increases productivity and economic development, and promotes civic participation.
- Globally, optimal health and wellbeing promotes economic and social development and reduces the risk of conflict.

Prerequisites for health part 1

- The WHO identifies nine prerequisites that each have a range of effects on health: peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity.
- Peace reduces the risk of premature death and injury and increases the ability of people to work, attend school and spend time with loved ones.
- Adequate shelter provides protection from the elements, but also provides a safe place for people to spend their time and pursue activities, such as study, that promote health and wellbeing.
- Education increases the ability to earn an income and be a productive member of society. Educated individuals are more likely to experience high levels of health and wellbeing.
- Food is vital for proper human functioning. Having access to a reliable food supply also decreases the risk of disease, reduces stress and allows more time to pursue activities such as study and work.

Prerequisites for health part 2

- Income allows individuals to purchase goods that promote health and wellbeing such as food, healthcare and adequate shelter.
- A stable ecosystem means that resources such as food and water are available for human use and can regenerate as quickly as they are used. An unbalanced ecosystem can mean resources are used faster than they can regenerate, which can have significant impacts on human health and wellbeing.
- Sustainable resources mean that the resources used to promote health and wellbeing in the present are available for future generations, so they too can experience a good quality of life.
- Social justice relates to equal rights for all, regardless of personal traits such as sex, class and income, ethnicity, religion, age or sexual orientation.
- Equity relates to providing more assistance to disadvantaged groups so all people can access minimum levels of income and resources that promote health and wellbeing.

Resources

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1.8 Exercise 1 Exam preparation

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Question 1

a. Briefly explain what is meant by spiritual health and wellbeing. **(2 marks)**
b. Briefly describe the difference between mental and emotional health and wellbeing. **(2 marks)**

Question 2

Darren was recently diagnosed with anxiety (a mental illness). Use Darren's condition to show interrelationships between:

a. mental and social health and wellbeing **(2 marks)**
b. physical and emotional health and wellbeing. **(2 marks)**

Question 3

Briefly explain why shelter and sustainable resources are important for improved health outcomes. **(4 marks)**

Question 4

Outline two benefits of optimal health and wellbeing as a resource globally. **(2 marks)**

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Interactivities Crossword (int-6879)
Definitions (int-6880)

2 Measuring health status

2.1 Overview

Key knowledge

- Indicators used to measure and understand health status: incidence, prevalence, morbidity, burden of disease, disability-adjusted life year (DALY), life expectancy, health-adjusted life expectancy (HALE), mortality (including maternal, infant and under 5) and self-assessed health status

Key skills

- Describe and apply indicators used to measure health status
- Use data to describe and evaluate the health status of Australians

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FIGURE 2.1 Health status has generally improved over time, contributing to the highest life expectancy ever experienced in Australia, but there are still areas for improvement.



KEY TERMS

Asphyxia interrupted breathing leading to low levels of oxygen in the body, unconsciousness and often death
Burden of disease a measure of the impact of diseases and injuries, specifically it measures the gap between current health status and an ideal situation where everyone lives to an old age free of disease and disability. Burden of disease is measured in a unit called the DALY (VCAA).
Congenital malformations refers to physical defects developing either in the uterus or dating from birth
Disability-adjusted life year (DALY) a measure of burden of disease. One DALY is equal to one year of healthy life lost due to illness and/or death. DALYs are calculated as the sum of the years of life lost due to premature death and the years lived with disability for people living with the health condition or its consequences (AIHW, 2018).
Health-adjusted life expectancy (HALE) The average length of time an individual at a specific age can expect to live in full health; that is, time lived without the health consequences of disease or injury (AIHW, 2018)
Health indicators standard statistics that are used to measure and compare health status (e.g. life expectancy, mortality rates, morbidity rates)
Health status 'An individual's or a population's overall health, taking into account various aspects such as life expectancy, amount of disability and levels of disease risk factors.' (AIHW, 2008)
Hospital separation episodes of hospital care that start with admission and end at transfer, discharge or death
Incidence refers to the number (or rate) of new cases of a disease/condition in a population during a given period
Infant mortality rate the rate of deaths of infants before their first birthday, usually expressed per 1000 live births
Life expectancy the number of years of life, on average, remaining to an individual at a particular age if death rates do not change. The most commonly used measure is life expectancy at birth (AIHW, 2018).
Maternal mortality death of a mother during pregnancy, childbirth or within six weeks of delivery
Maternal mortality ratio the number of mothers who die as a result of pregnancy, childbirth or associated treatment per 100 000 women who give birth
Morbidity ill health in an individual and levels of ill health within a population (often expressed through incidence, prevalence) (AIHW, 2018)
Mortality the number of deaths in a population in a given period (AIHW, 2018)
Mortality rate (sometimes referred to as 'death rate') the measure of the proportion of a population who die in a one-year period (usually per 100 000)
Obstetric haemorrhage heavy bleeding occurring as a result of pregnancy or childbirth
Prevalence the number or proportion of cases of a particular disease or condition present in a population at a given time (AIHW, 2008)
Self-assessed health status 'An individual's own opinion about how they feel about their health, their state of mind and their life in general.' (AIHW, 2018). It is commonly sourced from population surveys.
Trend a general change or movement in a particular direction. For example, trends indicate a significant increase in obesity rates over the past 20 years.
Under-five mortality rate (U5MR) the number of deaths of children under five years of age per 1000 live births (WHO, 2008)
Years lost due to disability (YLD) a measure of how many healthy years of life are lost due to disease, injury or disability
Years of life lost (YLL) a measure of how many years of expected life are lost due to premature death

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2.2 Self-assessed health status and life expectancy

KEY CONCEPT Exploring the self-assessed health status, life expectancy and health-adjusted life expectancy of Australians

In topic 1, the concept of health and wellbeing and the five dimensions that contribute to overall health and wellbeing were examined. As well as exploring physical, social, mental, emotional and spiritual health and wellbeing, it is useful to be able to measure the level of health and wellbeing experienced by groups or whole populations. Measurable aspects of health and wellbeing provide an ability to make judgements relating to the **health status** experienced by individuals, groups and countries.

For individuals, health status is usually measured by tests conducted by a health professional, including blood, heart rate, blood pressure, eye and urine tests. For populations and whole countries, health status is generally measured using **health indicators**, which include:

- self-assessed health status
- life expectancy and health-adjusted life expectancy
- mortality (including maternal, infant and under five)
- morbidity (including incidence and prevalence of disease)
- burden of disease (including disability-adjusted life years, years of life lost and years lost due to disability).

FIGURE 2.2 Health statistics are based on large groups of people and therefore do not give information about the health status of individuals.



EXAM TIP

When discussing health and wellbeing, one or more of the dimensions should be the focus. When discussing health status, the health status indicators should be the focus. For example, if discussing how education can influence health and wellbeing and health status, the respective answers could be:

Health and wellbeing — educated individuals are more likely to understand the benefits of being socially connected and may therefore invest time in socialising which can enhance the quality of relationships and *promote social health and wellbeing* [*shows link to health and wellbeing*].

Health status — education can mean that people have a greater understanding of healthy eating. This can promote healthy food intake which can promote healthy body weight and reduce *the prevalence* of cardiovascular disease. In turn, this can decrease rate of premature *mortality* from causes such as heart attack and increase *life expectancy* [*shows links to health status*].

on Resources

Teacher-led video Measurements of health status (tlvd-0260)

The various statistics give specific information and, when used together, can give accurate information about overall health status. It is useful to look at a range of statistics as quite often one set of statistics will provide only limited information about health status. Examining various health indicators allows

governments and other groups to identify **trends** in health status and, if necessary, assist individuals, groups or populations in achieving optimal health and wellbeing.

In this topic, these health indicators and data relating to each will be explored. Although some data exists relating to social, emotional, mental and spiritual health and wellbeing, data relating to physical ill health and wellbeing is generally the easiest to measure and therefore forms the basis of a majority of the health status data available. Where possible, data relating to the other dimensions will also be explored.

It is also beneficial to examine statistics relating to different population groups within a country. Statistics are based on averages and do not always accurately reflect the challenges to health and wellbeing faced by different groups. The Indigenous population in Australia is an example of this. Their health status is below the rest of the population, but this would not be apparent if only whole population statistics were explored in isolation. Statistics relating to population groups are examined in topic 4.

2.2.1 Self-assessed health status

Self-assessed health status is a commonly used indicator of health status which reflects a person's perception of his or her own health and wellbeing at a given point in time. Self-assessed health status data is often collected from population surveys and provides an indication of the overall level being experienced in relation to physical, social, emotional, mental and spiritual health and wellbeing.

Survey participants are asked to classify their health status according to one of five levels:

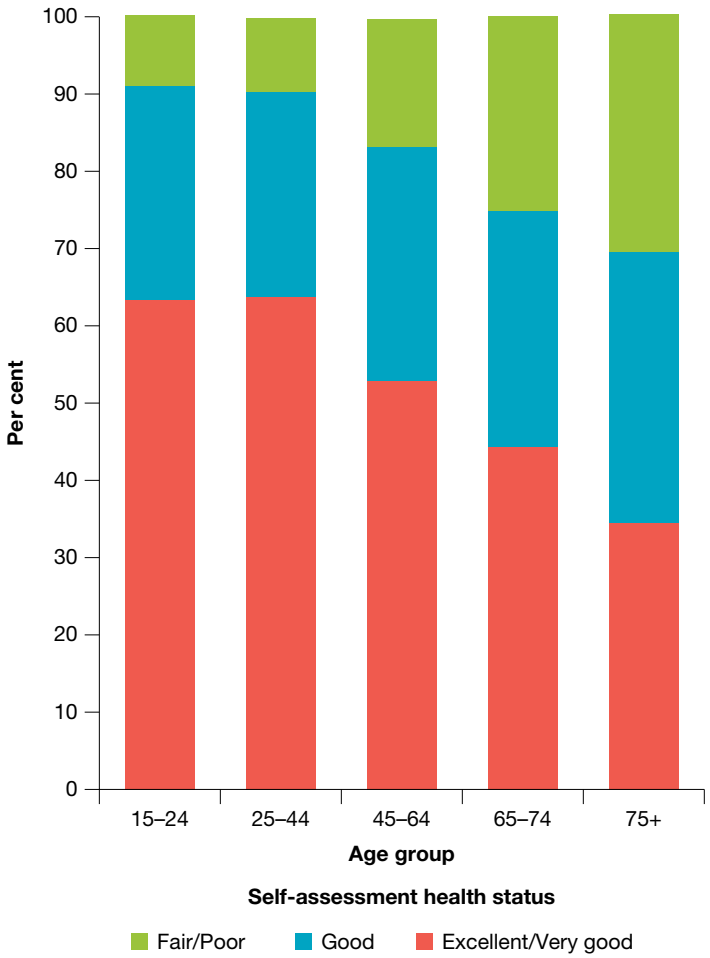
- excellent
- very good
- good
- fair
- poor.

Whilst self-assessed health status is a useful measure of a person's current health status and provides a broad picture of a population's overall health and wellbeing, it is subjective. Health status that one person classifies as 'excellent', may be classified as 'very good' by another person. In 2017–18, over half (56.4 per cent) of all Australians aged 15 years and over considered themselves to have excellent or very good health and wellbeing, while 14.7 per cent rated their health and wellbeing as fair or poor (ABS, 2018).

As shown in figure 2.3, the proportion of those assessing their health and wellbeing as excellent or very good decreases with age.

A range of factors can influence how an individual assesses their health status including presence or absence of disease, disability, illness, energy levels, access to healthcare, social connections, mental state and thought patterns, sense of belonging within the community, and emotional health and wellbeing, including levels of resilience.

FIGURE 2.3 Self-assessed health status, by age, 2017–18



Source: https://www.aihw.gov.au/reports/australias-health/australias-health-2018/contents/indicators-of-australias-health/self-assessed-health-status.

2.2.2 Life expectancy and health-adjusted life expectancy

Life expectancy is defined as 'the number of years of life, on average, remaining to an individual at a particular age if death rates do not change. The most commonly used measure is life expectancy at birth (AIHW, 2018). Although life expectancy figures most commonly relate to a baby born at the present time, they can relate to a person of a different age. If life expectancy data are provided for people of different ages, they will be specified in the data.

FIGURE 2.4 Life expectancy is increasing in Australia.



A male born in Australia in 2017 can expect to live (on average) to 80.5 years, whereas a male aged 60 in 2017 can expect to live to 83.8 years. For females, life expectancy at birth in 2017 was 84.6 years, while at the same time was 86.8 years for a female aged 60. Both males and females in Australia compare well with the global average for life expectancy, which was 72.0 years for a baby born in 2016.

As life expectancy is based on the average age at death, life expectancy increases as a person gets older (see table 2.1). If a person survives the periods of birth, infancy, childhood and youth, their chance of reaching older age increases. Some people will not survive through their infancy, childhood, youth and adulthood stages, which brings the average down for those at birth.

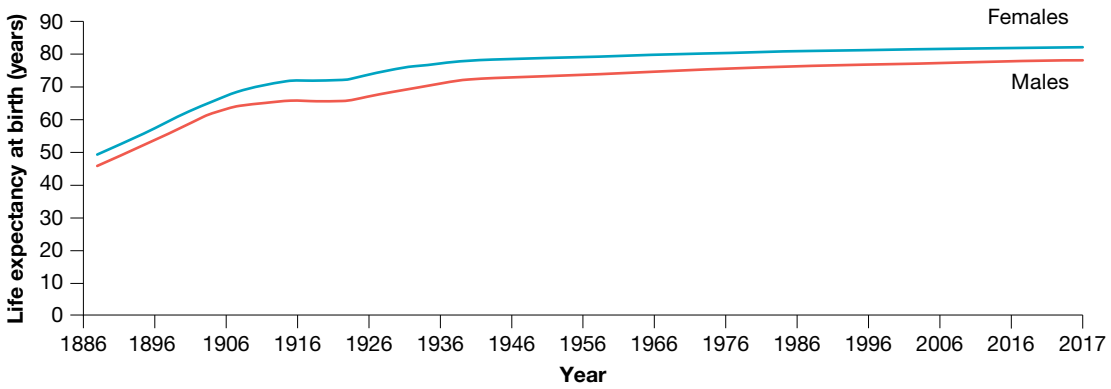
Life expectancy has increased by more than 30 years over the last century as indicated in figure 2.5. Life expectancy continues to increase, but due to trends such as increasing rates of obesity, some people question the capacity of Australia to continue making improvements in life expectancy.

TABLE 2.1 Life expectancy for males and females of selected ages in Australia, 2017

Age	Males	Females
0 (birth)	80.5	84.6
15	80.9	85.0
30	81.4	85.2
45	82.2	85.7
60	83.8	86.8
75	87.1	89.1
90	94.3	94.9

Source: ABS, *Life tables, States, Territories and Australia, 2015–17*.

FIGURE 2.5 Life expectancy of Australians, 1890–2017



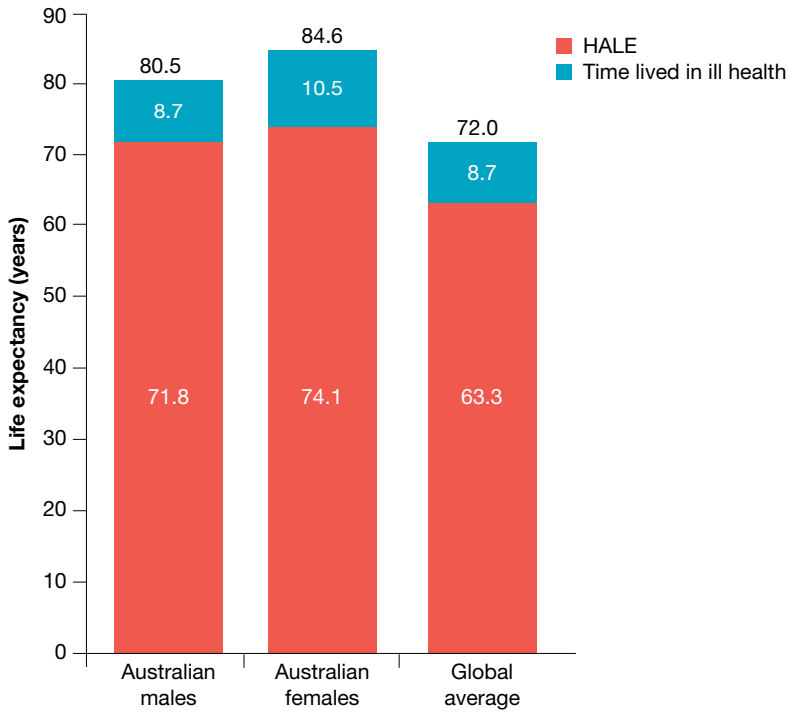
Source: AIHW, *Australia's health 2018*, p. 10.

Life expectancy is especially useful for comparing different countries and population groups, which can assist governments and non-government organisations in identifying areas for potential improvement. Unlike mortality and morbidity figures, however, life expectancy does not provide information on the health issues facing a country or population groups such as the leading causes of death or emerging diseases.

Although it is an important health status indicator, life expectancy doesn't give any indication of the quality of life being experienced; it is based purely on the quantity, or length of life. A measurement that considers life expectancy data and the impact of ill health in a population is **health-adjusted life expectancy** or HALE. Health-adjusted life expectancy relates to the average length of time an individual at a specific age can expect to live in full health; that is, time lived without the health consequences of disease or injury. So health-adjusted life expectancy refers to the number of years a person can expect to live without reduced functioning (including decreased mobility and the decline in the functioning of body systems) due to ill health, and is therefore an indicator of both quantity and quality of life.

The data in figure 2.6 indicates that the average male born in 2016 can expect to live to 80.5 years of age and spend 8.7 years of those years with ill health, giving a HALE of 71.8. A female born in 2016 can expect to live to 84.6 years of age and spend 10.5 of those years with ill health, meaning a HALE of 74.1 years. Although time with lived ill health is more likely to occur as people get older, it can happen at any age and HALE takes into account the average amount of time a person experiences ill health throughout their whole life.

FIGURE 2.6 Life expectancy at birth in full health (HALE) and ill health



Source: *Australia's health 2018*, p. 11.

2.2 Activity

Access the **Joy of statistics** weblink and worksheet in the Resources tab then complete the worksheet.

2.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) What is meant by 'health status'?
   (b) How is health status measured?
2. Explain what is meant by self-assessed health status.
3. Explain the difference between life expectancy and health-adjusted life expectancy as health status indicators.
4. (a) According to figure 2.6, what was the life expectancy and health-adjusted life expectancy for males and females in Australia respectively?
   (b) What do these numbers mean in relation to quantity and quality of life for males compared to females?
5. (a) What is a trend?
   (b) Identify two trends evident in figure 2.5.

2.2 Exercise 2 APPLY your knowledge

1. (a) Which dimension of health and wellbeing is generally the focus of health statistics?
   (b) Why would this be the case?
   (c) Identify a health status indicator that may reflect multiple dimensions of health and wellbeing and justify your choice.
2. Outline the difference between health and wellbeing and health status.

3. Brainstorm reasons why self-assessed health status may not be completely accurate in measuring the health status of a population.
4. (a) Outline the relationship between age and the proportion of those assessing their health and wellbeing as excellent or very good according to figure 2.3.
   (b) Suggest reasons that may account for the relationship outlined in part (a).
5. 'Life expectancy will continue to rise in the future'. To what extent do you agree with this statement?
6. Suggest reasons that might account for the lower life expectancy experienced by men compared with that of women.
7. Explain why life expectancy is higher for those aged 60 compared to those at birth.

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2.2 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Joy of statistics worksheet (doc-32189)
Weblink Joy of statistics

2.3 Mortality

KEY CONCEPT Exploring mortality and mortality rates of Australians

Mortality refers to the number of deaths in a population in a given period (usually 12 months). The **mortality rate** is therefore the number of deaths, usually expressed per 1000 or 100 000 people in a 12-month period, from a specific cause or all causes. For example, if the mortality rate for cancer in a population of one million is 50 per 100 000, there would be approximately 500 cancer deaths during that year. Expressing data 'per 1000' or 'per 100 000' people allows for comparisons to be made between population groups and between countries with different population sizes.

EXAM TIP

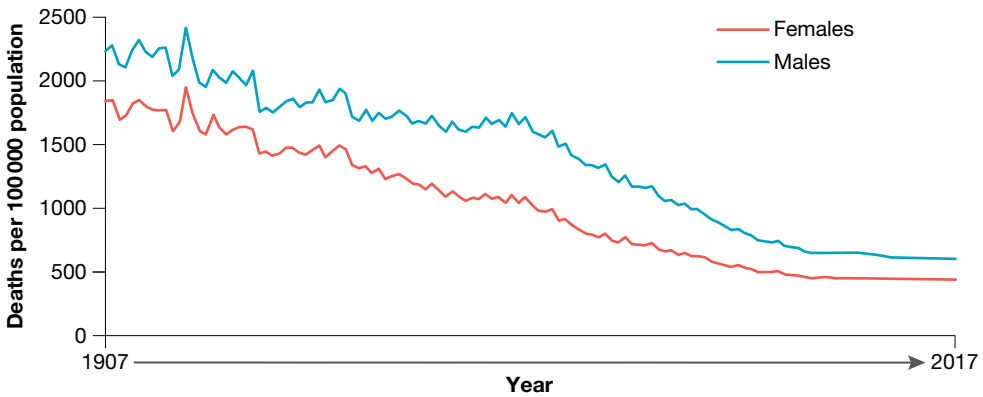
Ensure the correct unit of measurement is used when analysing health status data. For example, mortality data expressed per 1000 people produces very different figures compared to when it is expressed per 100 000 people. Including the relevant unit is important in ensuring that the discussion is factually correct.

Over time, mortality data allows trends in deaths to be identified. These trends can guide governments and other organisations in developing and funding strategies that attempt to reduce mortality rates from the leading causes of death (or those that have an increasing mortality rate).

In 2017, the mortality rate for males was 624 per 100 000 and for females was 445 per 100 000. This means that for every 100 000 males in Australia in 2017, 624 died. For females, 445 in every 100 000 died, meaning that males were 1.4 times more likely to die than females.

Despite an increase in the total number of deaths, there has been a continuous fall in mortality rates per 100 000 people in Australia. From 1907 to 2017, the age-standardised death rate for males and females fell by 71 per cent and 76 per cent respectively (see figure 2.7).

FIGURE 2.7 Age-standardised death rates by sex, Australia, 1907–2017



Source: AIHW, *Australia's health 2016*, p. 10, and AIHW GRIM Books, accessed November, 2018.

WHAT ARE AGE-STANDARDISED RATES?

Age-standardised rates allow us to compare populations that have a different spread of ages. For example, Australia's population is ageing and as a result, we would expect more deaths than a country with a younger population, as older people are more likely to die. Age standardising manipulates data to make the age groups of different populations relative so they can be compared more accurately.

Analysing the overall trend in the mortality rate is important, but it is also useful to identify the leading causes of death and trends that have occurred in relation to the causes of death over time. These trends give important feedback on the success of current interventions (policies, strategies and campaigns aimed at reducing the impact of health conditions) and allow predictions to be made about the future so relevant interventions can be put into place to improve health status.

The leading causes of death in Australia have changed markedly over the past century. Developments have been made with regards to the economy, technology and education. As a result, many diseases that were common causes of death 100 years ago, such as influenza and tuberculosis, cause relatively few deaths these days (table 2.2). This has helped to prolong life and give most Australians the opportunity to achieve optimal health and wellbeing.

TABLE 2.2 Five leading causes of death in 1907 and their contribution to mortality in 2017.

	1907		2017	
	Per cent deaths	Rank[(a)]	Per cent deaths	Rank[(a)]
Cardiovascular diseases	20.0	1	27.0	2
Respiratory diseases	14.3	2	10.1	3
Infectious diseases	12.6	3	1.6	5
Cancer	7.8	4	28.8	1
Injury and poisoning	4.9	5	6.6	4
Other	40.3		25.8	

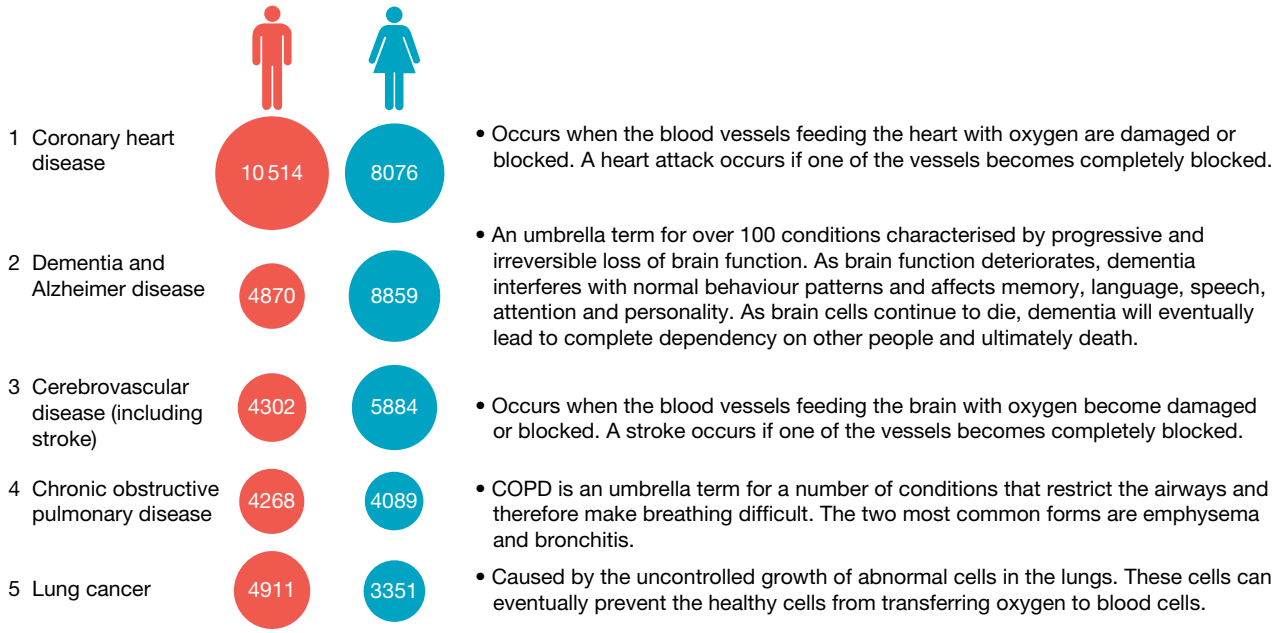
[(a)] In making these rankings, only the broad causes that were the top five in 1907 are considered.
Source: Adapted from AIHW, GRIM books.

As people live longer, they are more likely to die from lifestyle-related conditions. Diseases such as cardiovascular disease, cancers, dementia and respiratory diseases (including chronic obstructive pulmonary diseases) have emerged as the leading causes of death in Australia. Increasing rates of obesity are a significant contributor to these trends (figure 2.8). The specific leading causes of death are shown in figure 2.9. When analysing these figures, it is important to remember that they are based on all deaths. As older people account for the majority of deaths in Australia, the causes of their deaths are the ones most likely to appear in these figures.

FIGURE 2.8 Although it was not a significant cause of ill health 100 years ago, obesity is now a major contributor to ill health.



FIGURE 2.9 Leading causes of death for males and females, 2017



Source: Adapted from ABS, 3303.0 *Causes of death, Australia, 2017*.

Other key trends in mortality figures reported by the Australian Institute of Health and Welfare (AIHW) are listed here.

- There has been a 95 per cent drop in deaths from infectious diseases (from around 140 per 100 000 in the early 1920s to 8.6 per 100 000 in 2017).
- Mortality rates from colorectal cancer have fallen by about 40 per cent since the 1980s.
- Cervical cancer deaths have fallen by about 75 per cent since the 1960s.
- Mortality rates due to dementia have increased by around 75 per cent since 2000 (see the case study in section 2.3.3).
- Male mortality rates from lung cancer are still higher than for females, but the mortality rate from lung cancer has fallen steadily for males since the 1980s. The rates for females have risen steadily since the 1960s.
- Mortality rates have fallen for cancer, cardiovascular disease, strokes, injury and asthma.
- Heart attack rates have fallen and survival rates have improved.
- The rate of type 2 diabetes is rising, with prevalence doubling in the past 20 years.

- Deaths from motor vehicle accidents have fallen by almost 80 per cent since the 1970s.

In addition to data covering the whole population, mortality data can also be collected for particular age or population groups. Examples include:

- **infant mortality rate** — measures the rate of deaths of infants before their first birthday, usually expressed per 1000 live births
- **under-five mortality rate (U5MR)** — measures the number of children that die before their fifth birthday, usually expressed per 1000 live births
- **maternal mortality ratio** — the number of mothers who die as a result of pregnancy, childbirth or associated treatment per 100 000 live births.

FIGURE 2.10 Safety features, such as airbags, have contributed to the decline in mortality rates from motor vehicle accidents over the past few decades.



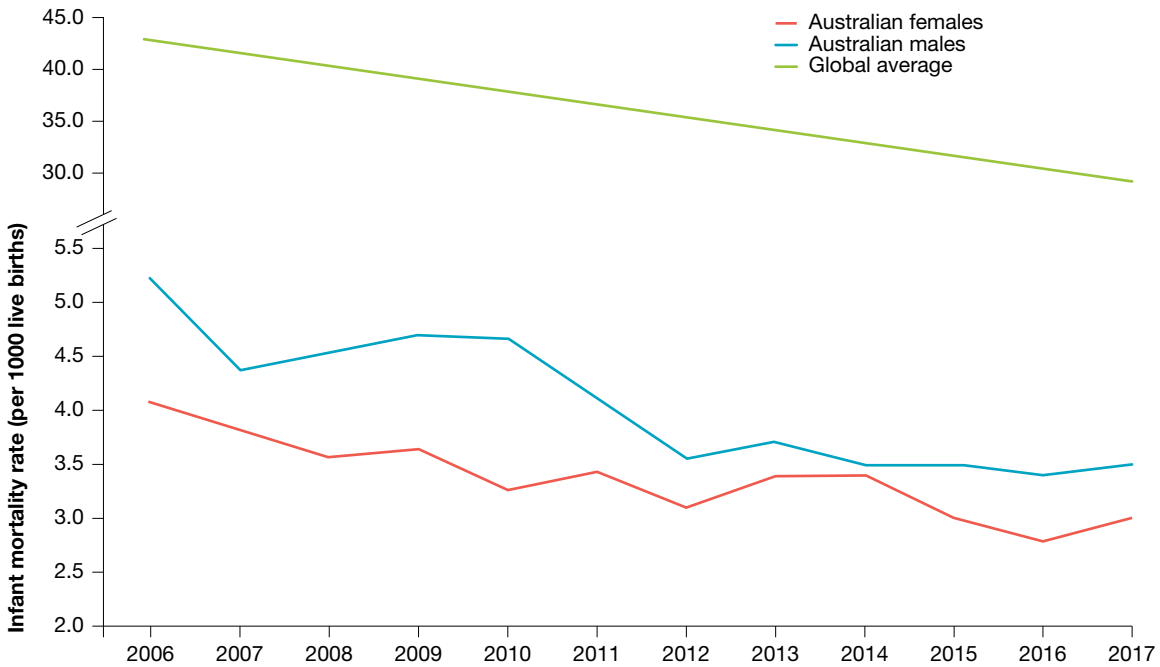
2.3.1 Infant mortality rates

The mortality rate for infants and children are key indicators of the general health and wellbeing of a population and the social and economic resources available. Infants and children rely on others to meet their needs for food, water, shelter and healthcare, and they often have underdeveloped immune and other body systems which make them particularly susceptible to premature mortality. Mortality rates for infants and children therefore reflect the ability of a society to provide the resources required to sustain human life.

Infant and under-five deaths are often preventable, so exploring the causes and rates of these deaths can help to improve the health status of children.

Infant mortality rates are low in Australia compared to other countries. Infant mortality rates have decreased over time for both males and females, and the difference between males and females has also narrowed (see figure 2.11).

FIGURE 2.11 Infant mortality rates in Australia and the global average over time



Source: Adapted from *AIHW Children's headline indicators* and WHO GHO.

Much of the decrease in infant mortality has been due to reductions in deaths from sudden infant death syndrome (SIDS). SIDS is the unexplained death of an apparently healthy infant. It is only diagnosed when other causes are ruled out. Although the exact causes of SIDS are unknown, there are a number of factors that increase the risk of SIDS for an infant. These include being male (70 per cent of SIDS deaths are usually males) and sleeping on the stomach.

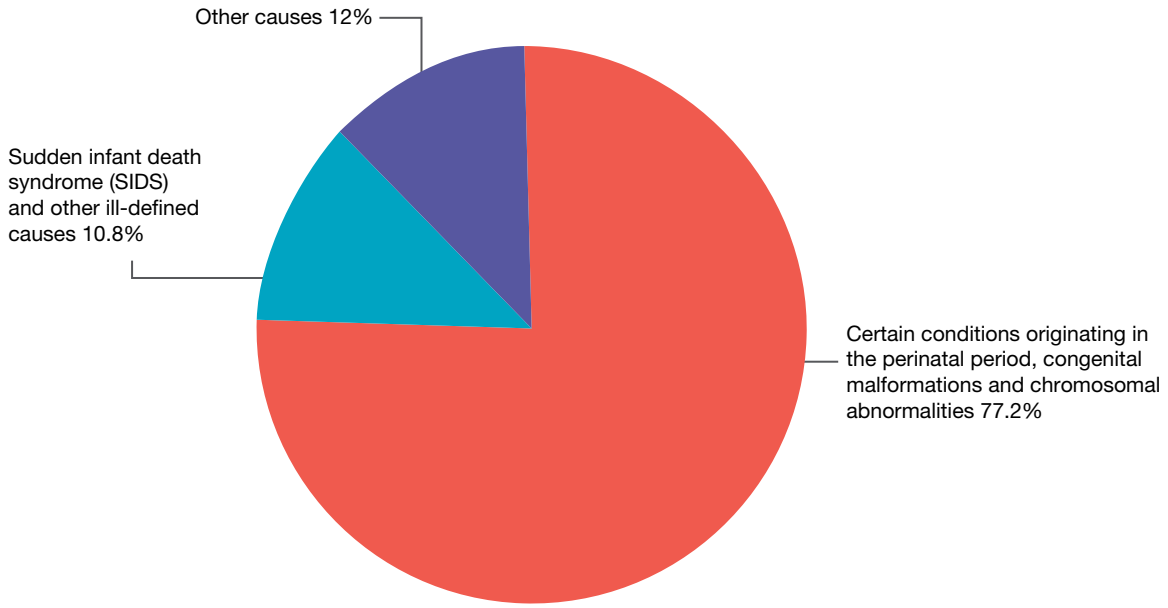
Most cases of infant mortality arise from problems associated with the birth or pregnancy itself. As a result of this, a majority of infant deaths occur in the period directly after birth. As infants and children get older, the risk of death decreases.

FIGURE 2.12 Infant mortality is decreasing in part due to reductions in deaths from sudden infant death syndrome (SIDS).



Specific causes of death in the first year of life are outlined in figure 2.13. Conditions originating in the perinatal period, **congenital malformations** and chromosomal abnormalities account for around 75 per cent of all infant deaths. Conditions originating in the perinatal period relate to conditions that cause death in the first 28 days of life. These include complications of the placenta or umbilical cord, infections, birth injury, **asphyxia** and problems relating to premature births. Congenital malformations, sometimes referred to as 'birth defects', often result from missing or ill-formed body structures. They may have a genetic, infectious or environmental origin, although in most cases it is difficult to identify their cause. Chromosomal abnormalities during the creation of sperm and ova can cause a range of conditions in the developing baby. Most often, these conditions arise as a result of too many or too few chromosomes. Some chromosomal abnormalities lead to physical defects that result in death.

FIGURE 2.13 Causes of infant mortality in Australia, 2015–17



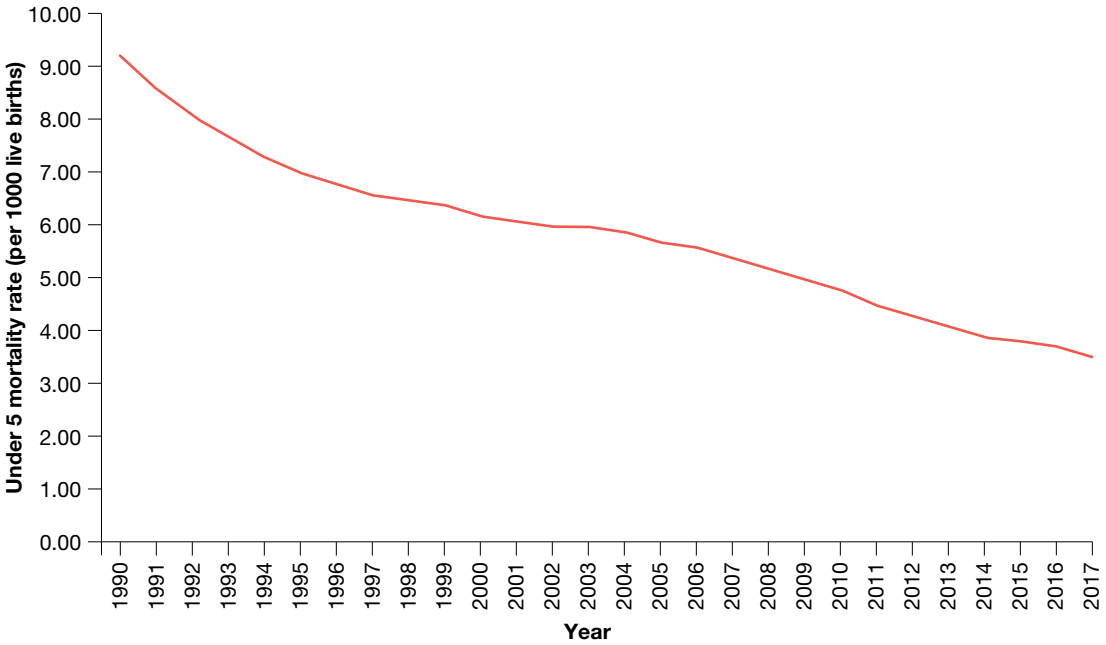
Source: Adapted from AIHW National Mortality Database; ABS 3101.0 — Australian Demographic Statistics, Jun 2018.

2.3.2 Under-five mortality rate

Like the infant mortality rate, the under-five mortality rate has decreased over time in Australia (see figure 2.14) and is low compared to most other countries. The reduction in infant mortality is partially responsible for the decrease in under-five mortality rate in Australia. Other contributing factors include greater awareness of risk factors for illness and injury, national childhood vaccination programs, and improved health services and technology.

Although the overall rate of under-five mortality has decreased, child mortality rates for Indigenous people, those living outside of Australia's major cities, and low socioeconomic groups remain higher than for the rest of the population.

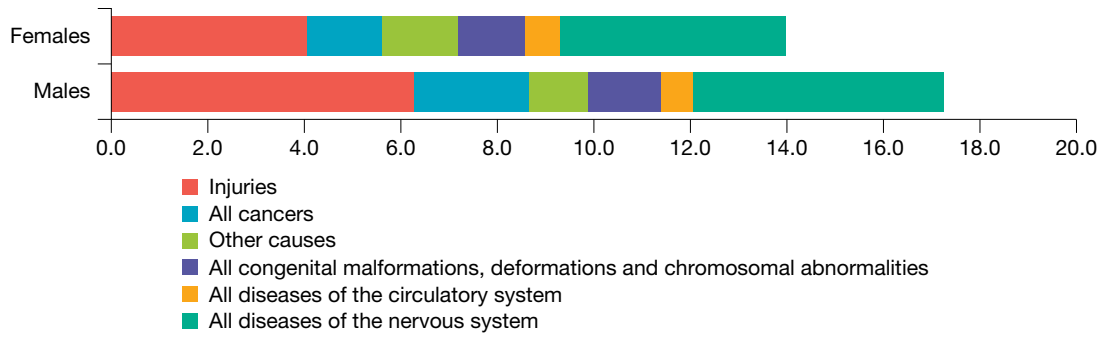
FIGURE 2.14 Under-five mortality rate in Australia over time



Source: Adapted from WHO GHO.

The significant proportion of causes of mortality for those under five are termed 'injuries' and are accidental in nature (see figure 2.15). Injuries include falls, drowning, suffocation, poisoning, transport accidents and burns.

FIGURE 2.15 Leading causes of death for those aged 1–4 in Australia, 2015–17



Source: Adapted from AIHW National Mortality Database; ABS 3101.0 — Australian Demographic Statistics, Jun 2018.

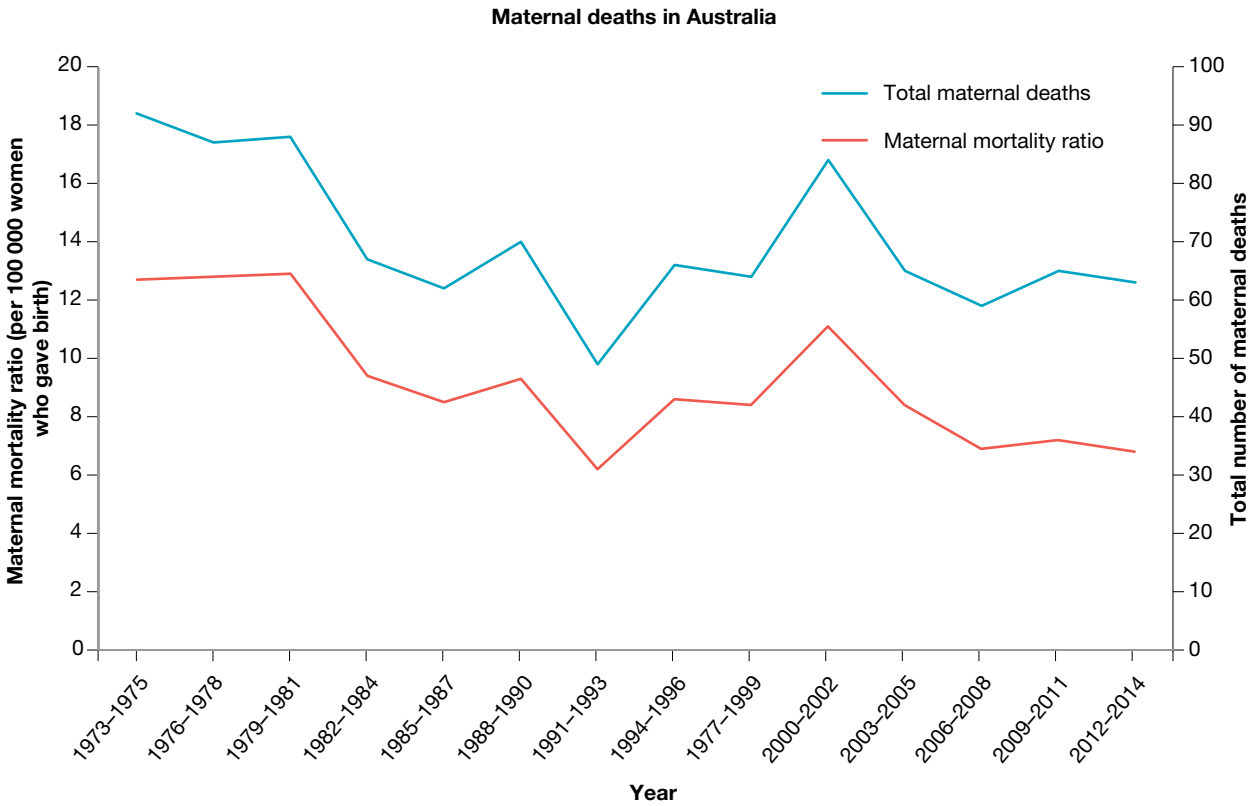
2.3.3 Maternal mortality rate

Maternal mortality relates to the deaths of mothers as a result of pregnancy or childbirth, up to six weeks after delivery and the maternal mortality ratio (or rate) relates to the number of mothers who die as a result of pregnancy, childbirth or associated treatment per 100 000 women who give birth.

Analysing maternal mortality rates allows trends to be identified so interventions can be put in place to reduce the risk of death as a result of pregnancy or childbirth.

Pregnant women in Australia experience low maternal mortality rates compared to most other countries, although there is some variation among population groups within Australia, with Indigenous mothers experiencing a maternal mortality ratio three times higher than the rest of the population. Although maternal deaths in Australia are relatively rare, both the number and rate of maternal mortality fluctuate over time (see figure 2.16). A range of factors contribute to these changes including technological developments, improvements in the identification and reporting of maternal deaths, increasing rates of obesity (contributing to higher rates of cardiovascular disease among pregnant women) and increases in the average age of women giving birth.

FIGURE 2.16 Number and rate of maternal deaths in Australia over time



Source: Adapted from AIHW 2015, *Maternal deaths in Australia 2008–2012,* AIHW 2017, *Maternal deaths in Australia 2012–2014.*

Leading causes of maternal mortality in Australia include:

- cardiovascular disease — the increased demands on the heart and blood vessels that occurs during pregnancy can contribute to cardiovascular diseases that were not present prior to pregnancy. Cardiovascular diseases are the most common cause of maternal deaths in Australia.
- **obstetric haemorrhage** — excessive bleeding during pregnancy, labour or after birth can lead to maternal death.

CASE STUDY

Dementia deaths continue to rise as population ages

Heart disease has been Australia's leading cause of death* since the early part of the 20th century, but that could be set to change as dementia death rates continue to rise, according to figures released today by the Australian Bureau of Statistics (ABS).

There were 159 052 deaths in Australia, with the infant mortality rate at a record low (3.2 deaths per 1000 live births) and the standardised death rate remaining low at 5.5 deaths per 1000 people.

James Eynstone-Hinkins, ABS Director of Health and Vital Statistics, said that over time the decline in mortality rates and increases in life expectancy are contributing to the ageing of Australia's population.

'Population projections indicate that the number of people aged 80 and over will double in the next 20 years. Understanding and managing diseases of the elderly is critical as people live longer lives,' said Mr Eynstone-Hinkins.

'Death rates from dementia have continued to increase, while those from heart disease and stroke have steadily declined,' he said. 'If these trends continue we can expect to see dementia become our leading cause of death within the next few years.'

Heart disease remains the leading cause of death for both males and females, with dementia, strokes, lung cancer and chronic respiratory conditions all in the top five.

Diabetes is Australia's sixth leading cause of death, accounting for 2.9 per cent of all deaths in 2015. There are more than a million Australians living with diabetes, and it was considered to be a contributory factor in more than 10 per cent of deaths in 2015.

Cancers accounted for almost 30 per cent of Australian deaths in 2015. Lung cancer accounts for the most cancer deaths, making it the second leading cause of death for males and fourth leading cause overall.

Suicide is the leading cause of death among people 15–44 years of age and remains the leading cause of premature mortality in Australia. In 2015, suicide deaths occurred at a rate of 12.6 deaths per 100 000 people, a further increase on that recorded in 2014.

** Note that this release discusses specific causes of death. In terms of disease groups, cancers are the leading cause of death, followed by cardiovascular diseases.*

Source: ABS media release, 28 September, 2016.

Case study review

1. What is contributing to Australia's ageing population according to the article?
2. (a) What trends are emerging for cardiovascular disease deaths?
   (b) Suggest factors that may account for these trends.
3. (a) What trends are emerging for dementia deaths?
   (b) Suggest factors that may account for these trends.
4. Approximately what proportion of deaths was cancer responsible for in 2015?

2.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Define the following:
   (a) mortality
   (b) infant mortality
   (c) infant mortality rate
   (d) maternal mortality
   (e) maternal mortality ratio
   (f) mortality rate
   (g) under-five mortality rate.
2. List the top three causes of death for men and women.
3. (a) How have the causes of death changed over the past century in Australia?
   (b) Brainstorm factors that may have contributed the change outlined in part (a).
4. Explain why the mortality rates for infants and children are key indicators of the general health and wellbeing of the population.
5. Outline the difference in causes of mortality for infants compared to 1–4 year olds.

2.3 Exercise 2 APPLY your knowledge

1. Discuss the advantages of using mortality data in addition to life expectancy data when making judgements about the health status of a population.
2. Explain what a mortality rate of 150 per 100 000 people means for a population.
3. If a population has 1 000 000 people and the mortality rate is 500 per 100 000 people, how many people on average would die each year?
4. Outline two trends as shown in figure 2.7.
5. Brainstorm factors that may have contributed to the trends in mortality identified at the end of subtopic 2.3.
6. Outline the change in infant mortality rates for males and females that occurred between 2006 and 2017 in Australia according to figure 2.11.
7. Outline the change in the under-five mortality rate over time according to figure 2.14.
8. (a) Approximately how many maternal deaths were there in 2012–14 according to figure 2.16?
   (b) Approximately what was the maternal mortality ratio in 2012–14 according to figure 2.16?

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2.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Weblink Interactive data on mortality in Australia

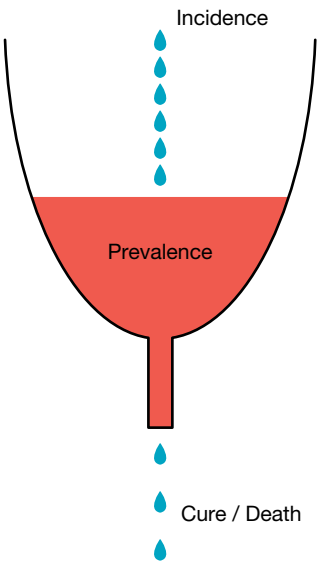
2.4 Morbidity

KEY CONCEPT Exploring morbidity in Australia

Mortality rates were examined in the previous section. Although these are important statistics, they tell only part of the story. Many people experience conditions that impact significantly on health and wellbeing but do not lead to death. Many causes of mortality also contribute to significant illness prior to causing death. Looking at levels of illness and disability is therefore important in making judgements about overall health status.

Morbidity refers to 'ill health in an individual and levels of ill health within a population (often expressed through incidence, prevalence) (AIHW 2018). Therefore, the morbidity rate is a measure of how many people suffer from a particular condition during a given period of time. As stated in the AIHW definition, morbidity rates can look at **incidence** (the number or rate of new cases of a disease during a specified time, usually a 12-month period) or **prevalence** (the number or proportion of cases of a particular disease or condition present in a population at a given time). Incidence and prevalence provide two ways of looking at the impact of diseases. Unlike most infectious diseases, many chronic conditions, such as cardiovascular disease and cancer, are long lasting and may have effects that may never be cured completely. As a result, they may require long-term care. People generally only receive a diagnosis for these conditions once; this represents their 'incident year'. As these conditions can be long lasting, prevalence data provides information about the total number of people with a particular condition at a given time, not just those who have been newly diagnosed (see figure 2.17). Prevalence

FIGURE 2.17 Morbidity includes both incidence and prevalence rates



data provides valuable information relating to the healthcare required to treat all people experiencing particular conditions.

As mortality rates have fallen, morbidity rates for many causes have increased. As people are living longer, there is more time for a range of factors to have a negative impact on health and wellbeing. There have also been increases in conditions such as obesity that result in an increased rate of associated conditions, such as type 2 diabetes, cardiovascular disease and some cancers. Even though the rates of some of these conditions have increased, there are other, non-life-threatening conditions that affect many more people, such as arthritis and osteoporosis.

FIGURE 2.18 As well as disease, morbidity includes injuries and disabilities.



According to the Australian Institute of Health and Welfare estimates, around 75 per cent of Australians experience a long-term health condition. The proportion of people experiencing one or more long-term conditions increases with age. The most commonly reported conditions are outlined in table 2.3. Many of the causes shown do not contribute to death, but they may reduce the quality of life over a long period.

TABLE 2.3 The most commonly reported long-term conditions, 2014–15

	Males		Females	
Condition	**Per cent**	**Rank**	**Per cent**	**Rank**
Long sighted	26.2	1	31.6	1
Short sighted	22.2	2	28.9	2
Hay fever and allergic rhinitis	19.1	3	19.8	3
Back problems	16.2	4	16.2	4
Deafness	13.9	5	8.3	12
Hypertension	12.0	6	10.7	9
Asthma	9.8	7	11.8	6
Anxiety-related disorders	9.4	8	13.0	5
Depression and mood (affective) disorders	7.7	9	10.9	8
Chronic sinusitis	7.5	10	9.5	10
Osteoarthritis	6.4	12	11.6	7

Source: Adapted from ABS, *National health survey 2014–15*.

Morbidity figures represent a snapshot of the whole population. Australians are living longer than ever, so some of these conditions are very common in the older population, but virtually non-existent in the younger population. As a result, it is also useful to examine the most reported long-term conditions for different age

groups (see table 2.4). This allows government and non-government organisations to develop appropriate strategies and allocate funds to address the most common conditions in each age group.

TABLE 2.4 Five most common conditions by age group, 2014–15

Age group	Condition	Per cent	Age group	Condition	Per cent
0–14	Asthma	10.9	45–54	Long-sightedness	52.3
	Hay fever and allergic rhinitis	10.9		Short-sightedness	32.1
	Mental and behavioural problems	8.9		Back problems	22.9
	Food allergy	6.3		Hay fever and allergic rhinitis	22.2
	Long-sightedness	4.8		Mental and behavioural problems	20.4
15–24	Hay fever and allergic rhinitis	23.5	55–64	Long-sightedness	62.7
	Short-sightedness	19.9		Short-sightedness	40.5
	Mental and behavioural problems	19.4		Cardiovascular disease	35.9
	Long-sightedness	12.2		Arthritis	34.9
	Back problems	11.1		Endocrine diseases including diabetes	29.5
25–34	Short-sightedness	26.1	65–74	Long-sightedness/hyperopia	60.0
	Hay fever and allergic rhinitis	23.2		Cardiovascular disease	53.2
	Mental and behavioural problems	19.0		Arthritis	48.6
	Back problems	15.5		Short-sightedness	42.4
	Asthma	11.1		Endocrine diseases including diabetes	37.9
35–44	Short-sightedness/myopia	26.7	75+	Cardiovascular disease	66.1
	Hay fever and allergic rhinitis	23.2		Long-sightedness	59.9
	Back problems	19.0		Arthritis	53.3
	Long-sightedness	15.4		Hearing problems	49.3
	Cardiovascular disease	11.5		Hypertension	45.5

Source: ABS, *National health survey 2014–15*.

FIGURE 2.19 Vision problems are among the most common health conditions in Australia.



2.4.1 Morbidity requiring care

Illnesses and disabilities vary in their severity and many people will require professional care in order to improve health and wellbeing. As a result, morbidity data from doctors and hospitals can be used to make judgements about health status.

GP visits

According to Department of Health data (2018), around 155 million visits to general practitioners (GPs) were made in 2017–18, which is just over six visits per person each year. Females are more likely to visit doctors than males. This does not mean that they are more likely to be ill, but that they are more likely to visit a doctor when symptoms or concerns arise.

The leading causes of GP visits are shown in table 2.5.

TABLE 2.5 Principal reason for GP visits, 2015–16

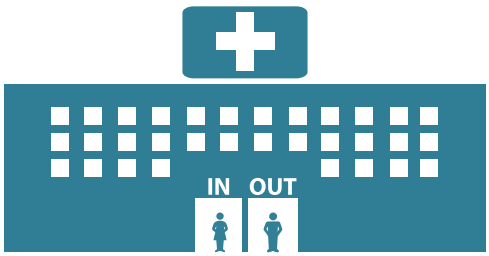
Principal reason	Percentage of visits	Principal reason	Percentage of visits
Prescription	8.8	Fever	1.4
Check-up	8.1	Depression	1.3
Test results	6.7	Abdominal pain	1.2
Cough	4.1	Upper respiratory tract infection	1.1
Immunisation/vaccination	3.3	Headache	1.1
Administrative procedure	2.5	Skin symptom/complaint	1.1
Back complaint	2.0	Sneezing/nasal congestion	1.0
Rash	1.8	Hypertension/high blood pressure	1.0
Throat symptom/complaint	1.8	Anxiety	1.0
Blood test	1.5	All other reasons	49.2

Source: Adapted from Britt, H, et al. 2015, 'General practice activity in Australia 2015–16', General practice series no. 40, Sydney University Press.

Hospitals

Hospital care encompasses care for chronic conditions, where the patient is admitted to receive treatment, and emergency care that involves unforeseen events that end up requiring medical care, such as car accidents, sporting accidents and premature births. In 2016–17 there were 11 million hospitalisations in Australia (see figure 2.20).

FIGURE 2.20 At a glance: statistics about hospitals in Australia



11 million hospitalisations

Where?

695 Public hospitals **630** Private hospitals

3 in 5 in public hospitals

6,587,000 Public hospitalisations
4,426,000 Private hospitalisations

Average length of overnight stay

Public hospitals **5.7 days**
Private hospitals **5.2 days**

Who?

53%
were for females

5%
were for Indigenous Australians

42%
were for people aged over 65

People living in *Very remote* areas were
1.9 times
more likely to be hospitalised

What care was provided?

1 in 4
hospitalisations involved a surgical procedure

28%
were emergency admissions

159,000
hospitalisations involved a stay in intensive care

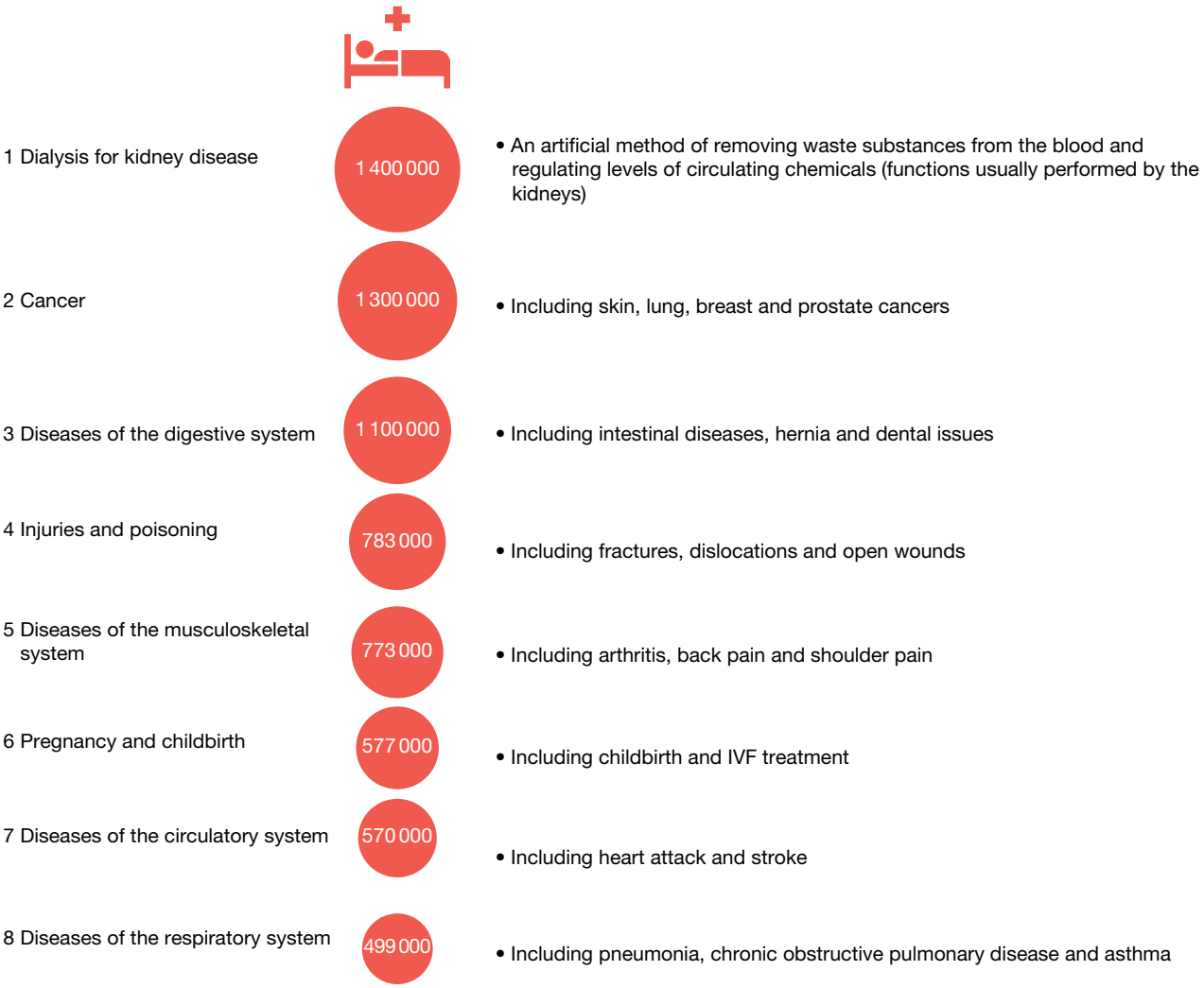
1.4 million
hospitalisations for dialysis

60%
same-day hospitalisations (vs overnight hospitalisations)

Source: https://www.aihw.gov.au/getmedia/d5f4d211-ace3-48b9-9860-c4489ddf2c35/aihw-hse-204.pdf.aspx?inline=true.

Figure 2.21 shows the major causes of **hospital separations**. Hospital separations are episodes of hospital care that start with admission and end at transfer, discharge or death.

FIGURE 2.21 Major causes of hospital separations, Australia, 2016–17



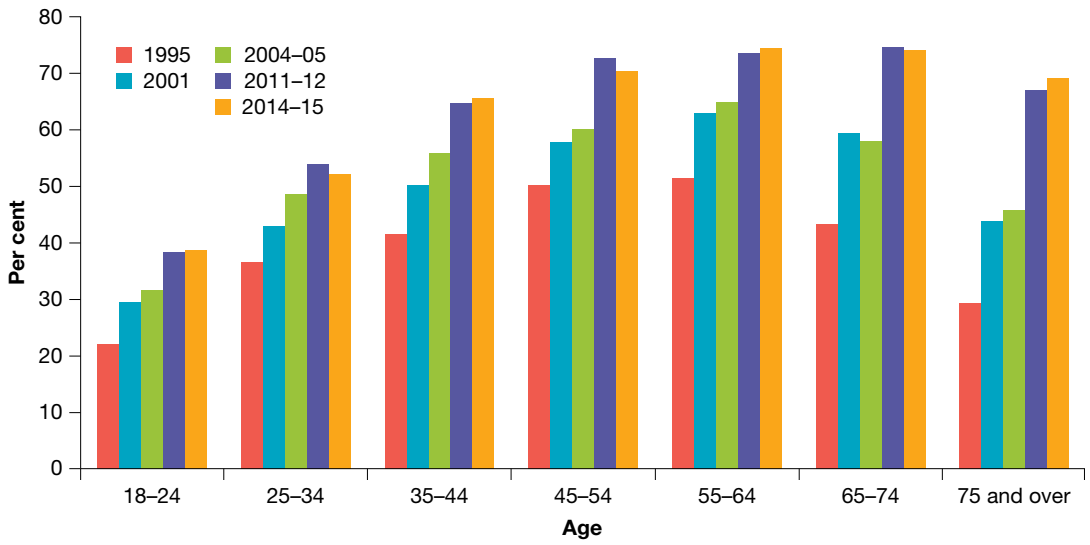
Source: Adapted from AIHW 2018, *Australia's hospitals 2016–17 at a glance*.

Trends in morbidity

A number of morbidity trends are emerging that are worth considering. The long-term effects of some of these trends will influence future mortality and morbidity rates, but this takes time. Some of the key trends identified by the Australian Institute of Health and Welfare include:

- a significant increase in the prevalence of overweight and obese people over the past 20–30 years (see figure 2.22)
- increased rates of impaired glucose regulation (a precursor to type 2 diabetes) since 1980
- trebled rates of diabetes in the past two decades
- increased rates of kidney disease (attributed to the increased rates of diabetes).

FIGURE 2.22 Trends in overweight and obesity prevalence, 1995–2015



2.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain what is meant by 'morbidity'.
2. Explain the difference between incidence and prevalence.
3. Explain why morbidity rates have increased as mortality rates have decreased.
4. (a) Briefly outline the overall change in rates of overweight and obesity between 1995 and 2014–15 according to figure 2.22.
   (b) Suggest factors that may have led to these trends.
   (c) Which age groups are most likely to be overweight or obese according to this figure?
5. (a) List one difference between the long-term conditions of males and females as shown in table 2.3.
   (b) Suggest factors that may have led to this difference.
6. How do the causes of morbidity change over the lifespan as shown in table 2.4?
7. (a) What are the most reported conditions in the 15–24 age group as shown in table 2.4?
   (b) Which of these conditions could be considered life threatening?
8. Which causes from figure 2.21 do you think would be responsible for the most hospitalisations of people your age?
9. According to figure 2.21 approximately how many hospitalisations were there in 2016–17 for:
   (a) dialysis for kidney disease
   (b) diseases of the musculoskeletal system
   (c) diseases of the respiratory system?

2.4 Exercise 2 APPLY your knowledge

1. When looking at morbidity rates, why is it important to consider both incidence and prevalence rates?
2. 'Breast cancer — incidence up, death rate down, survival rates improve'. Is this headline possible? Explain your response.
3. Look at figure 2.18. This person's physical health and wellbeing has been affected. How might their social, emotional, mental and spiritual health and wellbeing be affected? Are they all negative effects?
4. (a) Why might females be more likely to visit doctors?
   (b) What consequences does this have on the health status of males versus females?
5. Are hospital and GP data completely accurate in indicating the level of morbidity in the population? Why or why not?
6. Describe how increasing rates of obesity could have a large impact on mortality and morbidity statistics in the future.
7. How could living with cancer affect mental and spiritual health and wellbeing?

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2.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

2.5 Burden of disease

KEY CONCEPT Exploring the burden of disease in Australia

Burden of disease statistics take the impact of both mortality and morbidity into account and therefore provide a way of examining the total burden that a condition places on society. Specifically, burden of disease measures the gap between current health status and an ideal situation where everyone lives to an old age free of disease and disability.

In the past, if someone wanted to examine mortality and morbidity data to compare the effect that asthma has on Australians compared to the impact cancer has, it would have been difficult. How could a comparison be made between asthma (which affects more people than cancer, can last a lifetime, but causes relatively few deaths) and cancer (which causes thousands of deaths per year)? To overcome this problem, scientists and health professionals devised a system that allows a comparison of conditions that cause death, conditions that cause illness or disability, and those that cause both.

Burden of disease is measured in a unit called **disability-adjusted life year** or **DALY** (pronounced 'dally'), where one DALY is the equivalent of one year of life lost due to premature death or the equivalent time of healthy years lost as a result of living with a disease or disability. If 1000 DALY were lost due to asthma in a population, it means that 1000 years of healthy life have been lost as a result of premature death or by people suffering from the condition who experienced a reduced quality of life. If 2000 DALY were lost due to mental illness in the same population, it means that mental illness was twice the burden of asthma.

DALY are useful for comparing population groups and can provide valuable information about trends and where interventions are required. DALY can also be used to gauge the contribution of various risk factors to the overall burden of disease experienced. DALY are often calculated for a range of conditions and added to produce a grand total. In 2017, 5.9 million years of 'healthy' life were lost in Australia.

Disability-adjusted life year is calculated by adding **years of life lost (YLL)** due to premature death and the number of **years lost due to disability (YLD)**, illness or injury (see figure 2.24 and the following section).

FIGURE 2.23 Burden of disease data allow us to compare the overall burden of conditions such as arthritis (which rarely causes death) with conditions that lead to many deaths.



FIGURE 2.24 The equation for calculating burden of disease



2.5.1 Years of life lost (YLL)

Years of life lost (YLL) are the fatal component of DALY. Each YLL represents one year of life lost due to premature death. YLL can be calculated for any condition that causes death. The younger a person is when they die from a condition, the greater the number of YLL will be added for that condition. If a person dies from cancer at 60, and life expectancy for a 60-year-old is 85, then 25 years of life have been lost. An infant who does not survive past the age of 1 will contribute significantly more YLL than a 60-year-old as the life expectancy for a 1-year-old is around 82 years which means 81 YLL are added.

2.5.2 Years lost due to disability (YLD)

Years lost due to disability (YLD) are the non-fatal component of DALY. A complex formula is used to calculate YLD because conditions vary in their severity. For example, Alzheimer's disease generally has a greater impact on a person's life than asthma, and this needs to be considered when calculating YLD. Because the formula used to calculate YLD takes such considerations into account, it is possible to make a more accurate comparison. If a person suffers from a disease for 10 years that makes them only 'half well', then they have lost five 'healthy' years due to this condition. Although ill health generally has greater impacts towards the end of life, YLD can be contributed at any stage of a person's life.

FIGURE 2.25 DALY are calculated by adding the fatal and non-fatal impacts of disease and injury.



Source: https://commons.wikimedia.org/wiki/File%3ADALY_disability_affected_life_year_infographic.svg.

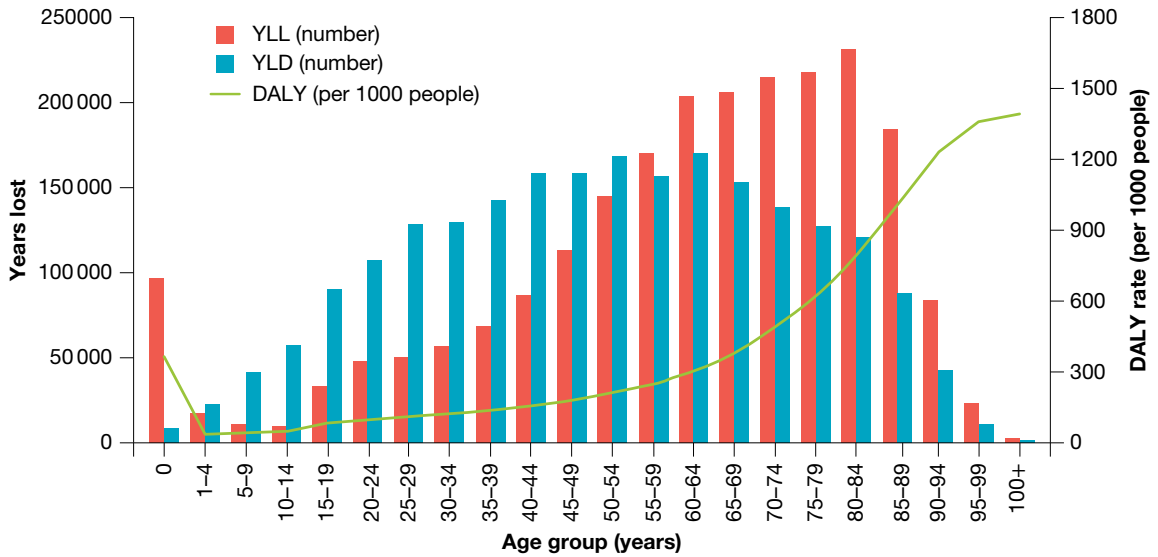
YLL and YLD are equal in value in that both represent one year of life lost. However, YLL is from premature death whereas YLD is from illness, injury or disability.

The number of YLL and YLD change across the lifespan as shown in figure 2.26. Those aged under one contribute significantly more YLL than other young people. Most of the total burden is from non-fatal causes up to the age of 55 after which the fatal burden is higher. The number of YLL increases gradually until reaching its maximum in the 80–84 age group. If an individual dies between after the age of 80, they contribute a smaller number of YLL, but many people die after this age, accounting for the relatively high number of YLL in the older age groups.

The number of YLD gradually increases from birth until the age of around 50–64 and then slowly decreases. There are a large number of people in the 45–64 age groups who experience chronic illness, which contributes to this trend.

The overall rate of DALY is relatively high (around 400 per 1000 people) in the first year of life, after which it declines significantly in early childhood to around 50 per 1000 people. There is then a gradual increase to around age 64, followed by rapid increases throughout the remainder of the lifespan until the overall rate reaches around 1400 per 1000 people for those aged 100 and over.

FIGURE 2.26 Fatal and non-fatal composition of the total burden of disease, by age, 2017



Source: Adapted from Institute for Health Metrics and Evaluation (IHME). Global Burden of Disease Study 2015 (GBD 2017) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2019.

2.5.3 Burden of disease in Australia

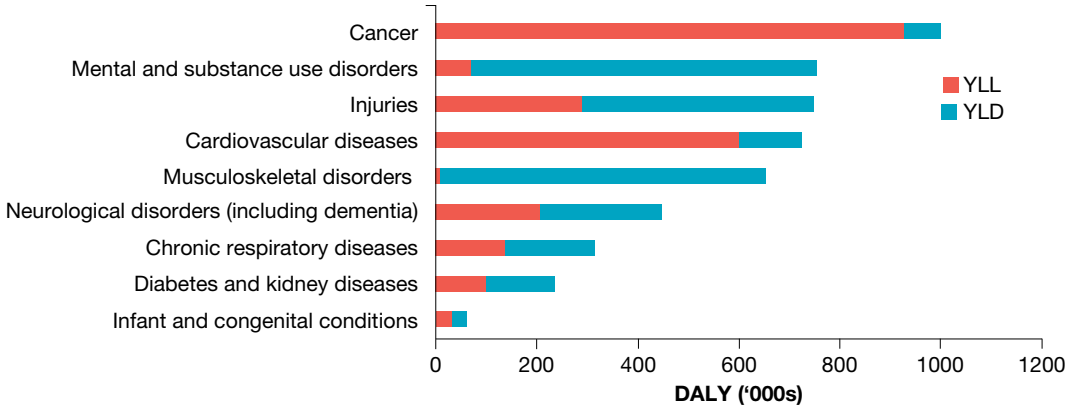
Australians' health status is among the best in the world and continues to improve. However, the prevalence and incidence of certain diseases and conditions have not improved and have actually deteriorated. Many of these are largely preventable conditions that occur as a result of the choices people make throughout their lives. These 'lifestyle' diseases are now the focus of many government and non-government initiatives.

By looking at burden of disease data, a more complete picture of the conditions that are having the largest impact on the Australian population can be gained.

In 2017, 5.9 million healthy years were lost due to premature death and people living with disease and disability. The five disease groups causing the most burden were cancer, cardiovascular diseases, mental and substance use disorders, musculoskeletal conditions, and injuries; together, these accounted for 66 per cent of the total burden.

The largest contributors to overall burden of disease are shown in figure 2.27. You can see in this graph the total burden (DALY), the burden contributed by the fatal component (YLL), and the burden contributed by the non-fatal (YLD) component of each condition.

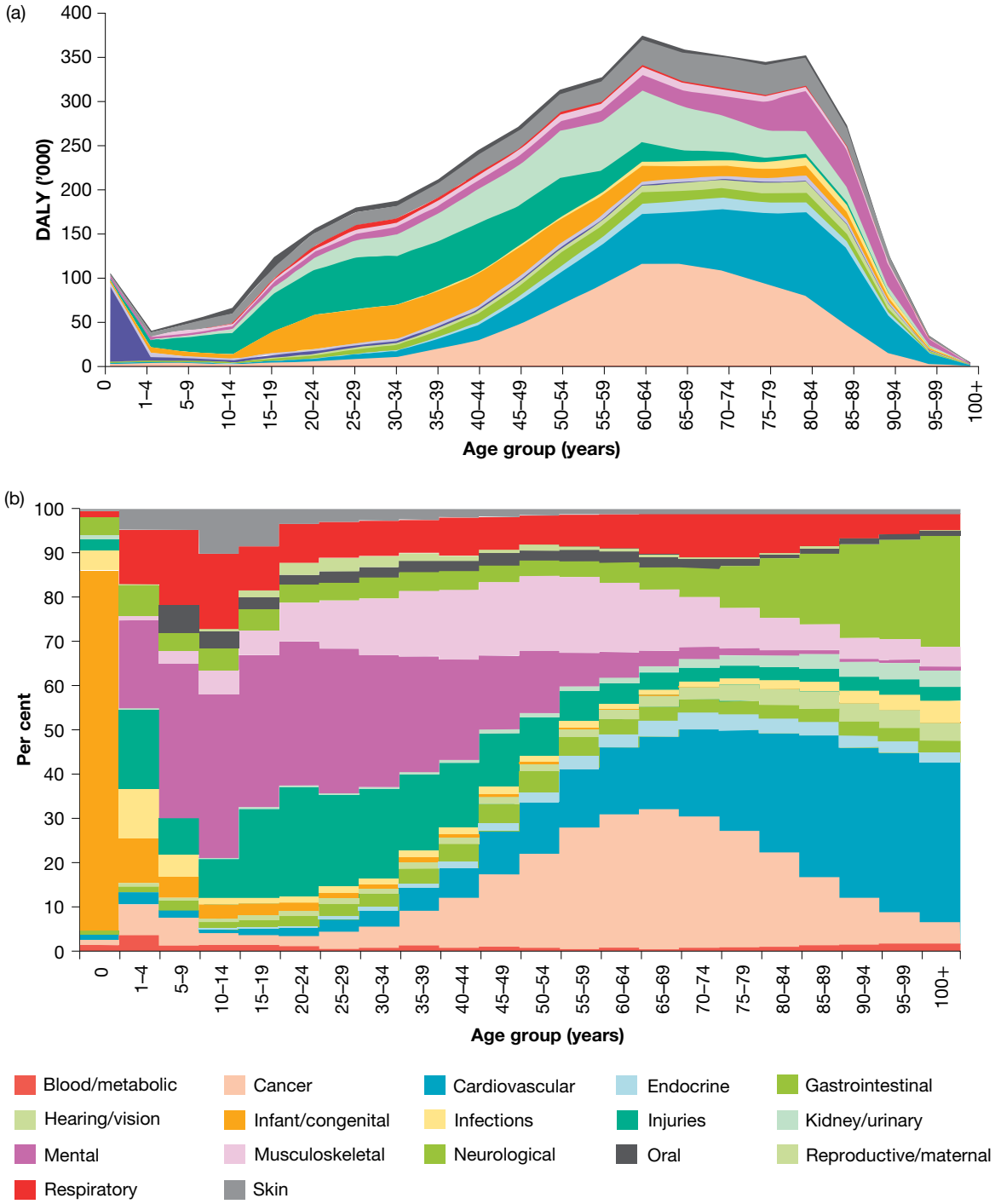
FIGURE 2.27 Burden (YLL, YLD and DALY) of major disease groups, 2017



Source: Adapted from Institute for Health Metrics and Evaluation (IHME). Global Burden of Disease Study 2015 (GBD 2017) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2019.

The overall burden of disease is different for different age groups. The total number of DALY is relatively low in the younger age groups and gradually increases until reaching the highest point for those aged 60–64 (figure 2.28a). The contribution of various conditions also changes for people of different ages. As you can see from figure 2.28b, infant/congenital conditions (shown in orange) have their greatest impact in the first year of life and then decrease as age increases. Mental conditions (shown in dark pink) and injuries (green) account for a relatively high proportion of DALY up to around 50 years of age, after which cancer (peach) and cardiovascular diseases (blue) increase in proportion of total burden.

FIGURE 2.28 Number (a) and relative proportion (b) of the total burden (DALY), by disease group and age.



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 22.

2.5.4 Trends in burden of disease

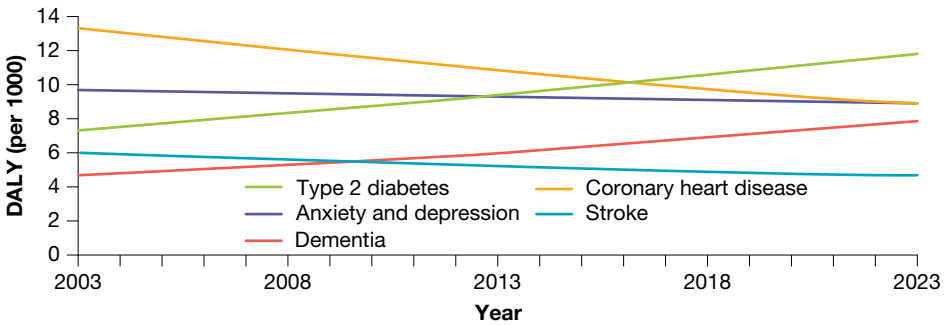
In the *Australian burden of disease study* (AIHW, 2016), a number of trends were identified between 2003 and 2011:

- When the impact of the increasing age and size of the population is taken into account, the rate of burden decreased 10 per cent between 2003 and 2011; from 210.5 to 189.9 DALY per 1000 people. The non-fatal burden decreased 3.8 per cent from 99.8 to 96.0 YLD per 1000 people and fatal burden decreased 15 per cent from 110.7 to 93.9 YLL per 1000 people.
- For specific disease groups, most rates of burden of disease decreased or stayed the same between 2003 and 2011, although there was a notable increase for neurological conditions, including dementia.
- For non-fatal burden, rates increased for kidney and urinary diseases, and endocrine disorders including diabetes.
- There was a large decrease in the rate of fatal burden for cardiovascular diseases.
- Future changes to burden of disease can be difficult to predict, but based on current data, the trends predicted by the Australian Institute of Health and Welfare in relation to selected disease groups up to 2023 are shown in figure 2.30.

FIGURE 2.29 Asthma is a leading cause of respiratory disease.



FIGURE 2.30 Projected trends in leading causes of disease burden, 2003–23



Source: AIHW, *Australia's health 2010*.

2.5 Activity

Create a mind map of the health indicators covered in this topic.

2.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) What is meant by the term 'burden of disease'?
   (b) What is the benefit of using burden of disease as a health indicator?
   (c) What is the unit of measurement for burden of disease data?
2. (a) What is one DALY equal to?
   (b) How are DALY calculated?

3. Explain the difference between YLL and YLD.
4. Refer to figure 2.27.
   (a) What are the top three contributors to YLL in Australia?
   (b) What are the top three contributors to YLD in Australia?
   (c) What are the top three contributors to overall burden of disease in Australia?
5. Refer to figure 2.28.
   (a) Identify the age group that contributed the most DALY in 2011. Approximately, how many DALY were contributed by this age group?
   (b) Identify the age group that contributed the least DALY in 2011.
   (c) Identify the age group that had the greatest proportion of DALY contributed by neurological conditions.
   (d) Identify the age group that had the greatest proportion of DALY contributed by injuries.
6. According to figure 2.28, approximately how many DALY were contributed by infants as a result of infant/congenital conditions?

2.5 Exercise 2 APPLY your knowledge

1. Explain how one condition can cause more deaths yet contribute fewer YLL than another condition.
2. Describe how the social health and wellbeing of an individual may be affected when suffering from cancer.
3. If you were the Minister for Health and could select three conditions on which to focus resources, which would you pick? Justify your choice.
4. Which health indicator do you believe provides the most accurate picture of health status in Australia's? Justify your choice.

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2.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

2.6 Topic 2 review

2.6.1 Key skills

KEY SKILLS Describe and apply indicators used to measure health status

The ability to describe key health status indicators and explain the difference between two terms is an essential skill. When defining key health status indicators, it is important to include all the crucial aspects of the definition. Frequent use of these terms is a good way to gain an understanding of what they mean and when they should be used. When defining a key term, try to avoid a definition that is too narrow. For example, a definition of life expectancy requires two components to make it complete.

1

Life expectancy: The number of years of life, on average, remaining to an individual at a particular age if death rates do not change.

2

Once the meanings of the key health indicators are known, it is important that the information provided by each is understood so they can be used to accurately discuss characteristics of the health status of populations.

An example of a response discussing differences in health indicators between males and females could be:

Females experience a higher life expectancy and health-adjusted life expectancy[1] than males. This means that on average, females are expected to live longer than males if current death rates don't change.[2] It also means that females on average will live longer in full health and without reduced functioning, compared to males.[3]

1 Two relevant health indicators are identified.
2 A comparison between males and females is made.
3 An understanding of the health indictors is shown.

Practise the key skill

1. Explain burden of disease.
2. Explain the difference between life expectancy and health-adjusted life expectancy.
3. Making reference to two health indicators, explain the health status of Australians.

KEY SKILLS Use data to describe and evaluate the health status of Australians

The use and interpretation of data is a skill that is required throughout this course and will be revisited at various times throughout the key skill sections.

Health status data can help to identify trends over time, or compare countries or population groups. Effective interpretation of this data is important for improving the health and wellbeing of the individuals or groups in question. Data in the form of tables, graphs and charts are useful for comparing the health status experienced in different countries or between different groups.

To become proficient at interpreting data, it is important to be able to read and interpret a range of graphs and tables. Take time to work out exactly what the graph is about and what information needs to be extracted from it.

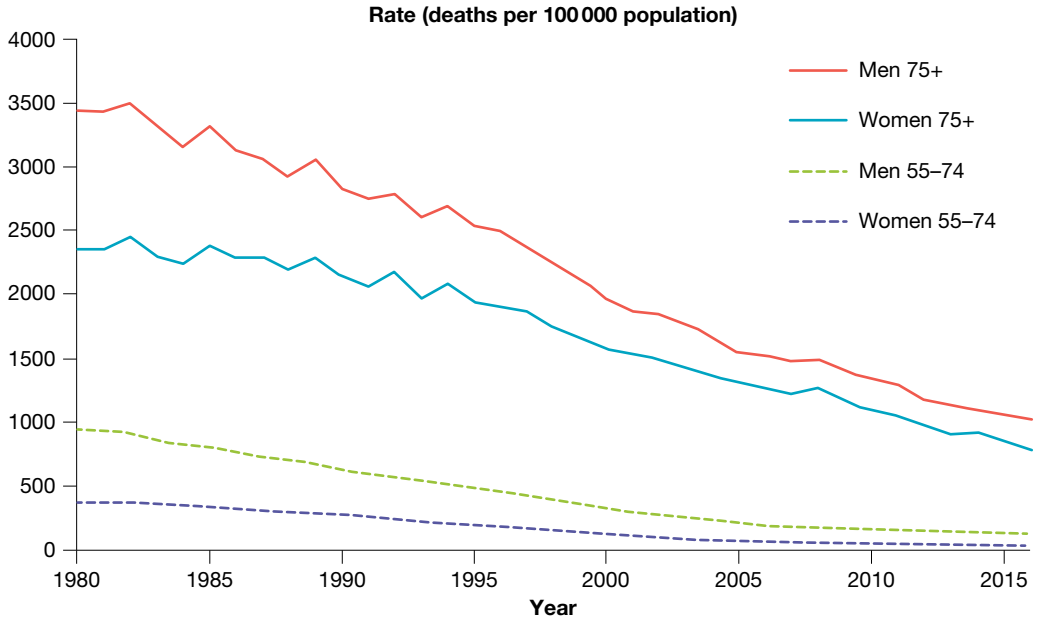
The following steps provide a systematic way of reading graphs and tables.

1. Read the *title* of the graph. The title usually gives an indication of the kind of information presented in the graph. It may be located at the top of the graph or next to the figure number.
2. Read the *horizontal* and *vertical axes* (of a bar graph, for instance) and look at the units; for instance, the units might represent a percentage, year, number, rate, proportion or dollars. Use the correct unit when referring to data (see also step 6 below)
3. Look at the key if there is one. This helps identify various elements of the data.
4. Read any *notes that relate to the data*. There may be additional written information at the bottom of the graph explaining various elements of the graph. An element of the data that may not make sense may become clear after reading these notes.
5. Look for *trends, similarities and differences between the data*. This will enable a better understanding of the data that the graph is actually presenting.
6. When commenting on data, try to avoid making general statements such as 'more' and instead try to use data from the graph to support your statement; for instance, use 'around 75 deaths per 100 000 compared to around 150 deaths per 100 000', making sure to refer to the correct unit of measurement.

Once interpreted, data can be used to describe and/or evaluate the health status of Australians.

Figure 2.31 contains data that can be used to describe and evaluate the health status of Australians in regard to coronary heart disease.

FIGURE 2.31 Coronary heart disease death rates, people aged 55 and over, by selected age groups and by sex, 1980–2016



Source: AIHW, *Australia's health 2018*, p. 112.

Although the gap between male and female mortality rates due to coronary heart disease has narrowed over time, males in Australia experienced higher mortality rates due to coronary heart disease than females every year.[4] The mortality rate for males aged 75 and over decreased from around 3450 per 100 000 population in 1980 to around 1000 per 100 000 in 2016. For females in the same age group, rates decreased from around 2300 per 100 000 in 1980 to around 800 per 100 000 in 2016.[5]

Those aged 75 and over were significantly more likely to die from coronary heart disease than those aged 55–74 in 2016.[6] For example, the mortality rate for males aged 55–74 was around 100 per 100 000 compared to around 1000 per 100 000 males aged 75 and over. For females, the mortality rate was around 800 deaths per 100 000 higher for the 75 and over age group compared to the 55–74 age group.[7]

4 A general statement identifying a trend and a comparison of males and females is made.

5 Data from the graph is used to support the initial statements. As exact numbers cannot be obtained from the information provided, terms such as 'approximately' and 'around' ensure that the statements are not definite.

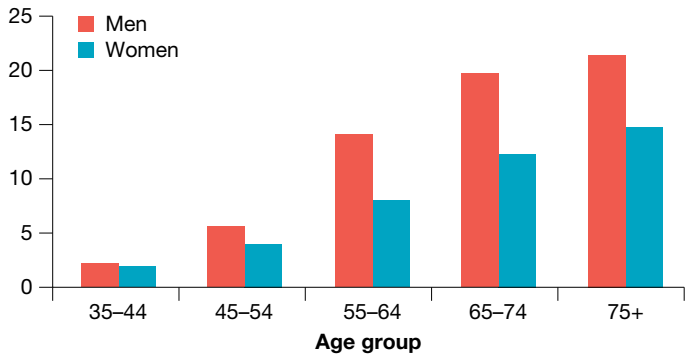
6 A second statement identifying a difference between the age groups is identified.

7 Data from the graph is used to clarify the second statement and correct units are used.

Practise the key skill

4. Refer to figure 2.32, which shows the prevalence of type 2 diabetes for males and females aged 35 and over, to answer the following.
   a. Outline one similarity and one difference in health status between males and females in Australia.
   b. Outline the relationship between age and the prevalence of type 2 diabetes in Australia.

FIGURE 2.32 Prevalence of type 2 diabetes among people aged 35 years and over, according to sex, 2014–15



Source: Adapted from ABS, National Health Survey: First Results, 2014–15.

2.6.2 Topic summary

Self-assessed health status and life expectancy

- Health status refers to the level of health and wellbeing experienced by individuals, groups or whole populations. For the individual, health status can change quickly. The health status of groups and populations is based on average figures and therefore changes more slowly.
- Health status can be measured using a number of health indicators, including self-assessed health status, life expectancy, health-adjusted life expectancy, mortality, morbidity and burden of disease. The statistics relate to averages so their use is limited when predicting the health and wellbeing of an individual.
- The health status of Australians is excellent overall and is constantly improving. Australia has one of the highest life expectancy rates and one of the lowest mortality rates in the world. However, Australia could improve, most notably in the rates of obesity, injuries and diabetes.
- The majority of Australians assess their health status as excellent or very good, although this proportion decreases with age.
- Life expectancy at birth in Australia is about 80.5 for males and 84.6 for females. Life expectancy has increased for both sexes over time.

Mortality

- Mortality refers to the number of deaths in a population in a given period (usually 12 months).
- Cardiovascular disease and cancer are the leading causes of mortality in Australia. Many of the causes of these conditions are preventable.
- Infant mortality rates are low in Australia compared to other countries.
- Pregnant women in Australia experience low maternal mortality rates compared to most other countries.

Morbidity

- Morbidity is defined as ill health in an individual and levels of ill health within a population.
- The morbidity rate is a measure of how many people suffer from a particular condition during a given period of time.
- An overall decrease in mortality rates has resulted in an increase in morbidity rates for many conditions.
- Obesity is emerging as a major health concern in Australia, as are other lifestyle conditions.

Burden of disease

- Burden of disease measures the gap between current health status and an ideal situation where everyone lives to an old age free of disease and disability.
- Burden of disease is measured in disability-adjusted life year or DALY where one DALY equals one year of healthy life lost to premature death and time lived with illness or disability. DALY are calculated by adding YLL and YLD.
- Years lost due to disability (YLD) are the non-fatal component of DALY.
- Years of life lost (YLL) are the fatal component of DALY. Each YLL represents one year of life lost due to premature death.
- Cancer contributes most to the YLL and DALY overall.
- Mental and substance use disorders contribute most to the YLD.

Resources

studyON

To access key concept summaries and past VCAA exam questions download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0003).

2.6 Exercise 1 Exam preparation

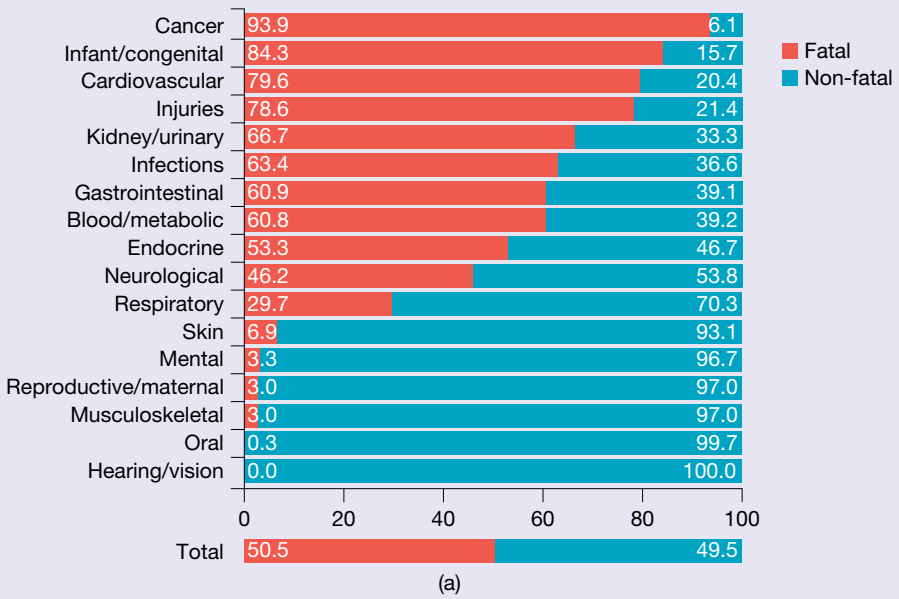
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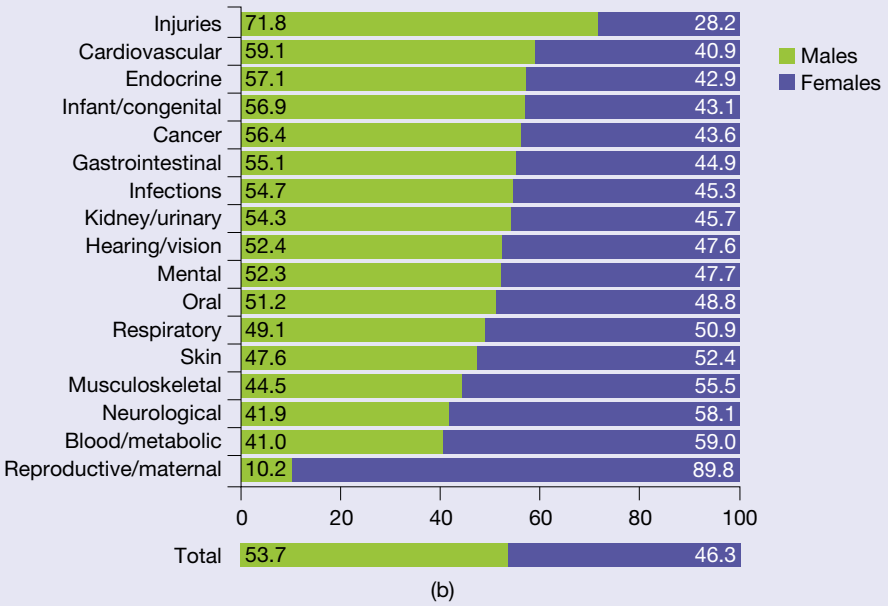
Question 1

Refer to figure 2.33.

a. Explain what is meant by DALY. **(1 mark)**
b. Identify the disease group that contributed the greatest proportion of DALY through fatal outcomes. **(1 mark)**
c. Identify the disease group that contributed the greatest proportion of DALY through non-fatal outcomes. **(1 mark)**
d. Identify the disease group for which males had the highest proportion of DALY. **(1 mark)**
e. Identify the disease group for which males had the lowest proportion of DALY. **(1 mark)**
f. Referring to data from figure 2.33 compare the health status of males and females in Australia. **(4 marks)**

FIGURE 2.33 Proportion (%) of total burden by fatal versus non-fatal (a) and sex (b), by disease group.





(b)

Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 20.

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Sit past VCAA examinations and receive immediate feedback, marking guides and examiner's report notes.
Access Course Content and select 'Past VCAA examinations' to sit the examination online or offline.

on Resources

Interactivities Crossword (int-6881)
Definitions (int-6882)

3 Factors influencing health status and burden of disease

3.1 Overview

Key knowledge

- The contribution to Australia's health status and burden of disease of smoking, alcohol, high body mass index, and dietary risks (underconsumption of vegetables, fruit and dairy foods; high intake of fat, salt and sugar; low intake of fibre and iron)

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 3.1 A range of factors provide opportunities to improve health status and burden of disease in Australia, including healthy eating.



KEY TERMS

Anaemia a condition characterised by a reduced ability of the body to deliver enough oxygen to the cells due to a lack of healthy red blood cells
Antioxidants compounds in foods that neutralise free radicals
Atherosclerosis the build-up of plaque on blood vessel walls, making it harder for blood to get through
Body mass index (BMI) a statistical measure of body mass calculated by dividing weight (in kilograms) by height (in m^2). A score of 18.6–24.9 is considered a healthy weight. Between 25–29.9 is considered overweight and 30 and over is considered obese.
Cholesterol a type of fat required for optimal functioning of the body that in excess can lead to a range of health concerns including the blocking of the arteries (atherosclerosis). Can be 'bad' low-density lipoprotein (LDL) or 'good' high density lipoprotein (HDL).
Dental caries decay of teeth caused by a breakdown in the tissues that make up the tooth
Energy dense (foods) foods that contain significant amounts of fat, carbohydrates and/or protein, therefore contributing large amounts of energy to the diet
Fortified (foods) when a nutrient has been artificially added to food to increase its nutritional value
Free radicals molecules formed when oxygen is metabolised. Free radicals can damage healthy body cells and increase the risk of diseases such as cardiovascular disease and cancer.
Hypertension high blood pressure
Neural tube defects conditions characterised by damage to the brain and spine, and to the nerve tissue of the spinal cord during prenatal development. Examples include spina bifida and anencephaly.
Nutrient dense (foods) foods that contain a large amount of nutrients such as vitamins and minerals
Periodontitis a condition characterised by inflammation and infection of the tissues that support the teeth

on Resources

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To access key concept summaries and past VCAA exam questions, download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0004).

3.2 Smoking

KEY CONCEPT Understanding the contribution of smoking to Australia's health status and burden of disease

3.2.1 Introduction

As explored in topic 2, health status in Australia is very good and improvements continue to be made. In 2011, however, there were 4.5 million years of healthy life lost due to premature death and time lived with illness or disability in Australia, indicating that more improvements can be made.

The most recent reliable data relating to the burden of disease caused by specific risk factors in Australia comes from the 2011 Burden of Disease Study and is used throughout this topic. Data generally change slowly, so this information is still relevant when used to make judgements of burden of disease in Australia today.

The health status of individuals and populations is the product of a range of factors, some of which can be modified by behaviour and lifestyle changes. Four factors are particularly influential and relevant from an Australian perspective and will be explored in detail in the coming sections:

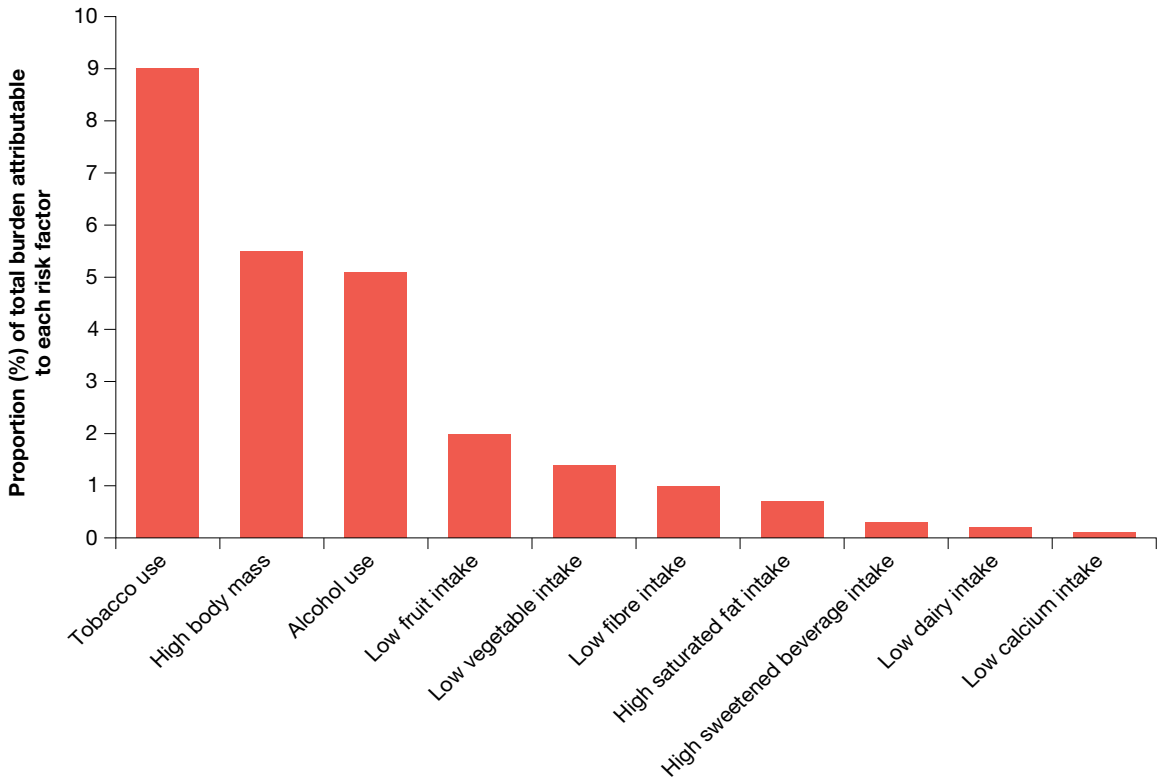
- smoking
- alcohol
- high body mass index
- dietary risks (underconsumption of vegetables, fruit and dairy foods; high intake of fat, salt and sugar; low intake of fibre and iron).

FIGURE 3.2 Reducing tobacco and alcohol use could contribute to significant health gains in Australia.



Together, these factors account for over 25 per cent of the total burden of disease in Australia (figure 3.3). Being largely modifiable, these factors highlight areas where significant progress can be made in relation to health status and burden of disease.

FIGURE 3.3 Proportion (%) of total burden attributable to selected risk factors, 2011



Source: Adapted from AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 57.

EXAM TIP

This study design dot point states that links must be made between the specified risk factors and health status and burden of disease. In the previous topic, you saw that burden of disease is one way of measuring health status, so how do you distinguish between burden of disease and health status when a question asks for impacts on one or the other?

Burden of disease is an indicator measured in disability-adjusted life years (DALY) and DALY are calculated by adding years of life lost (YLL) and years lost due to disability (YLD), which are the fatal and non-fatal components of burden of disease respectively. As a result, a question asking to link to burden of disease can link to any one of these three concepts (i.e. DALY, YLL or YLD). Health status questions on the other hand, can link to any of the health status indicators including life expectancy, HALE, mortality and morbidity.

3.2.2 Rates and risk factors of smoking

Smoking is a practice in which a substance is burned and the resulting smoke is inhaled to be tasted and absorbed into the bloodstream. Smoking generally relates to the use of tobacco, but can also include marijuana and other drugs.

Rates of smoking have decreased significantly in Australia over time, from around 25 per cent in 1991 to around 13.8 per cent in 2016–17. A range of interventions contributed to this decrease, including advertising bans; bans on smoking indoors and increasingly in outdoor public spaces; plain packaging; price increases; restrictions on sales to minors; public education; and media campaigns (figure 3.4).

FIGURE 3.4 A range of interventions, such as smoking bans, have helped to reduce rates of tobacco smoking in Australia

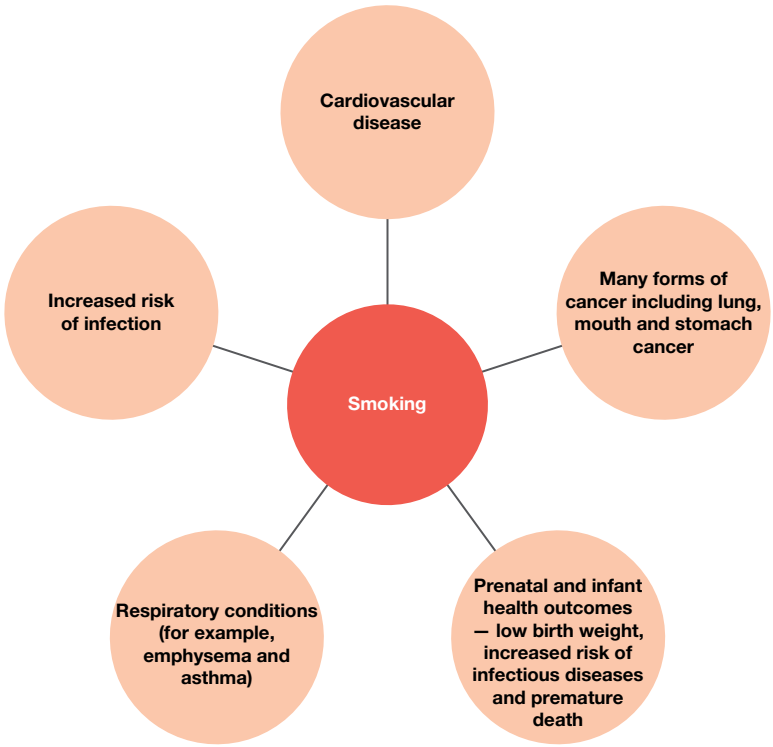


Although rates have decreased significantly, tobacco use was responsible for 9 per cent of the total burden of disease and injury in 2011, making it the number one preventable and modifiable risk factor in Australia. The impact of tobacco includes the risks associated with past tobacco use, current use, and exposure to secondhand smoke. Although males used to smoke in greater numbers, current rates of smoking are now more equal between males and females.

The dangers of smoking were proven more than 40 years ago. Even so, people continue to smoke and die from smoking-related conditions. Whether it is physical or mental, addiction to smoking cigarettes can be one of the hardest addictions to overcome.

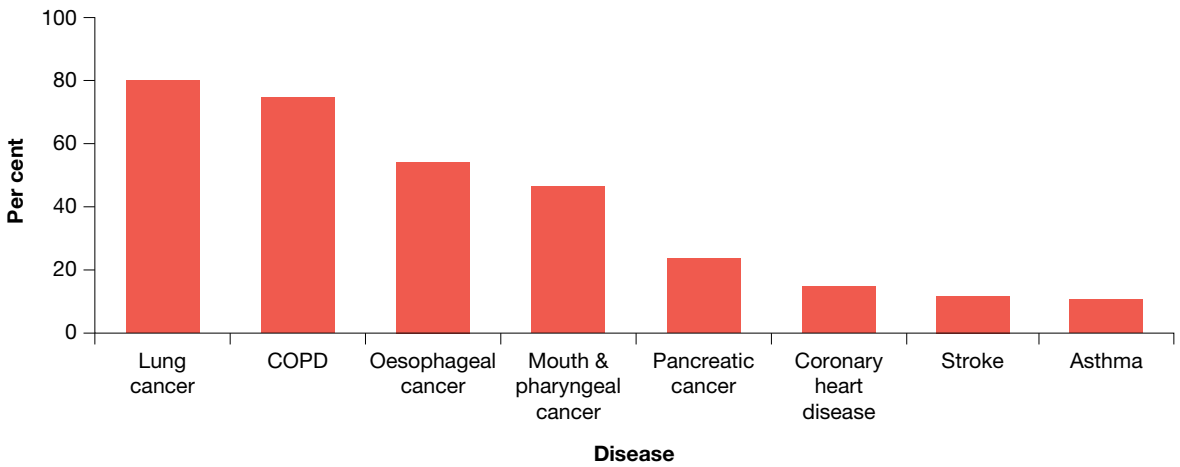
Tobacco smoking is a risk factor for a range of health concerns as shown in figure 3.5.

FIGURE 3.5 With more than 4000 chemicals in each cigarette, smoking can lead to any of these conditions and effects.



The burden of disease attributable to specific conditions as a result of tobacco use are shown in figure 3.6.

FIGURE 3.6 Burden (%) attributable to tobacco use, selected conditions, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 171.

Smoking and cardiovascular disease

Nearly 40 per cent of all smoking-related deaths are due to cardiovascular disease. Tobacco smoke reduces the amount of oxygen in the blood, contributing to increased blood pressure and heart rate. As well as increasing blood pressure, chemicals in tobacco smoke speed up the process of **atherosclerosis**, which significantly increases the risk of heart attack and stroke and contributes to higher mortality rates from these conditions. Chemicals in tobacco smoke also thicken the blood, making it sticky and more likely to form blood clots. A blood clot is a clump of blood that is required to stop bleeding in the body, but can also block blood vessels and restrict blood flow to various parts of the body including the heart and brain.

Smoking and cancer

Tobacco smoke can cause a fault in body cells as they divide. This can lead to a tumour and, ultimately, cancer. These faults can be caused in many parts of the body, making tobacco smoking the most preventable risk factor for disease and death in Australia. In 2011, tobacco use was responsible for 80 per cent of lung cancer DALY. Around half of the total burden of oesophageal cancer (54 per cent) and nearly half of the mouth and pharyngeal cancer (46 per cent) burden was also attributed to tobacco use.

Smoking and prenatal/infant health outcomes

Tobacco use during pregnancy reduces blood flow to the baby which in turn, reduces the amount of nutrients available for optimal development and growth, increasing the risk of having a baby with low birth weight. Babies born with a low birth weight (under 2.5 kilograms) are more likely to have an underdeveloped immune system, making them more susceptible to infections. They are also more likely to suffer from premature death, which contributes to the infant and under-five mortality rates. Low birth weight is a leading contributor to burden of disease for those aged 0–14 in Australia.

Smoking and asthma

Exposure to tobacco smoke in early life (including in the uterus) increases the risk of developing asthma. Asthma causes the muscles in the airways to tighten and the lining of the airway becomes swollen and inflamed, producing sticky mucous. These changes cause the airways to become narrow, making it difficult to breathe. For those who experience asthma, exposure to tobacco smoke increases the risk of suffering an asthma attack and can make the symptoms more difficult to control, therefore impacting on health status. In 2011, around 10 per cent of the total asthma burden occurred as a result of tobacco smoking, mainly as a result of non-fatal outcomes.

FIGURE 3.7 Exposure to tobacco smoke in early life increases the risk of developing asthma.



Smoking and respiratory disease

Tobacco smoke damages the airways, which contributes to a number of respiratory conditions including chronic obstructive pulmonary disease (COPD). COPD was the fifth leading cause of premature death for males and the fourth leading cause of premature death for females in 2017 (ABS, 2017). COPD is characterised by reduced airflow into the lungs and limited ability to utilise oxygen due to damaged lung tissue. Tobacco smoke contributes to this condition by causing inflammation of the airways and destroying the air sacs in the lungs, where gas exchange occurs. In 2011, tobacco use was responsible for 75 per cent of the DALY attributed to COPD.

Smoking and infectious disease

Exposure to tobacco smoke can lower immune function and increase the risk of contracting infectious diseases such as upper respiratory tract infections and pneumonia. Children exposed to tobacco smoke can be particularly susceptible to infections that contribute to morbidity rates and YLD among younger age groups.

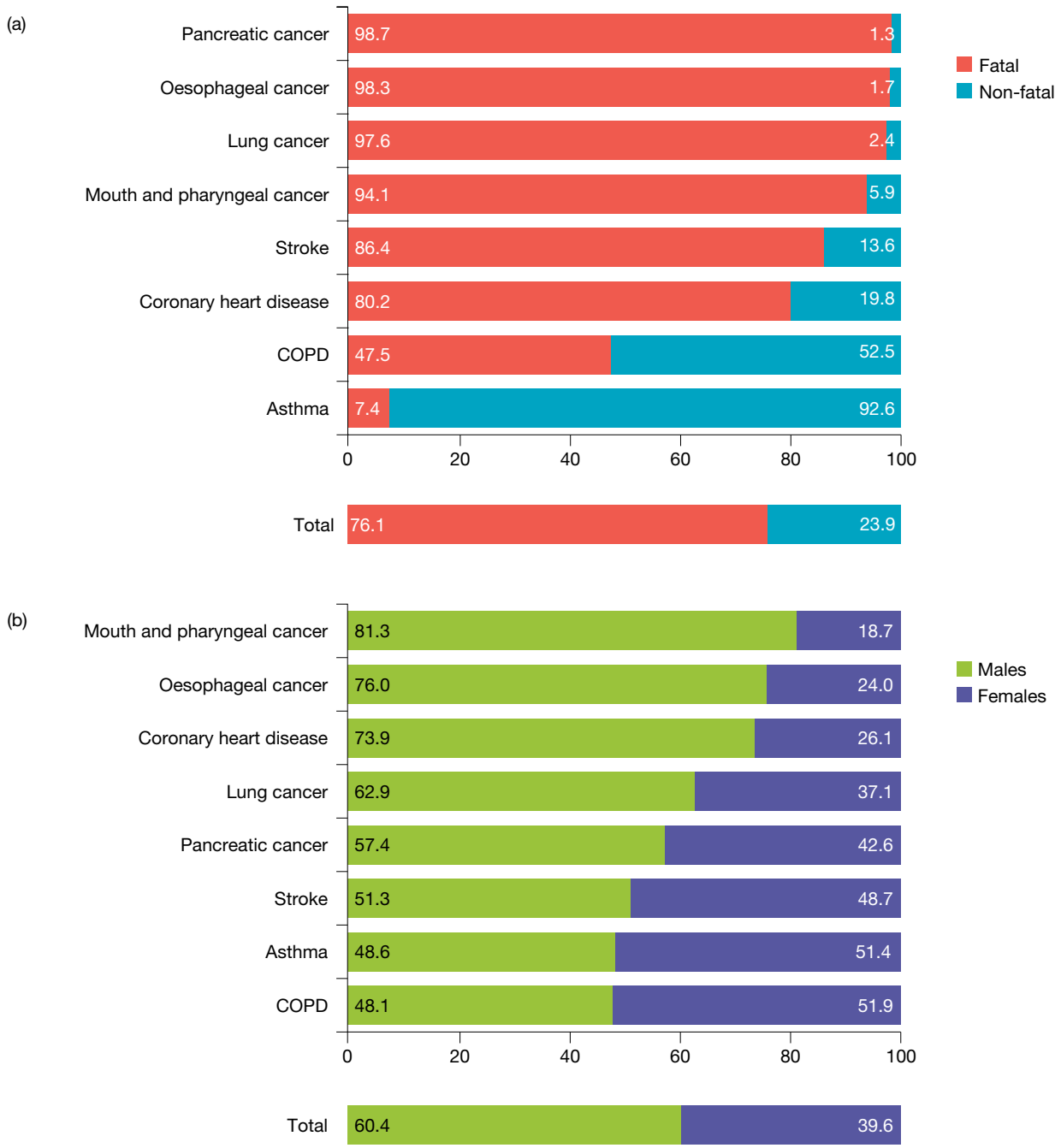
Smoking and the Australian Burden of Disease Study

Across all diseases, around 76 per cent of the total burden attributable to tobacco use was due to premature mortality (YLL), impacting significantly on mortality rates, health-adjusted life expectancy and life expectancy.

Some diseases caused by tobacco use are more likely to lead to death than others. For example, over 97 per cent of the attributed pancreatic, lung and oesophageal cancer burden was due to fatal outcomes (figure 3.8a), whereas over 90 per cent of the attributable burden due to asthma was through non-fatal outcomes.

Around 60 per cent of the disease burden attributed to tobacco was experienced by males (figure 3.8b), reflecting the fact that males used to smoke at significantly higher rates than females and are still experiencing more ill health as a result, even though the rates of smoking are more similar now.

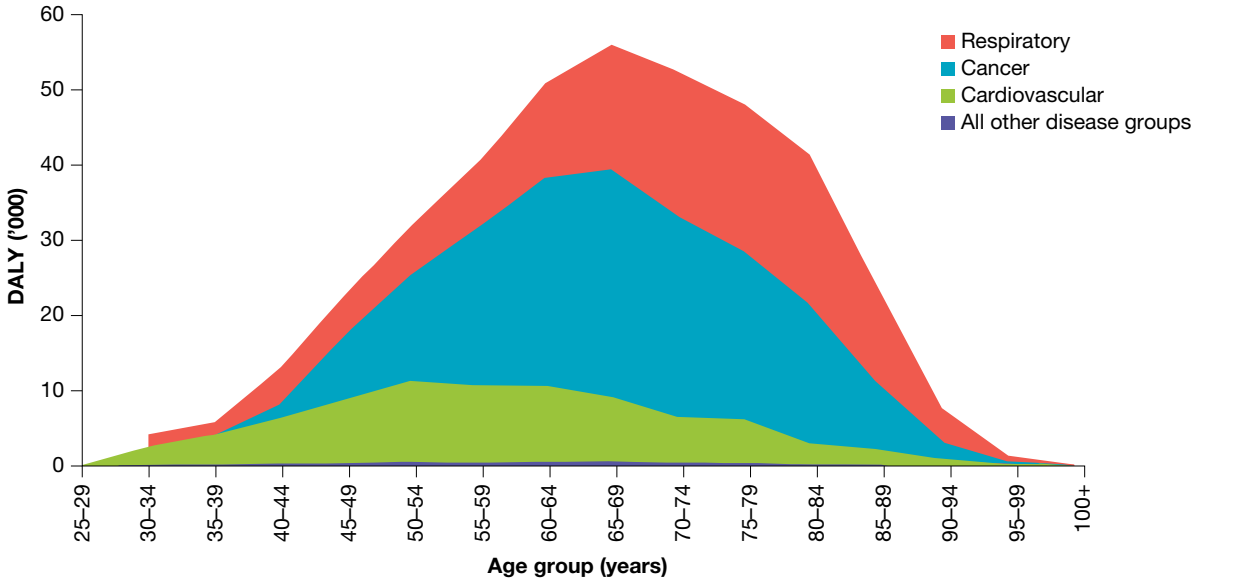
FIGURE 3.8 Proportion (%) of burden attributable to tobacco use (top eight diseases), by fatal versus non-fatal burden (a) and sex (b), 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 172.

Figure 3.9 shows the burden of disease attributed to tobacco in people aged 25 and over, reflecting the ages at which most of the burden due to tobacco was experienced in the population. Cancers contributed over 50 per cent of the disease burden attributed to tobacco between ages 55 and 74. Cardiovascular diseases were responsible for the majority of the smoking burden below age 40 and respiratory diseases were responsible for the majority in ages 80 and over (AHIW, 2016).

FIGURE 3.9 Burden (DALY) attributable to tobacco use by age and disease group, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 173.

FIGURE 3.10 Summary of the impact of smoking on health status and burden of disease



Health concerns

- Cardiovascular disease
- Cancer
- Asthma
- Prenatal and infancy health concerns
- Respiratory conditions
- Infections

Burden of disease

- Responsible for just under 20 per cent of burden of disease for coronary heart disease and 10 per cent for asthma
- Responsible for 80 per cent of lung cancer DALYs and 75 per cent COPD DALYs
- Low birth weight is a leading cause of burden of disease in 0–14 year olds

Health status

- Increased morbidity and mortality from CVD, cancer and chronic obstructive pulmonary disease (COPD)
- Increased risk of infection due to low birth weight contributing to increased infant and under-five mortality rates
- Increased morbidity from asthma attacks and infectious diseases such as upper respiratory tract infections
- Lower life expectancy and health adjusted life expectancy

3.2 Activity

Access the **Smoking** weblink and worksheet in the Resources tab then complete the worksheet.

3.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) According to figure 3.3, which three factors contributed the most to burden of disease in Australia?
   (b) How much of the total burden was each responsible for?
2. (a) What is meant by 'smoking'?
   (b) Which substance is most likely to be smoked in Australia?
3. Describe two ways that tobacco smoking contributes to disease.
4. Explain why males experience a greater burden of disease related to tobacco given that the rates of smoking between males and females are now similar.

3.2 Exercise 2 APPLY your knowledge

1. Explain how further reducing tobacco use could impact:
   (a) the burden of disease
   (b) the under-five mortality rate.
2. Use figure 3.8 to answer the following questions.
   (a) What proportion of the total burden due to tobacco use was the result of fatal outcomes?
   (b) Which disease had an almost equal fatal and non-fatal contribution from tobacco use?
   (c) What proportion of the total burden of tobacco was experienced by males compared to females?
   (d) Identify the condition from which males experienced the greatest proportion of total burden due to tobacco use compared to females.
3. Use figure 3.9 to answer the following questions.
   (a) Which age group contributed the most DALY as a result of tobacco? How many DALY were contributed by this group as a result of tobacco use?
   (b) Identify the disease group that contributed the most DALY for 25–44 year olds.
4. Outline two ways that reducing tobacco use could act as a resource nationally.
5. Draw a flow chart showing two ways that smoking contributes to each of health status and burden of disease.

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3.2 Exercise 3 studyON: Past VCAA exam questions online only

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on Resources

Digital document Smoking worksheet (doc-32190)
Weblink Smoking

3.3 Alcohol

KEY CONCEPT Understanding the contribution of alcohol to Australia's health status and burden of disease

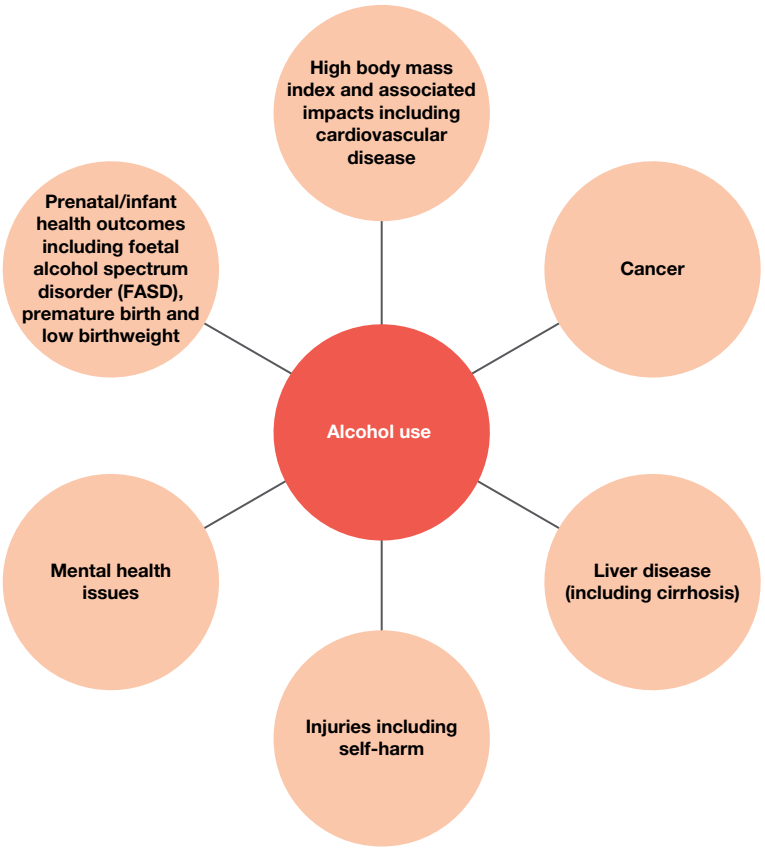
Alcohol consumption has been a part of human life for thousands of years. Many cultures consume alcohol at social gatherings and it can form an integral part of ceremonies, customs and rites of passage. In moderation, alcohol has minimal side effects. Red wine in moderation may actually have benefits for cardiovascular health.

3.3.1 Alcohol and alcohol use disorders

Alcohol misuse relates to the excessive consumption of alcohol and includes alcoholism and binge drinking. Alcohol misuse over a period of time can indicate the presence of an alcohol use disorder — a disease characterised by ongoing risky alcohol consumption.

Alcoholism is when a person can't stop drinking once they have started, or has a constant desire to drink alcohol. Binge drinking is defined as drinking seven or more standard drinks for males or five or more standard drinks for females in one sitting. Alcoholism is more likely to contribute to chronic conditions in the long term such as liver disease, whereas binge drinking often results in health concerns in the short term such as road accidents, injuries, drownings and violence. An alcohol use disorder is not required for negative health outcomes to occur as a result of alcohol consumption. Binge drinking on one occasion may not necessarily mean the presence of an alcohol use disorder, but still increases the risk of negative health outcomes.

FIGURE 3.11 Some of the effects of excessive alcohol consumption



Alcohol use disorders and alcohol misuse can affect health and wellbeing in a number of ways (see figure 3.11) and significantly contributes to health status and burden of disease in Australia.

According to the *National Health Survey* (2017–18), about 16 per cent of people aged 18 and over had consumed alcohol at levels that put them at risk of long-term harm and 42 per cent had consumed alcohol that put them at risk of short-term harm.

Alcohol and high body mass index

Alcohol contains kilojoules and therefore energy, which means it can increase the chances of an individual gaining weight. Over a period of time, alcohol use can contribute to a person becoming overweight or obese. Obesity is itself a risk factor for a range of other conditions such as type 2 diabetes, cardiovascular disease and some cancers.

Alcohol and cancer

There is strong evidence that alcohol use increases the risk of a range of cancers including cancer of the mouth, throat, stomach, bowel, liver and breast. The risk of developing cancer as a result of alcohol use is largely influenced by the amount of alcohol the person drinks, regardless of their body weight. Cancers are the leading cause of premature death in Australia, affecting mortality rates, DALY and life expectancy.

Alcohol and liver disease

Alcohol is filtered through the liver. Excessive consumption can cause scarring of the liver tissue, which can lead to the liver not functioning properly and toxins remaining in the body. Over time, this can lead to chronic liver diseases such as cirrhosis of the liver.

Alcohol and injuries

The behaviour of those affected by alcohol can change, putting a strain on relationships and increasing the risk of mental health issues such as depression and associated outcomes including suicide and self-harm. Those under the influence of alcohol are also more likely to act impulsively and take risks such as drink driving and displaying aggression, which increases morbidity and mortality from of injuries and violence.

Judgement and motor control are affected by alcohol use. As a result, falls and road traffic injuries are a significant cause of burden of disease attributable to alcohol use.

FIGURE 3.12 Car crashes are much more likely when the driver has been consuming alcohol.



Alcohol and mental health issues

Although there is a relationship between problem drinking and mental health and wellbeing (with problem drinkers more likely to have mental health issues and vice versa), the causal factor (mental illness or drinking) has not been established. Alcohol is a depressant, and some studies suggest that people with depressive symptoms are more likely to misuse alcohol and develop alcohol dependence in their younger years. Regardless of the cause of the relationship, alcohol use is associated with greater risk of suicide and self-inflicted injuries.

Alcohol and prenatal infant health outcomes

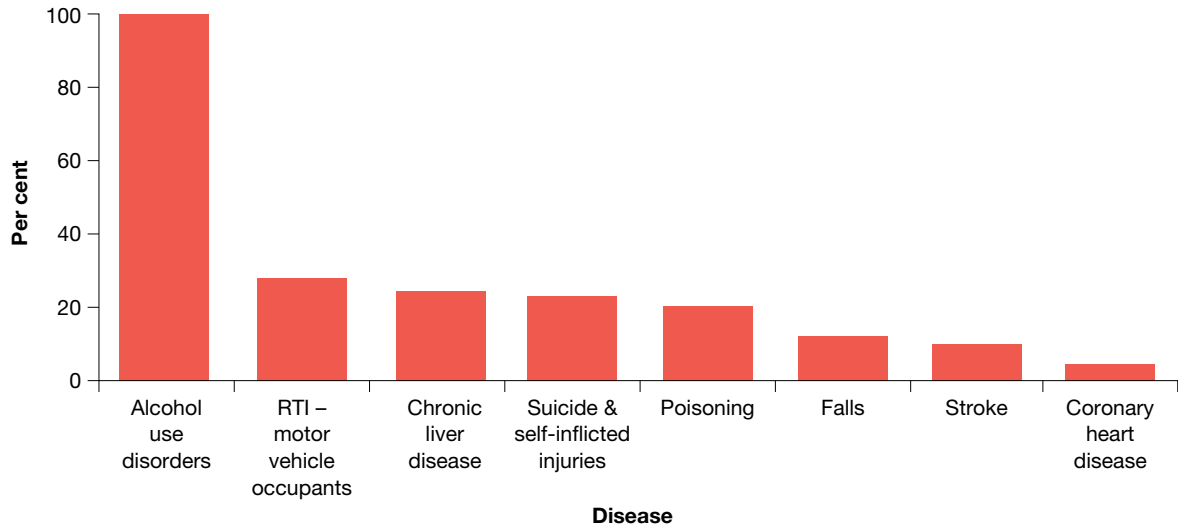
Alcohol consumption while pregnant impacts health status in a number of ways, including increasing the risk of premature birth, low birth weight and foetal alcohol spectrum disorder (FASD). FASD is an umbrella term that describes a range of conditions that can occur in children exposed to alcohol before birth.

Alcohol and the Australian Burden of Disease Study

In 2011, alcohol use was responsible for 5.1 per cent of the total burden of disease and injury, making it the third leading risk factor behind tobacco use and high body mass index.

Alcohol use contributed to the burden for a large number of diseases and injuries. It was responsible for the entire burden due to alcohol use disorders, 28 per cent of the burden due to road traffic injuries, 24 per cent of the burden due to chronic liver disease and 23 per cent of the burden due to suicide and self-inflicted injuries (figure 3.13).

FIGURE 3.13 Burden (%) attributable to alcohol use, selected conditions, 2011

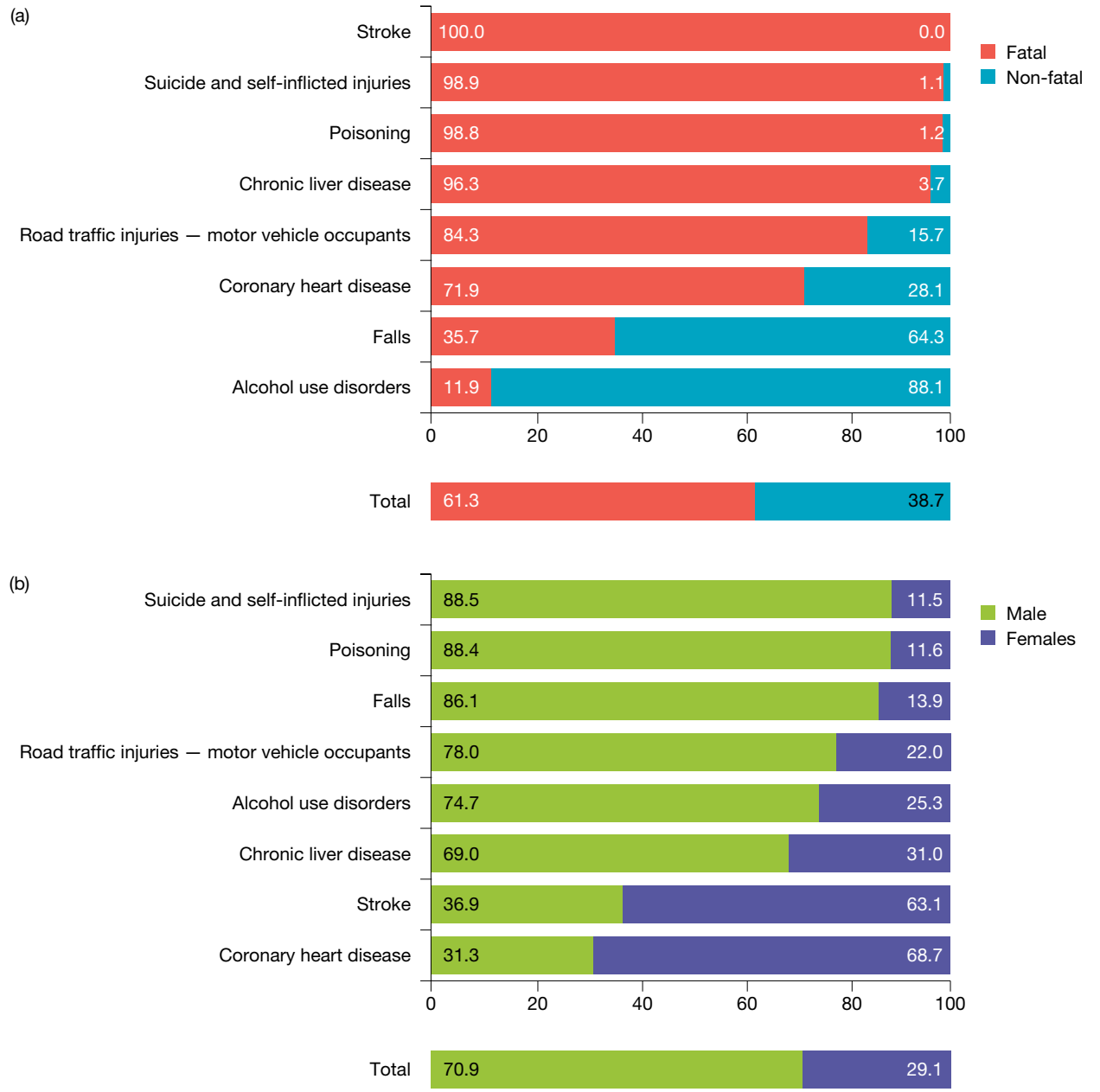


Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 174.

Of the burden attributable to alcohol consumption, around 61 per cent was due to fatal outcomes and around 39 per cent due to non-fatal outcomes (figure 3.14a). Some causes of burden of disease brought about by alcohol use are more likely to lead to death than others. For example, 100 per cent of the attributed stroke burden was due to fatal outcomes, whereas just under 90 per cent of the attributable burden due to alcohol use disorders were through non-fatal outcomes.

Overall, males experienced 71 per cent of the burden attributed to alcohol use. This proportion, however, was much higher in suicide and self-inflicted injuries (89 per cent) and poisoning (88 per cent), falls (86 per cent), road traffic injuries — motor vehicle occupants (78 per cent) and chronic liver disease (69 per cent). Females accounted for a much greater proportion of the stroke and coronary heart disease burden attributable to alcohol use (figure 3.14b).

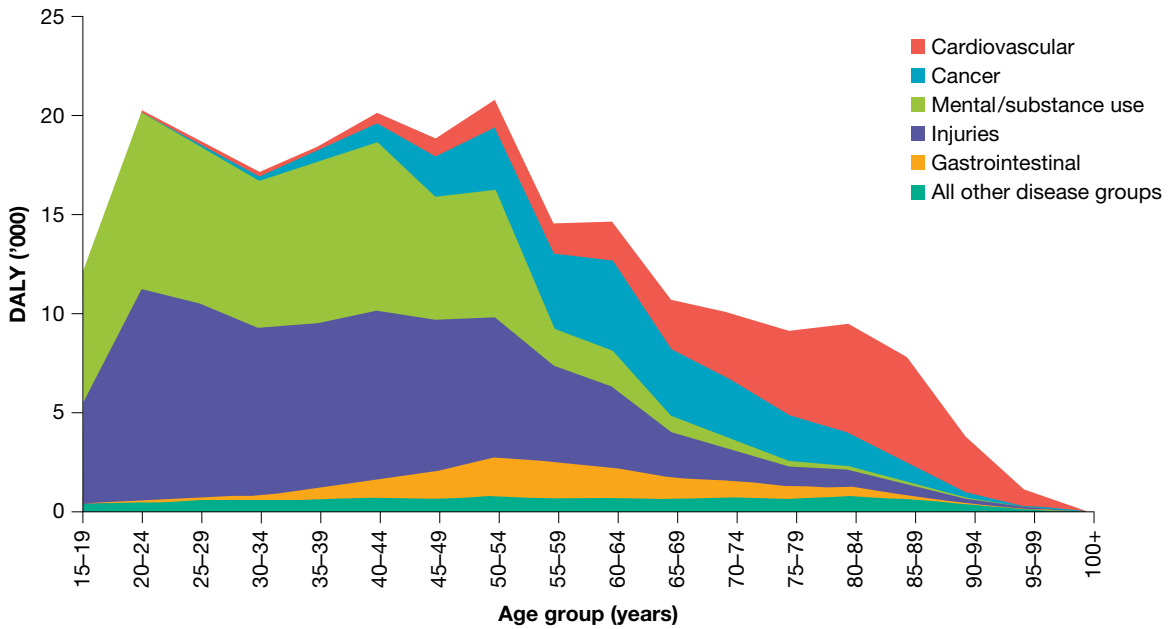
FIGURE 3.14 Proportion (%) of burden attributable to alcohol use (top eight diseases), by fatal versus non-fatal burden (a) and sex (b), 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 174.

The burden attributed to alcohol differs across the lifespan (figure 3.15). After the age of 55, there is a significant decrease in the DALY attributed to alcohol use. Injuries and mental and substance use disorders contribute the majority of the burden up to the age of 55. After 55, the burden contributed by these conditions decreases and the burden attributed to cancer increases.

FIGURE 3.15 Burden (DALY) attributable to alcohol use by age and disease group, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 175.

FIGURE 3.16 Summary of the impact of alcohol on health status and burden of disease



Health concerns

- Alcohol use disorder
- Weight gain, high body mass index and associated conditions including cardiovascular disease, some cancers and type 2 diabetes
- Cancer — including mouth, throat, stomach, bowel, liver and breast
- Liver disease — including cirrhosis
- Injuries
- Mental health issues and self-harm
- Prenatal/infant health outcomes including FASD

Burden of disease

- Alcohol use is responsible for all of the DALY associated with alcohol use disorders
- 28 per cent of the total burden due to road traffic injuries was due to alcohol use
- Caused 24 per cent of the total DALY due to liver diseases
- Contributed 23 per cent of DALY due to suicide and self-inflicted injuries
- Contributed significant YLL due to stroke
- Increases YLL and YLD due to cardiovascular disease

Health status

- Increased incidence and mortality from cardiovascular disease, type 2 diabetes, some cancers, liver diseases, injuries
- Higher rates of morbidity due to mental health issues
- Increased infant and under-five mortality rates

3.3 Activity

Access the **Impacts of alcohol** weblink and worksheet in the Resources tab then complete the worksheet.

3.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain the difference between alcohol misuse and an alcohol use disorder.
2. Explain the difference between alcoholism and binge drinking.
3. Explain how alcohol can impact health and wellbeing in both the short and long term.
4. Explain how alcohol consumption can contribute to obesity.
5. Describe two ways that alcohol use contributes to disease.

3.3 Exercise 2 APPLY your knowledge

1. Explain how reducing alcohol use could impact:
   (a) the burden of disease
   (b) morbidity rates.
2. Use figure 3.14 to answer the following questions.
   (a) What proportion of the total burden due to alcohol use was the result of non-fatal outcomes?
   (b) For which disease was the fatal proportion of alcohol use the greatest?
   (c) What proportion of the total burden of alcohol was experienced by males compared to females?
   (d) Identify the condition from which males experienced the greatest proportion of total burden due to alcohol use compared to females.
3. Use figure 3.15 to answer the following questions.
   (a) Which age group contributed the most DALY as a result of alcohol? How many DALY were contributed by this group as a result of alcohol use?
   (b) Outline the difference in the diseases contributing to alcohol-related DALY for 15–19 year olds compared to 90–94 year olds.
4. Explain how reducing alcohol use could act as a resource for individuals.
5. Draw a flow chart showing two ways that alcohol use contributes to each of health status and burden of disease.

studyON

3.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Impacts of alcohol worksheet (doc-32191)
Weblink Impacts of alcohol

3.4 High body mass index

KEY CONCEPT Understanding the contribution of high body mass index to Australia's health status and burden of disease

Body mass relates to the amount of body weight an individual is carrying. Generally, assessments about body mass are made using the **body mass index (BMI)** and waist circumference measurements.

BMI provides a height-to-weight ratio and is calculated using the following formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{[\text{Height (m)}]^2}$$

So, for someone who is 182 centimetres tall and weighs 88 kilograms:

$$\text{BMI} = \frac{88\ (\text{kg})}{[1.82\ (\text{m})]^2}$$
$$= \frac{88}{3.31}$$
$$= 26.6$$

The BMI score of adults is compared to classifications to determine whether an individual is considered underweight, in the healthy weight range, overweight or obese. These figures are shown in table 3.1. High body mass index refers to a weight that is above a healthy range (i.e. 25 and above). People with a high BMI are classified as either overweight or obese.

TABLE 3.1 BMI classifications for adults

BMI	Classification
Under 18.5	Underweight
18.6–24.9	Healthy weight
25–29.9	Overweight
30 and over	Obese

However, BMI doesn't take fat distribution into account. Research has shown that those with a higher proportion of abdominal fat are more at risk of disease and illness compared to those with a lower proportion of abdominal fat. For this reason, waist circumference is increasingly being used as an indicator of the health risks associated with high body mass. Although waist circumference is being used more often, BMI remains a useful indicator, especially for populations and groups, and is the measure used by the Australian government to determine high body mass.

High body mass index is of particular concern in Australia as rates have been increasing steadily over time. According to the ABS *National Health Survey*, for Australian adults 18 years and over, the prevalence has increased over time from 56.3 per cent in 1995 to 67 per cent in 2017–18 (see figure 3.17). For Australian children, there has been an increase in the proportion of 5–17 year olds who were overweight or obese since 1995, with around 25 per cent of children classified overweight or obese in 2017–18.

High body mass index can increase the risk of a number of conditions as outlined below.

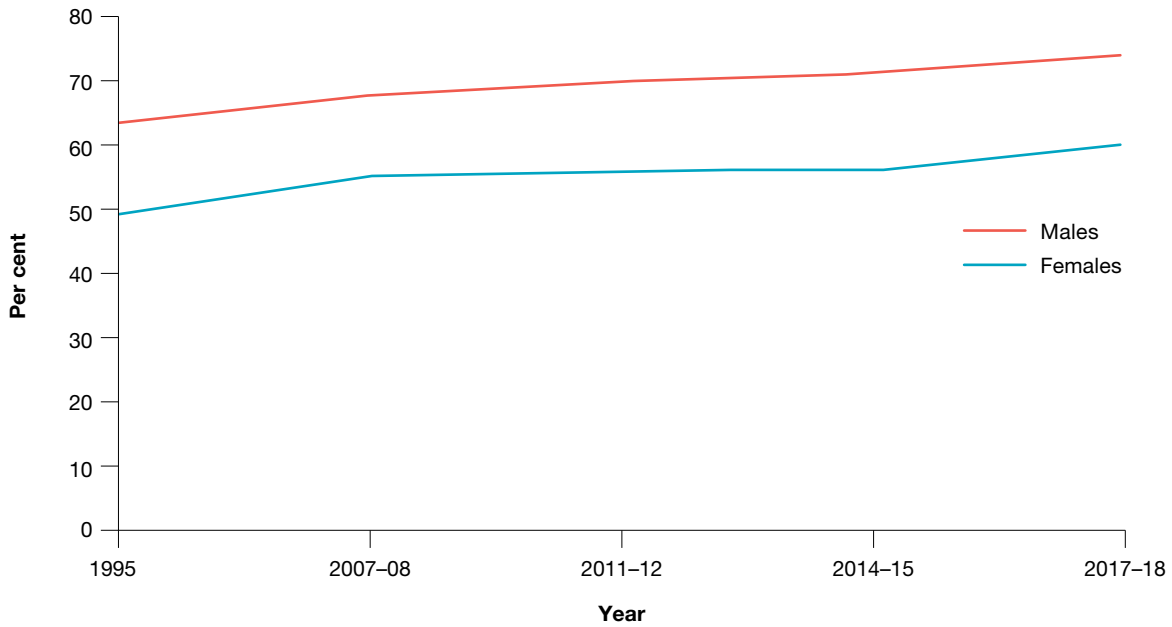
High body mass index and cardiovascular disease

High body mass index usually means there is a greater strain on the heart, which increases the risk of **hypertension** and of high levels of **cholesterol** in the blood. This increases the rate of **atherosclerosis** and the risk of cardiovascular disease. High body mass also increases the risk of an irregular heartbeat. Two common types caused by high body mass are atrial fibrillation and atrial flutter.

High body mass index and cancer

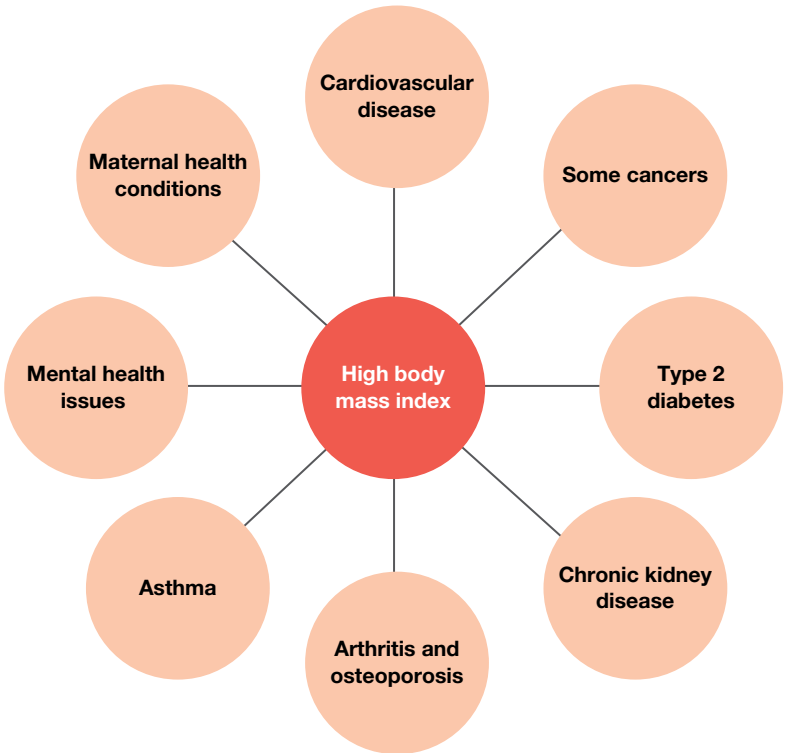
There is a relationship between high body mass index and the rates of some cancers, including colorectal cancer and breast cancer.

FIGURE 3.17 Persons aged 18 years and over — proportion overweight or obese, 1995 to 2017–18



Source: *National Health Survey: First Results, 2017–18.*

FIGURE 3.18 High body mass index contributes to a range of health concerns.



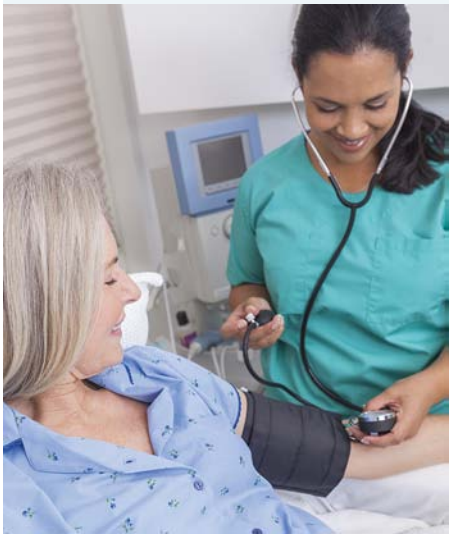
High body mass index and kidney disease

High body mass index increases the risk of high blood pressure and type 2 diabetes, which are two significant risk factors for kidney disease.

High body mass index and type 2 diabetes

In type 2 diabetes the pancreas does not produce enough insulin, or the body cannot use the insulin effectively (known as insulin resistance). High body mass index is the greatest risk factor for type 2 diabetes. Type 2 diabetes used to be associated with adulthood, but increasing rates of high body mass index among children has seen rates increase in younger age groups.

FIGURE 3.19 High body mass index is a major risk factor for cardiovascular disease, one of the leading causes of morbidity and mortality in Australia.



High body mass index and arthritis and osteoporosis

High body mass index puts more pressure on joints, which can increase the chances of developing arthritis. Current research also indicates that high body mass index can increase the risk of osteoporosis.

High body mass index and asthma

Children with a high body mass index have a greater risk of developing asthma than children with a healthy body mass.

High body mass index and mental health issues

High body mass index can contribute to conditions such as anxiety and depression. Children with high body mass index can be particularly susceptible to these conditions, thereby contributing significantly to morbidity and YLD among younger age groups.

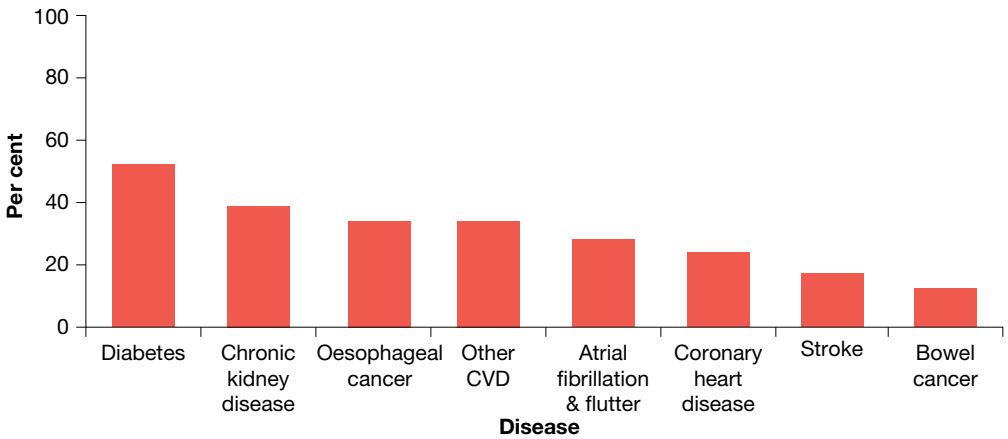
High body mass index and maternal health conditions

Pregnant women with high body mass index are more susceptible to a range of pregnancy-related conditions such as high blood pressure and gestational diabetes. High body mass index is also a risk factor for maternal mortality.

High body mass index and the Australian Burden of Disease Study

In 2011, high body mass contributed 5.5 per cent of all disease and injury burden in Australia, ranking as the second highest risk factor behind tobacco use. High body mass contributed to the burden for a number of diseases, including contributing 52 per cent of the diabetes burden, 38 per cent of the chronic kidney disease burden, 23 per cent of the coronary heart disease burden and 17 per cent of the stroke burden (figure 3.20).

FIGURE 3.20 Burden (%) attributable to high body mass, selected conditions, 2011

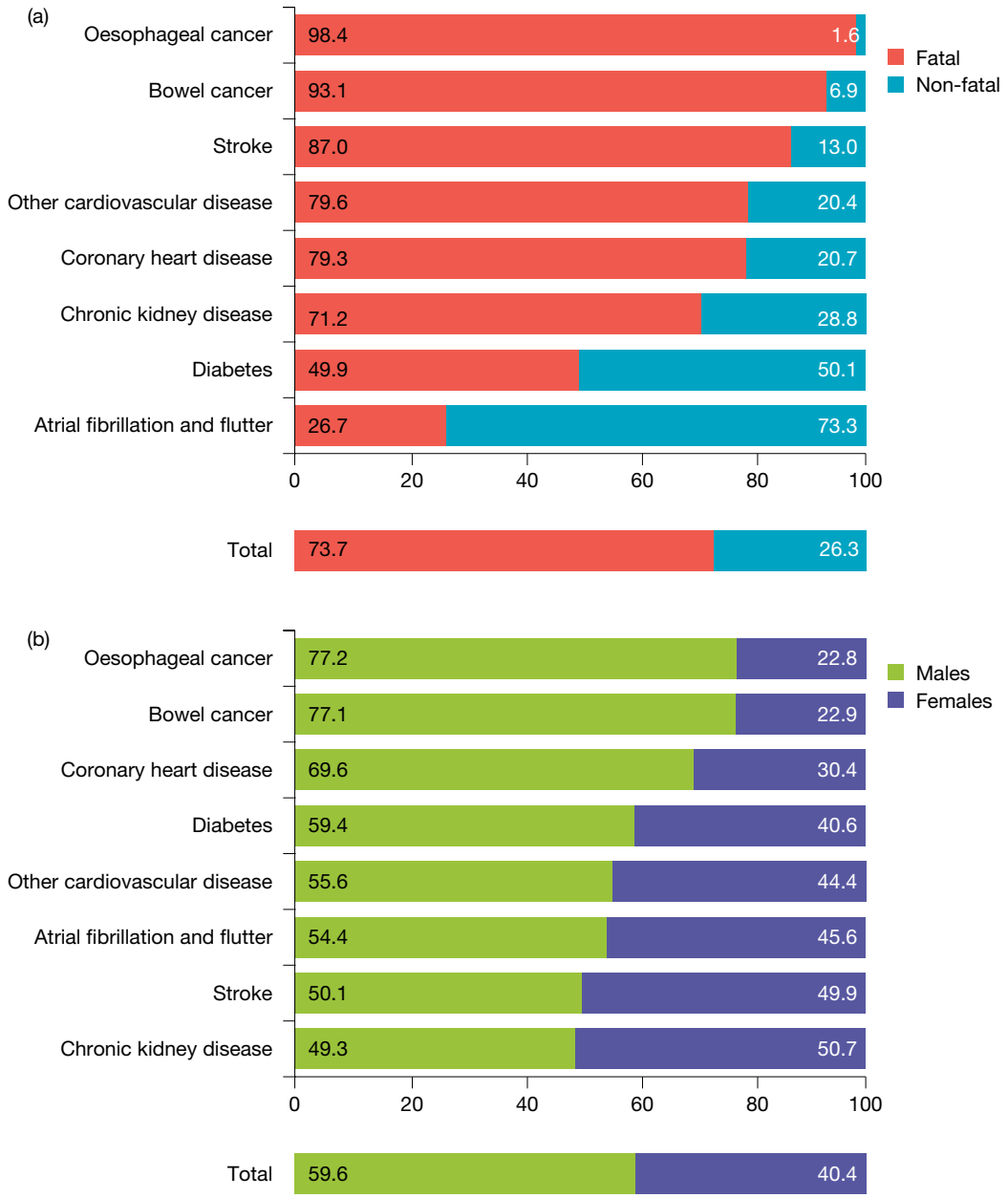


Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 182.

Around three-quarters of the DALY attributable to high body mass was due to fatal outcomes (figure 3.21a), therefore impacting significantly on life expectancy, mortality rates and YLL. Most conditions had a greater proportion of fatal burden, except for diabetes which had a similar fatal and non-fatal contribution; and atrial fibrillation and flutter, which mainly had a non-fatal contribution.

Males experienced nearly 60 per cent of the burden due to high body mass (figure 3.21b) and made up a greater proportion of the burden for most conditions. This contributed to the difference in life expectancy and HALE between males and females.

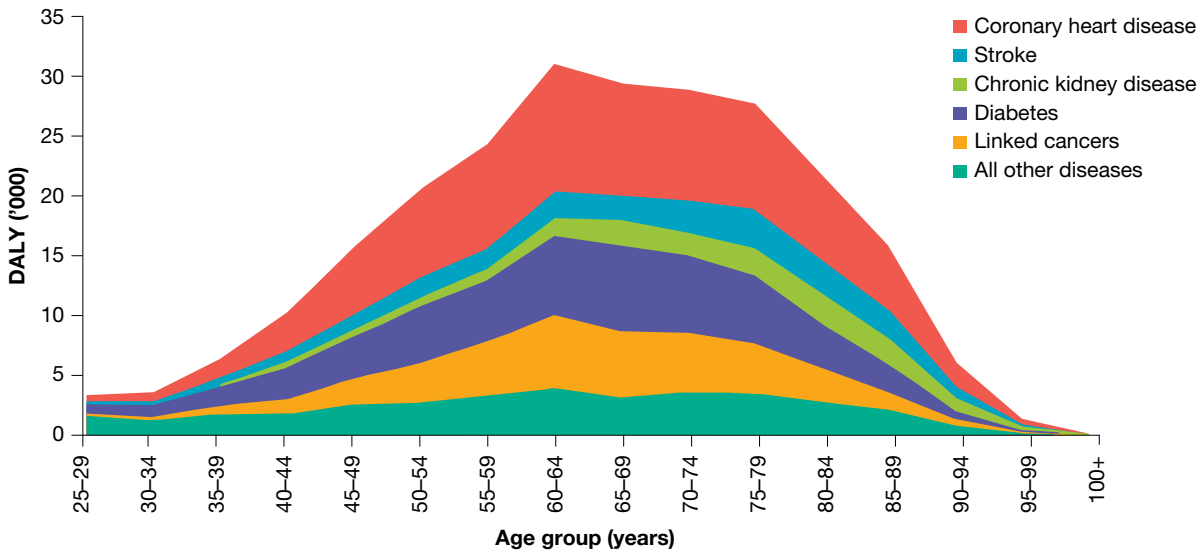
FIGURE 3.21 Proportion (%) of burden attributable to high body mass (top eight diseases), by fatal versus non-fatal burden (a) and sex (b), 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 183.

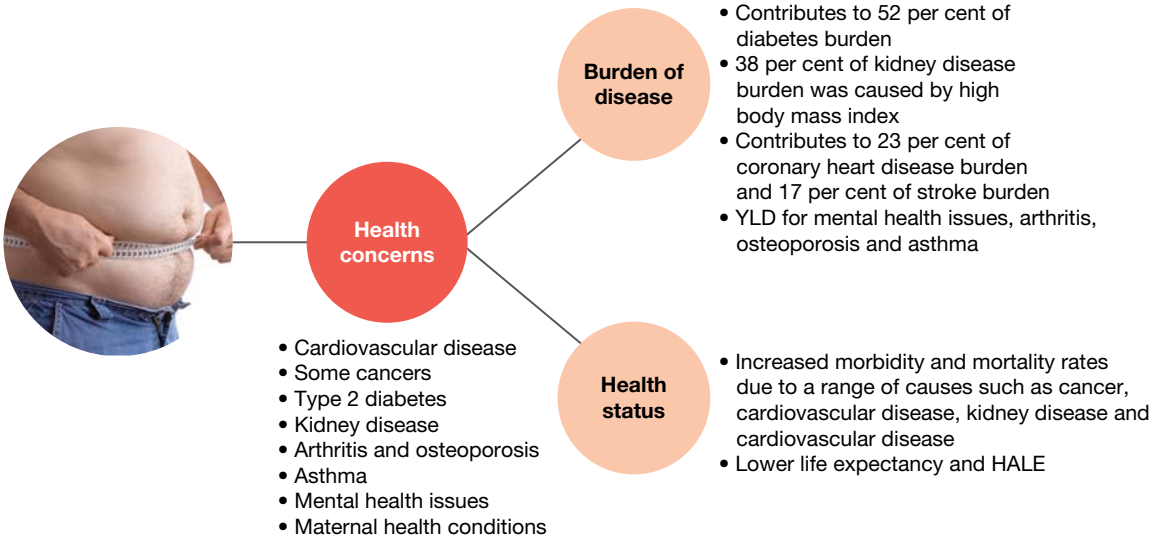
The diseases attributable to high body mass by age group are shown in figure 3.22. The total burden due to high body mass increased with age, reaching a peak in the 60–64 age group.

FIGURE 3.22 Burden (DALY) attributable to high body mass by age and disease group, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 184.

FIGURE 3.23 Summary of the impact of high body mass index on health status and burden of disease



3.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain what is meant by BMI and how it is measured.
2. Which classification would individuals with the following BMI have?
   (a) BMI of 26 (b) BMI of 30 (c) BMI of 21
3. Describe two ways that high body mass index contributes to disease.
4. Explain two ways that high body mass index can impact the health status of children.
5. Outline the relationship between abdominal fat and disease.

3.4 Exercise 2 APPLY your knowledge

1. Explain two reasons why high body mass index is of particular concern in Australia.
2. Using data from figure 3.17, draw two conclusions relating to overweight and obesity in Australia.
3. Explain how reducing body mass index could impact:
   (a) years of life lost (YLL)
   (b) morbidity rates.
4. Use figure 3.21 to answer the following questions:
   (a) What proportion of the total burden due to high body mass was the result of fatal outcomes?
   (b) For which disease was the fatal proportion of high body mass the greatest?
   (c) For which disease did females have the greatest proportion of burden of disease due to high body mass compared to males?
   (d) What proportion of the total burden of high BMI was experienced by females compared to males?
5. Use figure 3.22 to answer the following questions:
   (a) Describe the change in total DALY contribution between the ages of 25 and 100+.
   (b) Which disease group contributed the most to DALY for 60–64 year olds? Approximately how many DALY were contributed by this disease in this age group?
6. Ava is a seven-year-old who attends primary school. She has been steadily gaining excess weight over the previous two years and is now classified as obese. Discuss how Ava's weight could affect her social and emotional health and wellbeing.
7. Explain how reducing high body mass index could act as a resource nationally.
8. Draw a flow chart showing two ways that high body mass index contributes to each of health status and burden of disease.

studyON

3.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

3.5 Underconsumption of vegetables, fruit and dairy foods

KEY CONCEPT Understanding the contribution of underconsumption of vegetables, fruit and dairy foods to Australia's health status and burden of disease

Dietary risks have emerged as some of the most significant preventable risk factors impacting health status in Australia. Of particular concern is:

- underconsumption of vegetables, fruit and dairy foods (subtopic 3.5)
- high intake of fat, salt and sugar (subtopic 3.6)
- low intake of fibre and iron (subtopic 3.7).

FIGURE 3.24 Consuming a variety of vegetables has a range of health benefits.

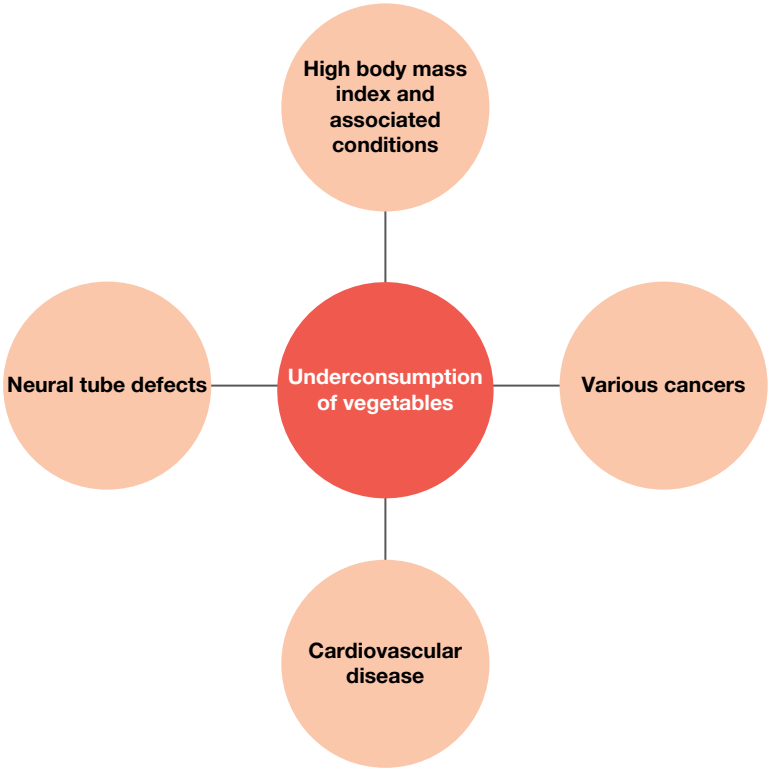


3.5.1 Underconsumption of vegetables

Vegetables are **nutrient dense**. They are high in minerals and vitamins (such as magnesium, vitamin C and folate), low in kilojoules, and high in dietary fibre and **antioxidants**.

Eating a range of vegetables increases the variety and amount of vitamins and minerals consumed. Many of these nutrients promote adequate functioning of body systems, including immune system function, which can reduce the incidence of conditions such as cancer, cardiovascular disease and **neural tube defects**. Conversely, underconsumption of vegetables is associated with higher rates of these conditions (see figure 3.25).

FIGURE 3.25 Underconsumption of vegetables contributes to a number of health concerns.



Underconsumption of vegetables and high body mass index

As already discussed, high body mass index contributes significantly to burden of disease in Australia by increasing the risk of cardiovascular disease, type 2 diabetes, kidney disease and some cancers. Consuming vegetables instead of **energy dense** foods can assist with weight management and reduce the risk of high body mass index. Vegetables are also a rich source of fibre, which further assists in reducing the risk of weight gain and some cancers such as colorectal cancer. (The benefits of fibre will be explored in more detail in subtopic 3.7.) Underconsumption of vegetables is therefore a risk factor for high body mass index.

Underconsumption of vegetables and cardiovascular disease and cancer

Vegetables are also a source of antioxidants; these work to reduce the impact of **free radicals** in the body. Free radicals are molecules that can damage body cells and increase rates of morbidity and mortality due to conditions such as cardiovascular disease and cancer. The antioxidants in vegetables target free radicals and eliminate them from the body, thereby reducing the burden of disease associated with cardiovascular disease and cancer. Underconsumption of vegetables often means that antioxidant consumption is also low, increasing the risk of these conditions.

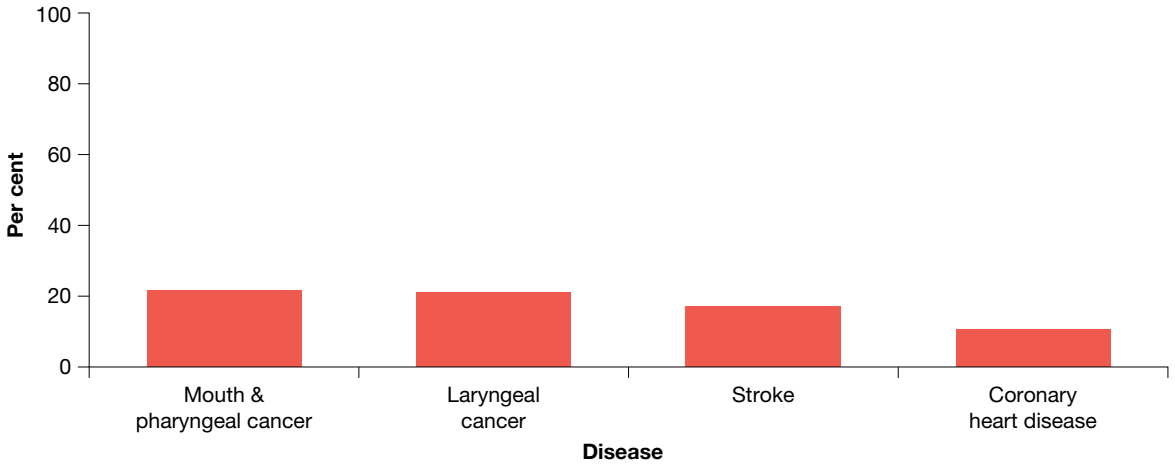
Underconsumption of vegetables and neural tube defects

Nutrients found in vegetables, such as folate, play a significant role in the development of the brain and spinal cord during the prenatal stage of the lifespan. Underconsumption of vegetables before and during pregnancy increases the risk of neural tube defects such as spina bifida which contributes to mortality and morbidity in Australia, particularly among infants.

Underconsumption of vegetables and the Australian Burden of Disease Study

In 2011, a diet low in vegetables was responsible for 1.4 per cent of all the disease and injury burden in Australia. A diet low in vegetables was responsible for 21 per cent of the total burden due to laryngeal, mouth and pharyngeal cancer. It was also responsible for 17 per cent of the stroke burden and 10 per cent of the coronary heart disease burden (figure 3.26).

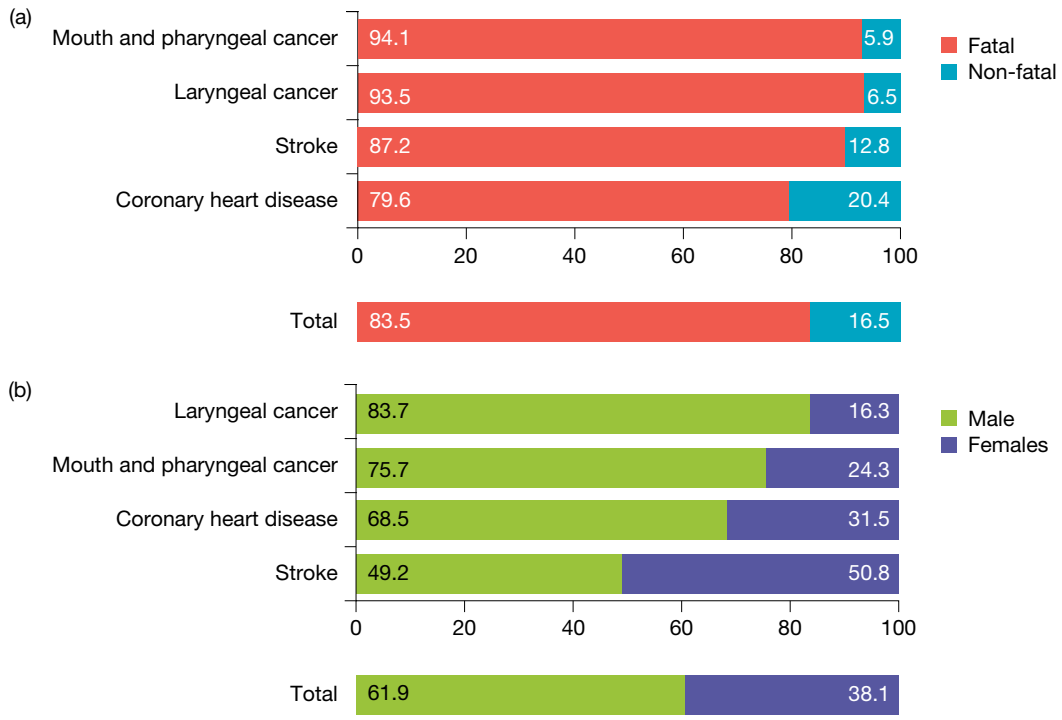
FIGURE 3.26 Burden (%) attributable to low vegetable intake, selected conditions, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 196.

The fatal component was responsible for 83 per cent of the total burden attributable to a diet low in vegetables (figure 3.27a), and around 62 per cent of the total burden attributed to a diet low in vegetables was experienced by males (figure 3.27b). Stroke was the only disease outcome where the contribution to burden was similar for males and females (figure 3.27b).

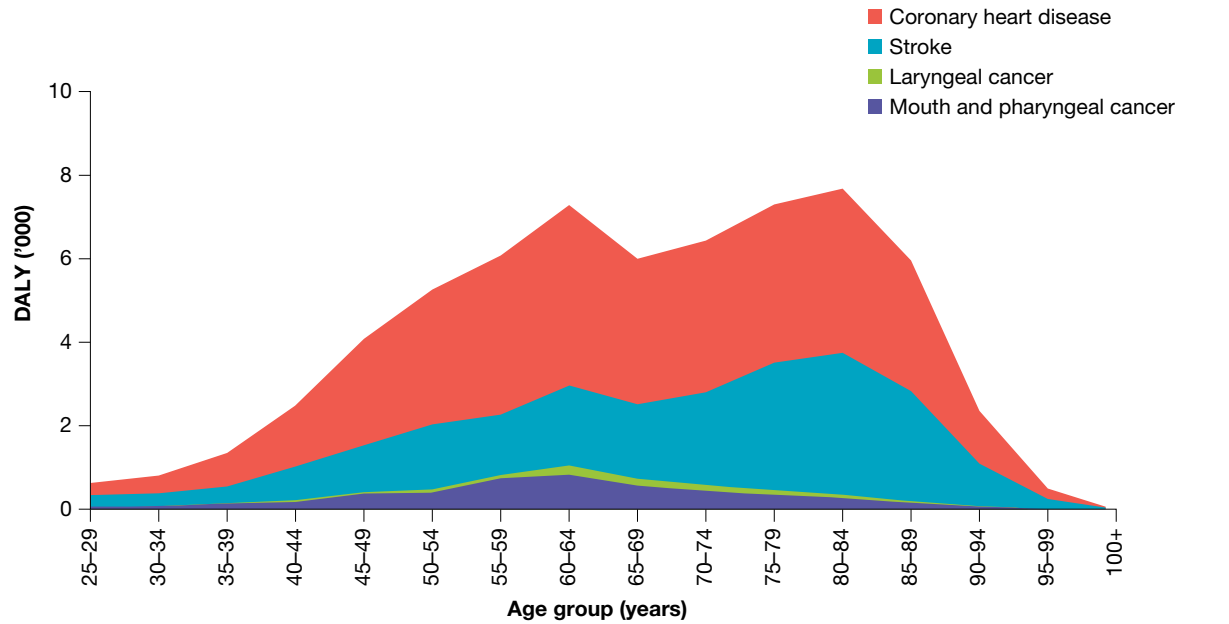
FIGURE 3.27 Proportion (%) of burden attributable to low vegetable intake (top four diseases), by fatal versus non-fatal burden (a) and sex (b), 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 197.

Cardiovascular diseases, mainly stroke and coronary heart disease, made up the majority of the burden attributable to a diet low in vegetables across all age groups (figure 3.28). The overall number of DALY due to low vegetable intake increased with age, with an initial peak at 60–64 years. Overall burden decreased slightly for the 65–69 age group, before steadily increasing and reaching a second peak at age 80–84. The overall burden decreased significantly after age 84, reflecting a decrease in the population in these age groups.

FIGURE 3.28 Burden (DALY) attributable to underconsumption of vegetables by age and disease group, 2011

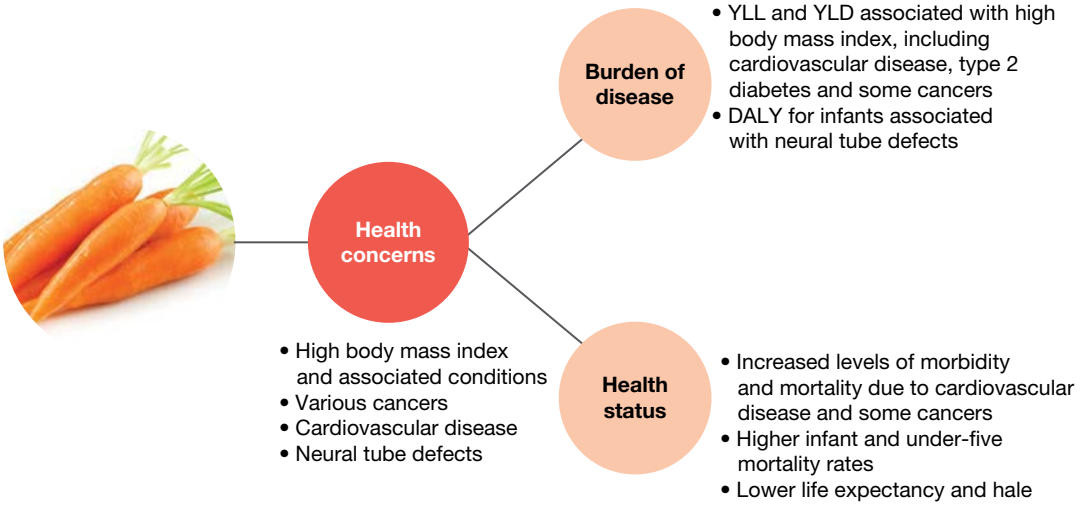


Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 197.

FIGURE 3.29 Those in the 80–84 age group contribute the most DALY attributable to a low intake of vegetables.



FIGURE 3.30 Summary of the impact of underconsumption of vegetables on health status and burden of disease

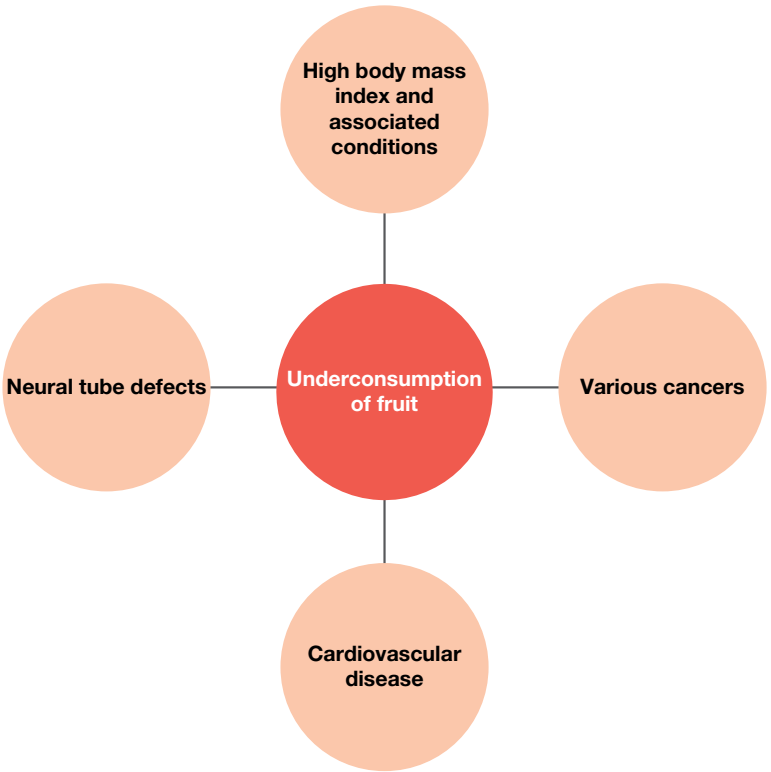


3.5.2 Underconsumption of fruit

Like vegetables, fruits provide a range of essential nutrients including vitamins, minerals and fibre, while being low in fat and a good source of antioxidants. As a result, underconsumption of fruit reduces adequate function of body systems and increases the risk of conditions (figure 3.31).

The greatest benefits occur when individuals consume a range of raw, whole fruits as these varieties provide the greatest amount and combination of nutrients. Fruit juice is often high in sugar and does not contain the same level of fibre as whole fruits and should therefore be consumed in moderation.

FIGURE 3.31 Underconsumption of fruit contributes to a number of health concerns.



Underconsumption of fruit and high body mass index

People who eat adequate amounts of fruit are likely to feel full for longer and are therefore less likely to consume energy dense foods. This assists in protecting against weight gain, high body mass index and associated conditions such as cardiovascular disease, type 2 diabetes and some cancers. Conversely, underconsumption increases the risk of these conditions.

Underconsumption of fruit and cardiovascular disease, cancers and neural tube defects

By containing relatively high amounts of nutrients including vitamins, minerals and fibre, while being low in fat and a good source of antioxidants, fruit plays similar roles in the body as vegetables. As a result, underconsumption of fruit also increases the risk of conditions such as cardiovascular disease, cancers and neural tube defects.

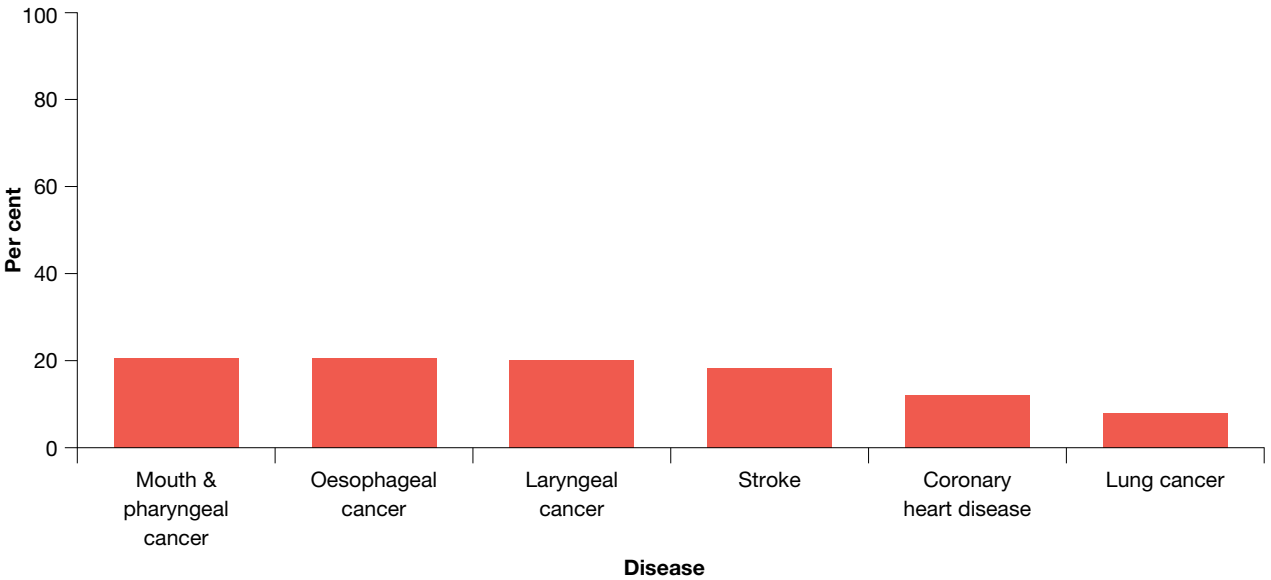
FIGURE 3.32 Fruits such as raspberries are a rich source of fibre.



Underconsumption of fruit and the Australian Burden of Disease Study

In 2011, underconsumption of fruit was responsible for 2 per cent of all the disease and injury burden in Australia. Specifically, underconsumption of fruit was responsible for 20 per cent of the burden due to mouth and pharyngeal cancer, oesophageal cancer and laryngeal cancer. A diet low in fruit also contributed to 18 per cent of the stroke burden and 12 per cent of the coronary heart disease burden (figure 3.33).

FIGURE 3.33 Burden (%) attributable to low fruit intake, selected conditions, 2011



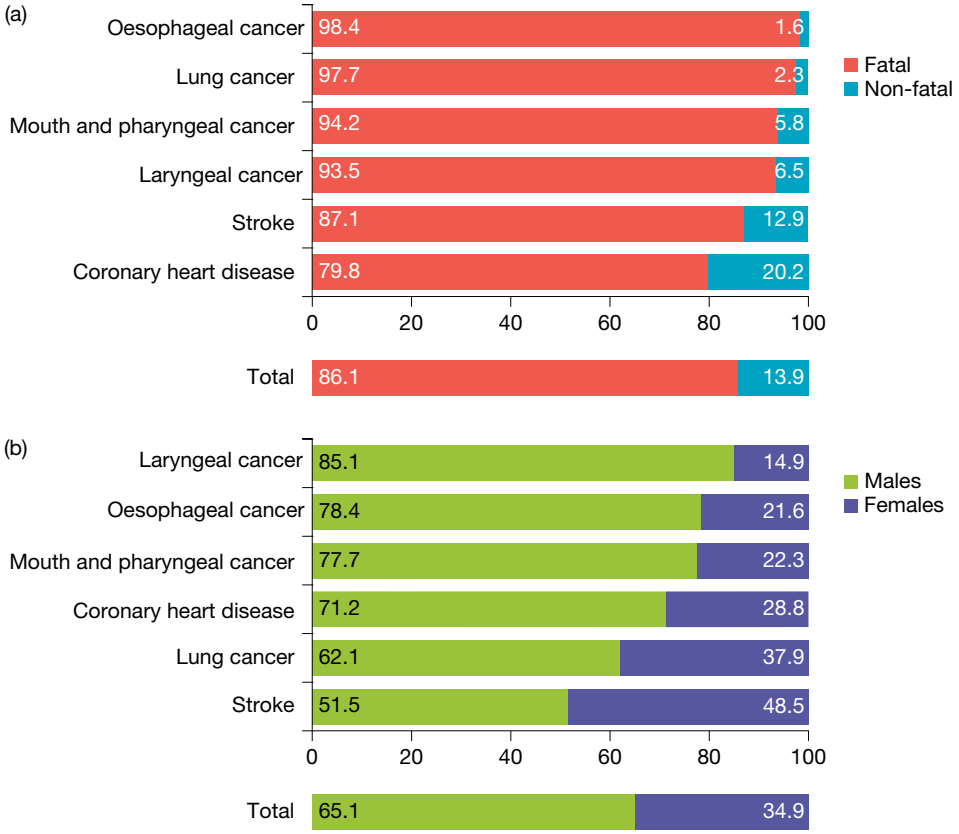
Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 194.

Overall, 86 per cent of the attributable burden of a diet low in fruit was due to fatal burden. Most diseases caused by low fruit intake had a significantly higher proportion of fatal outcomes as opposed to non-fatal outcomes. The fatal contribution ranged from 98.4 per cent for oesophageal cancer to around 80 per cent for coronary heart disease (figure 3.34a).

Around 65 per cent of the disease burden attributed to underconsumption of fruit was experienced by males. Males experienced 71 per cent of the burden due to coronary heart disease caused by a diet low in fruit, but rates of stroke due to underconsumption of fruit were similar for males and females. The burden of cancers caused by lack of fruit intake was more likely to be experienced by males (figure 3.34b).

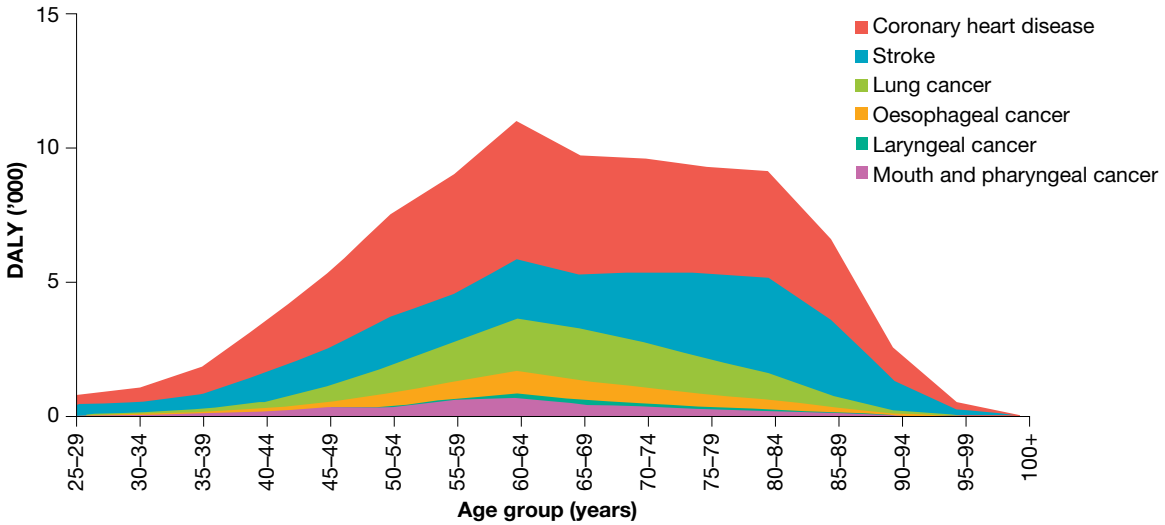
In 2011, cardiovascular diseases made up the majority of the burden attributable to underconsumption of fruit in all ages (figure 3.35). The overall number of DALY increased with advancing age, and peaked at ages 60–64. This number decreased slightly after age 65 before decreasing dramatically from 85 years of age.

FIGURE 3.34 Proportion (%) of burden attributable to underconsumption of fruit (top six diseases), by fatal versus non-fatal burden (a) and sex (b), 2011



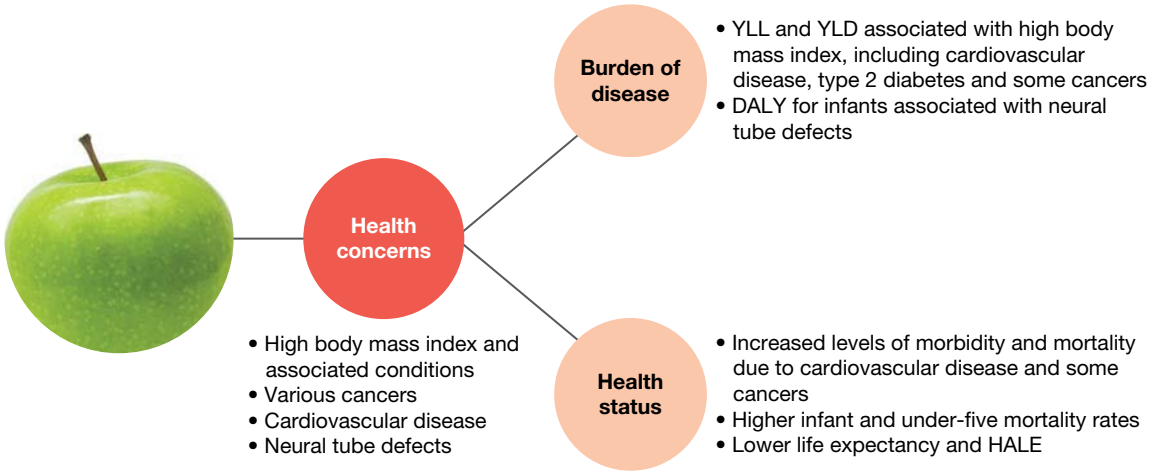
Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 195.

FIGURE 3.35 Burden (DALY) attributable to underconsumption of fruit by age and disease group, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 195.

FIGURE 3.36 Summary of the impact of underconsumption of fruit on health status and burden of disease



3.5.3 Underconsumption of dairy

Dairy refers to animal milk and products created from animal milk, including cheese and yoghurt. In Australia, the most common forms of dairy are products made using cow's milk, but varieties made using the milk from goats and sheep are also commonly available.

Some Australians, particularly younger people, reduce their dairy intake as they believe that these foods contribute to weight gain. However, there is insufficient evidence to support this claim.

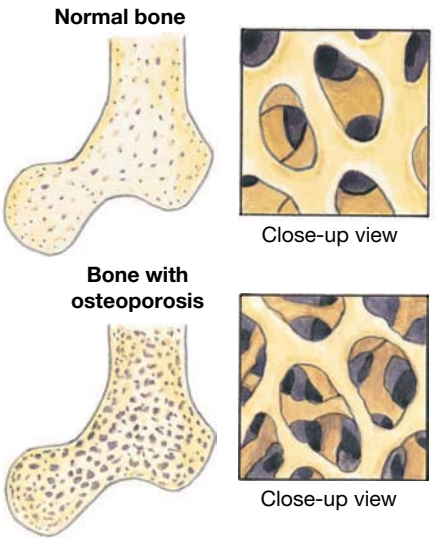
Around 5 per cent of the population experience dairy intolerance, which is a reduced ability to digest lactose, a type of sugar found in dairy products. For affected individuals, **fortified** milk substitutes such as soy or almond milk can satisfy dairy needs, but are not technically a type of dairy and will therefore not be considered in this section.

Underconsumption of dairy and osteoporosis

The main nutritional contribution of dairy is the provision of calcium, a mineral essential for a range of functions in the human body including the strengthening of bones and the prevention of osteoporosis — a bone disease characterised by weak, porous bones that are susceptible to fracture.

Dairy is also a rich source of other nutrients, and research has shown that underconsumption of dairy acts to increase morbidity and mortality in relation to a range of other conditions including cardiovascular disease, colorectal cancer, type 2 diabetes and **dental caries.**

FIGURE 3.37 Calcium in dairy products helps to build peak bone mass and reduce the risk of osteoporosis, a condition characterised by weak bones.



Underconsumption of dairy and cardiovascular disease

Underconsumption of dairy has been associated with increased risk of coronary heart disease, hypertension and stroke.

Underconsumption of dairy and colorectal cancer

According to the Australian Dietary Guidelines, recent evidence suggests that people who regularly consume more than one serve of dairy products each day (particularly milk) have a reduced risk of developing colorectal cancer. Underconsumption of dairy therefore increases the risk.

Underconsumption of dairy and type 2 diabetes

A 10-year study of 3000 overweight adults found that the underconsumption of milk and other milk products and consuming refined sugars and carbohydrates instead, may increase the risk of overweight young adults developing type 2 diabetes.

FIGURE 3.38 Cow's milk is a rich source of calcium.



Underconsumption of dairy and dental caries

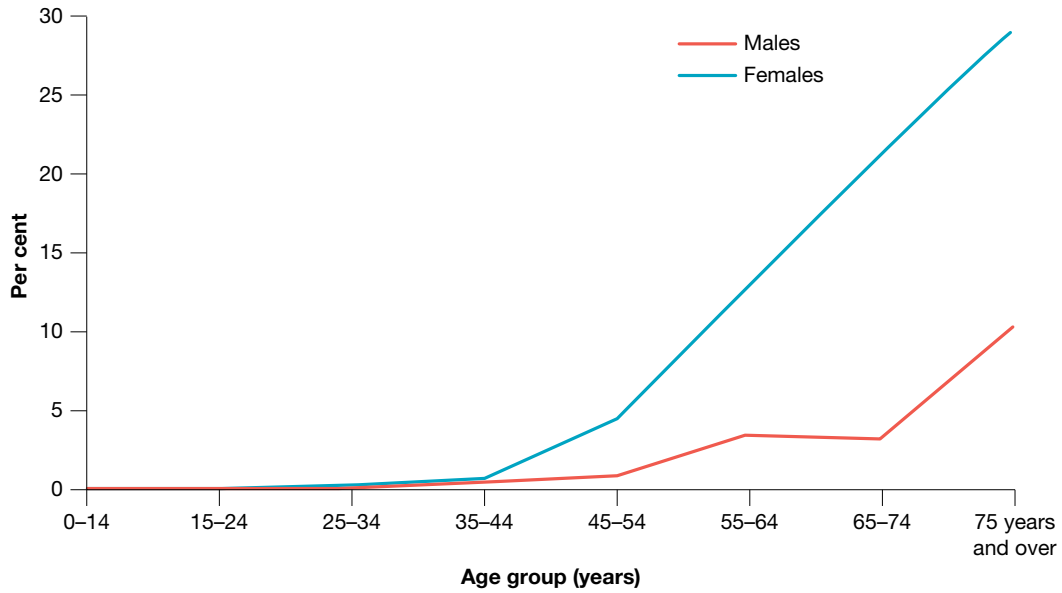
Underconsumption of dairy often means teeth are not as strong as they could be, increasing the risk of dental caries.

Underconsumption of dairy and the Australian Burden of Disease Study

Data specifically relating to the burden of disease attributable to underconsumption of dairy are not available. Therefore, data relating to underconsumption of milk, and conditions attributed to the underconsumption of dairy, will be explored.

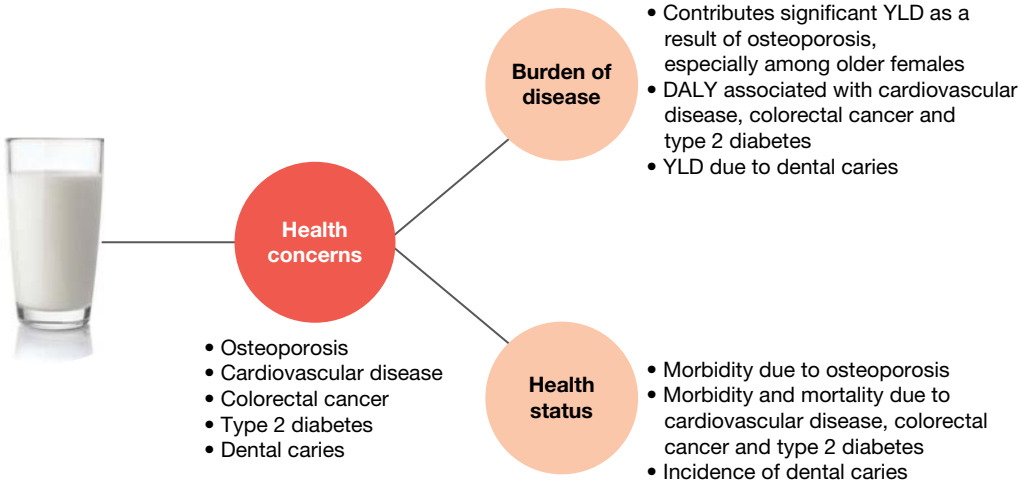
- In 2011, underconsumption of milk was linked to 0.2 per cent of the total burden of disease in Australia, much of which was through the relationship between milk and osteoporosis.
- In 2017–18, 3.8 per cent (or just over 900 000) of Australians experienced osteoporosis. Women overall were twice as likely to experience osteoporosis as males, and five times more likely in the 55 and over age group (figure 3.39).

FIGURE 3.39 Proportion of males and females with osteoporosis, 2017–18



Source: *National Health Survey: First Results, 2017–18.*

FIGURE 3.40 Summary of the impact of underconsumption of dairy on health status and burden of disease



3.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Complete the following table:

	Impact on health status	Impact on burden of disease
Underconsumption of vegetables		
Underconsumption of fruit		
Underconsumption of dairy		

2. Explain what is meant by:
   (a) nutrient dense foods
   (b) energy dense foods.
3. Briefly explain how antioxidant intake can promote health status.
4. Explain why individuals should consume whole fruits instead of fruit juice.
5. (a) Explain what is meant by 'dairy'.
   (b) Which nutrient is dairy a rich source of?
   (c) Outline why this nutrient is important for good health and wellbeing.

3.5 Exercise 2 APPLY your knowledge

1. Use figure 3.27 to answer the following questions.
   (a) What proportion of the total burden due to underconsumption of vegetables was the result of fatal outcomes?
   (b) For which disease was the fatal proportion of underconsumption of vegetables the greatest?
   (c) For which disease did males and females have a similar proportion of burden of disease due to underconsumption of vegetables?
   (d) What proportion of the total burden of underconsumption of vegetables was experienced by males compared to females?
2. (a) According to figure 3.28, which disease contributed the most to DALY due to underconsumption of vegetables?
   (b) Discuss how underconsumption of vegetables contributes to the disease identified in part (a).
3. Suggest reasons for low vegetable consumption in people aged 80–84.
4. (a) According to figure 3.34, what proportion of the burden associated with underconsumption of fruit was attributed to females?

(b) For which disease did females experience the greatest proportion of burden of disease compared to males?

5. Outline one trend shown in figure 3.39.

studyON

3.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

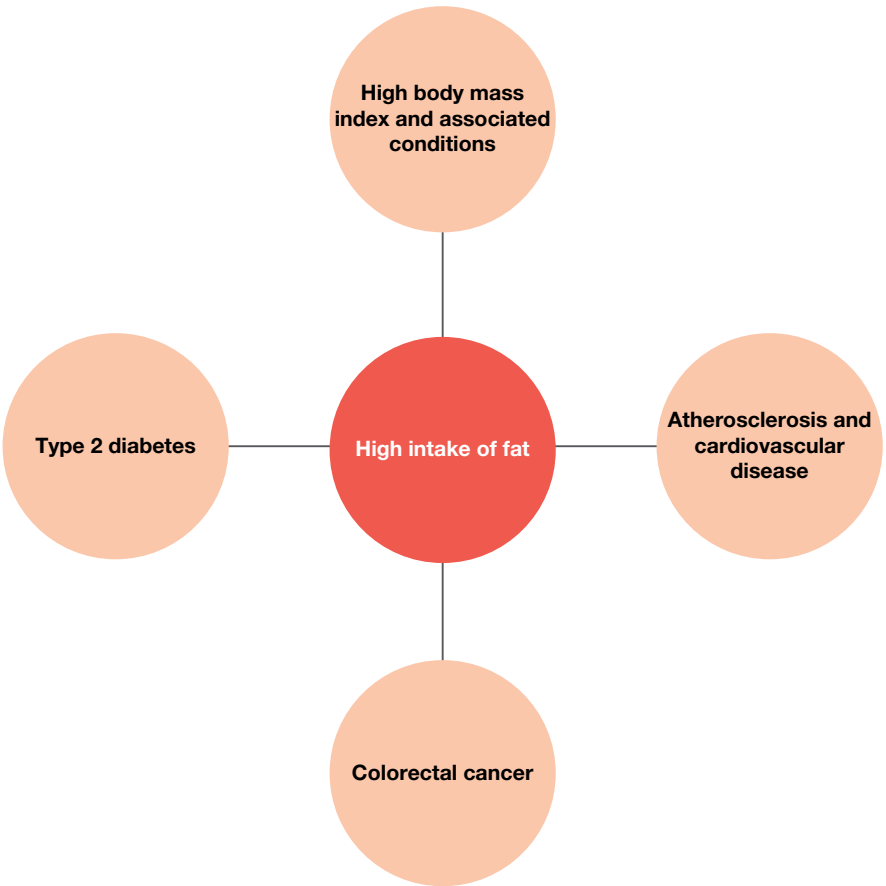
3.6 Dietary risks of high intake of fat, salt and sugar

KEY CONCEPT Understanding the contribution of high intake of fat, salt and sugar to Australia's health status and burden of disease

3.6.1 High intake of fat

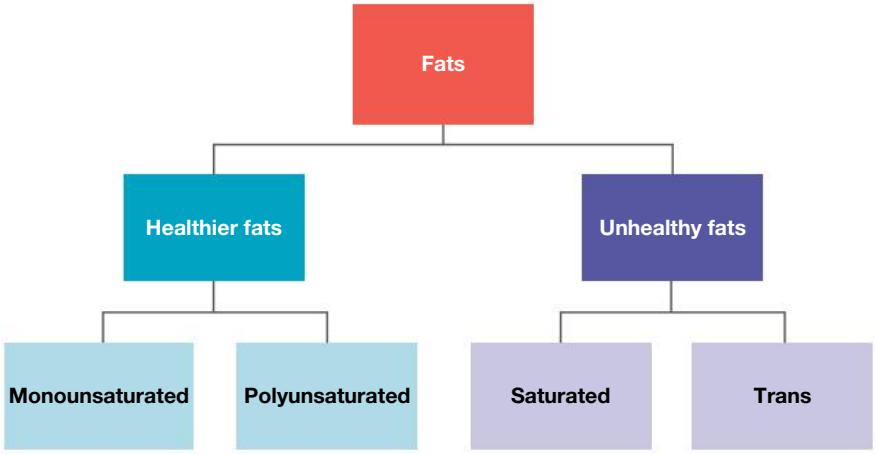
Fats (sometimes referred to as lipids) play a number of roles in relation to health and wellbeing. Most people get enough fats in their diet. In fact, Australians are more likely to overconsume than underconsume this nutrient, and this can have detrimental effects on health and wellbeing (see figure 3.41).

FIGURE 3.41 High intake of fat contributes to a number of health concerns.



Although fats are an important part of a balanced diet, there are different types of fats and some are healthier than others (see figure 3.42).

FIGURE 3.42 The different types of fat



High intake of fat and high body mass index

One of the primary functions of fat is to act as a fuel for energy production. All fats can be used as a fuel source for energy production and will contribute to weight gain if the energy provided by them is not used. Excessive consumption of any type of fat can therefore contribute to high body mass index and the associated conditions that were explored in subtopic 3.4.

Overconsumption of fats impacts health status in Australia as many people consume too much of this nutrient, especially saturated fat. The greatest impact of overconsumption of fat is in relation to high body mass, which increases morbidity and mortality in relation to cardiovascular disease, type 2 diabetes and some cancers.

High intake of fats and cardiovascular disease

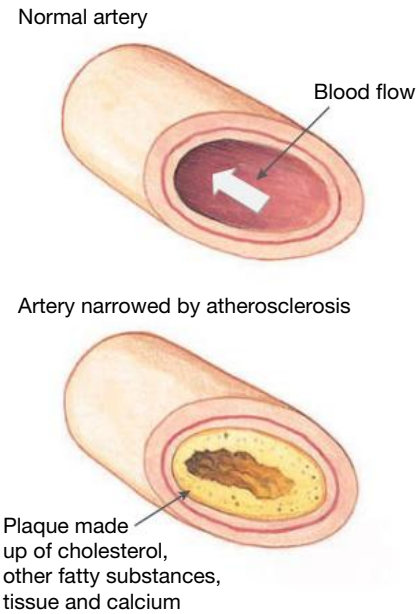
The other impact of overconsumption of saturated and trans fats on health status is in relation to high cholesterol levels.

One of the main differences between the types of fat is in the way they impact cholesterol levels in the bloodstream. There are two types of cholesterol:

- low-density lipoprotein (LDL), also known as 'bad' cholesterol
- high-density lipoprotein (HDL), also known as 'good' cholesterol.

When there is too much LDL in the blood, it tends to be deposited on the walls of the blood vessels, giving the blood less room to travel to the cells. When this occurs, the cholesterol deposits allow other substances (such as calcium) to become embedded, which leads to hardening and narrowing of the arteries. This condition is known as atherosclerosis (see figure 3.43). Atherosclerosis is the main underlying factor in most types of cardiovascular disease, including coronary heart disease and stroke, as it makes the heart work harder and can eventually cut off blood supply completely. High-density lipoprotein can slow the process of atherosclerosis, therefore reducing the risk of heart disease and stroke.

FIGURE 3.43 High cholesterol can contribute to atherosclerosis



Saturated and trans fats are sometimes known as 'bad' fats because they increase LDL cholesterol levels in the blood and therefore increase the risk of cardiovascular disease. Trans fats can also decrease levels of HDL cholesterol, further increasing the risk of heart disease and stroke.

Monounsaturated and polyunsaturated fats are often considered to be healthier fats because they can reduce the levels of LDL cholesterol in the body and therefore reduce the risk of cardiovascular disease. Polyunsaturated fats can also help increase HDL cholesterol and reduce blood clots and inflammation, which further decreases the risk of heart disease and stroke.

High intake of fat and type 2 diabetes

In addition to increasing the risk of cardiovascular disease, diets high in saturated and trans fats have been shown to interfere with the function of cell membranes, increasing the impact of impaired glucose regulation and the risk of type 2 diabetes.

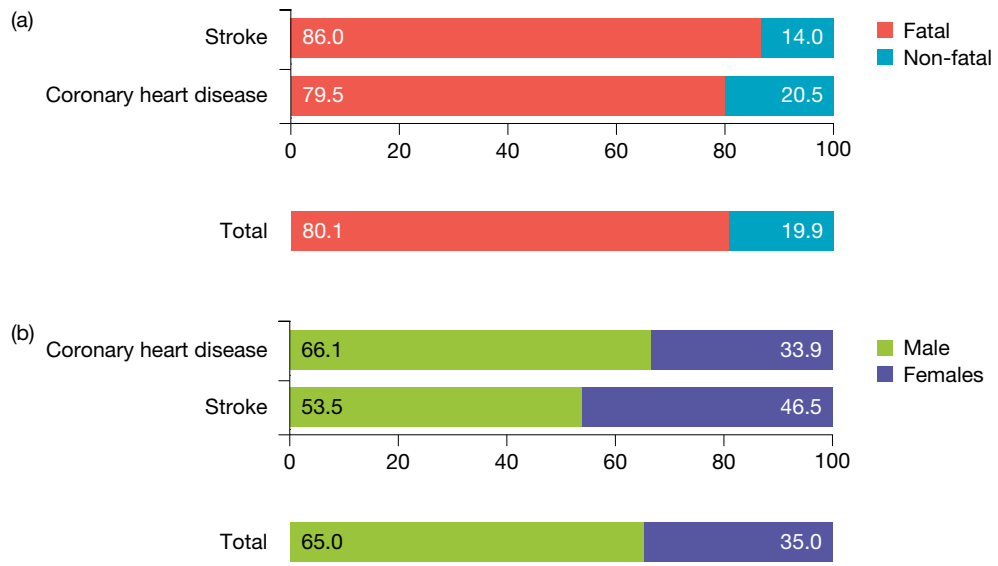
High intake of fat and colorectal cancer

Although saturated and trans fat can increase the risk of high body mass index, which is a risk factor for colorectal cancer, excessive intake also appears to increase the risk of colorectal cancer directly (that is, even in people who have normal body mass).

High intake of fat and the Australian Burden of Disease Study

In 2011, high cholesterol was responsible for 2.4 per cent of the total burden of disease in Australia, including 16 per cent of the burden due to cardiovascular disease. The majority (80 per cent) of the burden was due to premature mortality. Males accounted for 65 per cent of the total burden (figure 3.44b).

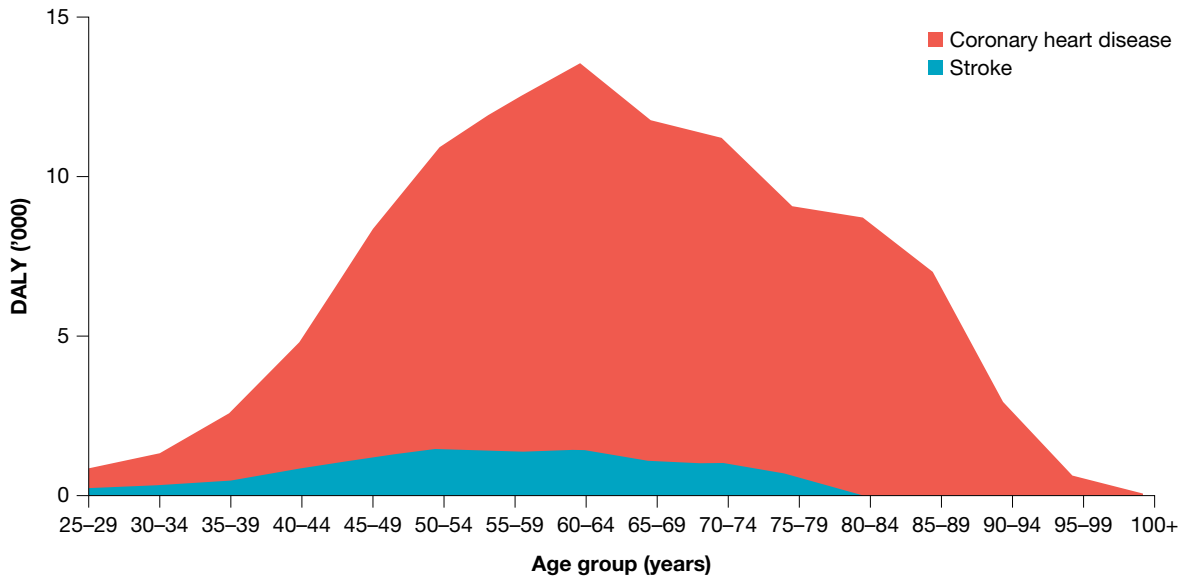
FIGURE 3.44 Proportion (%) of burden attributable to high cholesterol, by fatal versus non-fatal burden (a) and sex (b), 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 188.

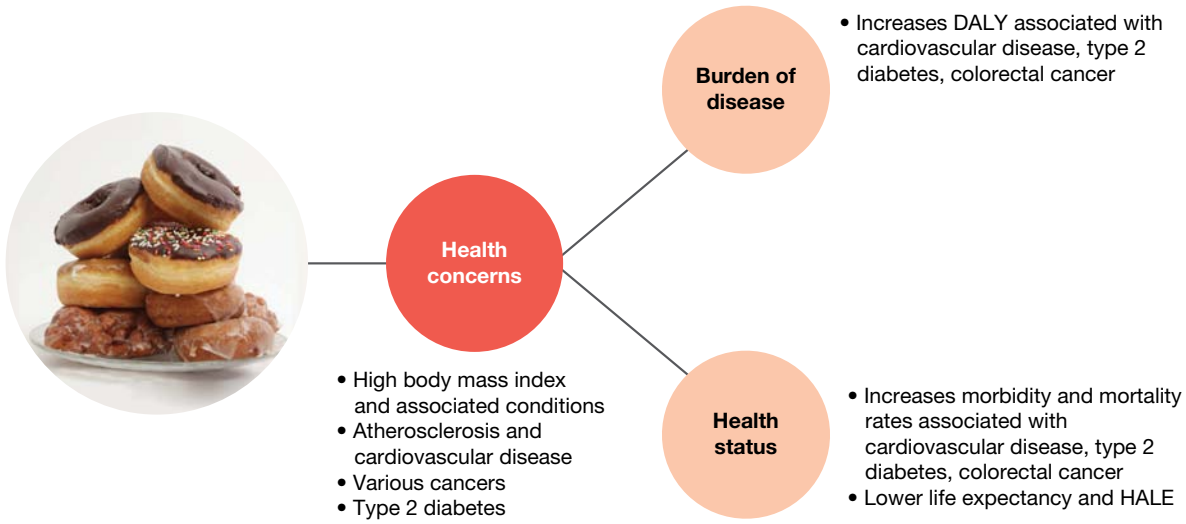
Coronary heart disease was responsible for the majority of DALY attributable to high cholesterol. The total number of DALY caused by high cholesterol gradually increased with age until reaching a peak in the 60–64 age group. There was a gradual decrease with age from then (figure 3.45).

FIGURE 3.45 Burden (DALY) attributable to high cholesterol by age and disease, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 189.

FIGURE 3.46 Summary of the impact of high intake of fat on health status and burden of disease



3.6.2 High intake of salt

One of the main components of salt is sodium. Like fat, sodium is required for optimal human functioning but too much can contribute to negative health outcomes (see figure 3.47).

In high-income countries like Australia, salt from processed foods is the major source of sodium for most people (figure 3.48).

Most Australians get more than enough sodium in their diet. According to the Better Health Channel, the average Australian consumes eight to nine times the amount of sodium they need for good health and wellbeing.

FIGURE 3.47 High intake of salt contributes to a number of health concerns.

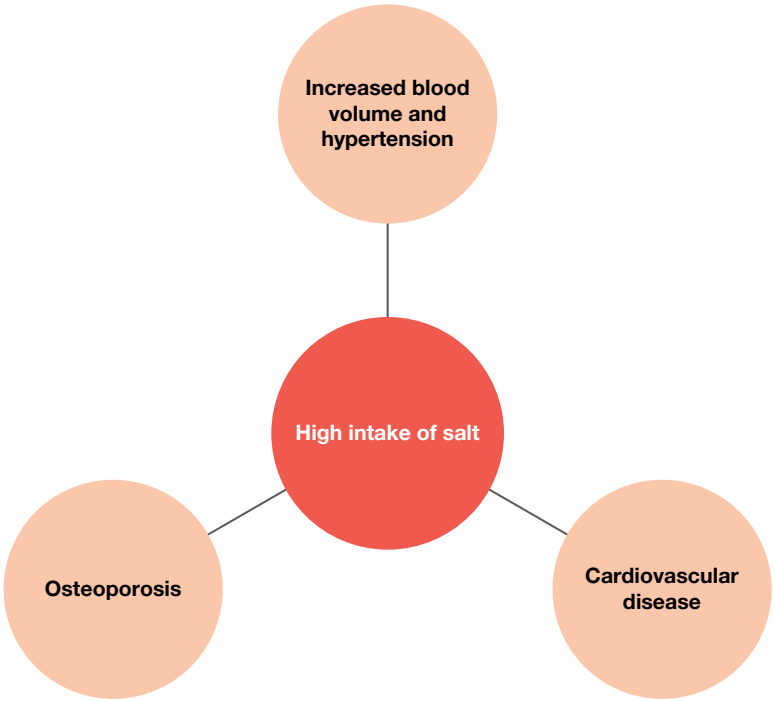
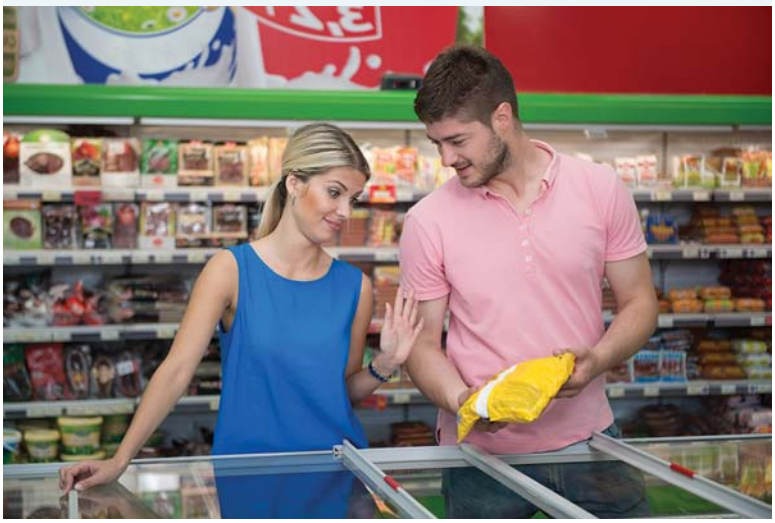


FIGURE 3.48 Processed foods are often high in salt. Checking the label for the amount of sodium present is often the best way to determine which foods have lower levels of salt.



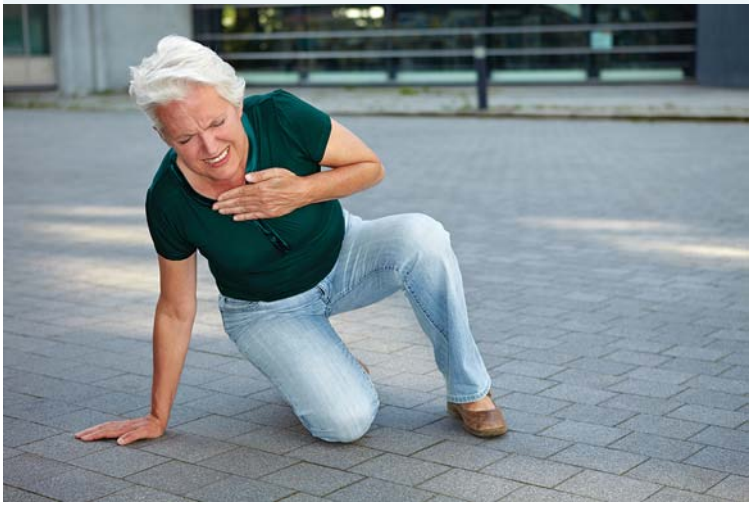
High intake of salt and hypertension

High levels of sodium in the body can draw excess fluid out of the cells. This increases blood volume and contributes to hypertension (figure 3.49).

High intake of salt and cardiovascular disease

A high intake of salt can lead to cardiovascular disease. Increased blood volume and hypertension force the heart to work harder. Heart failure can result if the heart cannot keep up with demand from the body. Hypertension associated with excess sodium intake contributes to higher rates of stroke and heart attack.

FIGURE 3.49 Excess sodium increases blood volume and contributes to hypertension — a major risk factor for heart attack.



High intake of salt and osteoporosis

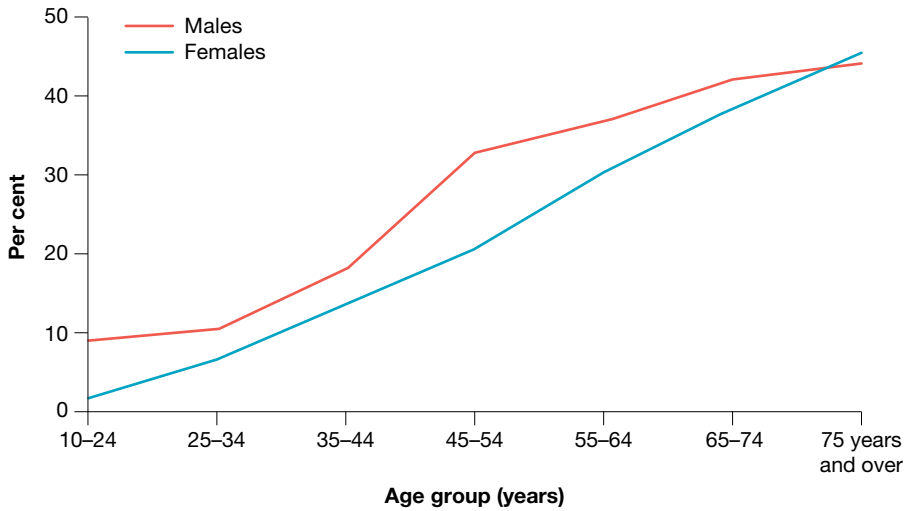
Excess sodium causes calcium to be excreted in urine, which can lead to the demineralisation of bones and osteoporosis.

High intake of salt and the Australian Burden of Disease Study

According to the Australian Institute of Health and Welfare and the ABS:

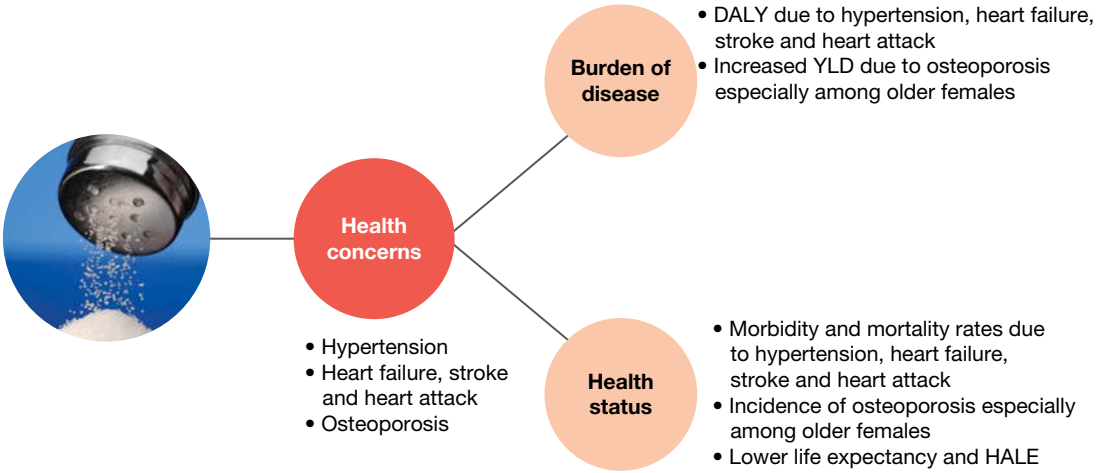
- Overconsumption of salt was responsible for 0.3 per cent of the total burden of disease in Australia in 2011.
- In 2017–18, around 23 per cent of adults, or 4.3 million people, had measured high blood pressure, excluding those taking medication.
- High blood pressure was more common in men (25.4 per cent) than in women (20.3 per cent), except among people aged 75 and over (45.4 per cent in women and 44.6 per cent in men).
- The proportion with high blood pressure increased with age, from 6 per cent for people aged 18–24 years to 45 per cent for people aged 75 and over (figure 3.50).

FIGURE 3.50 Proportion of persons aged 18 years of over with high blood pressure



Source: *National Health Survey: First Results, 2017–18.*

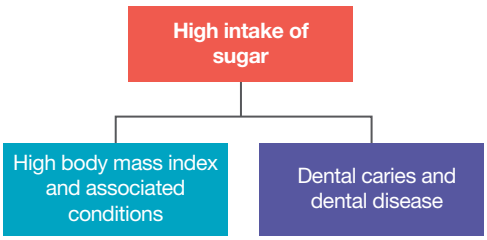
FIGURE 3.51 Summary of the impact of high intake of salt on health status and burden of disease



3.6.3 High intake of sugar

Sugars are a type of carbohydrate found naturally in some foods such as fruit and honey, and added to many processed foods such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks (figure 3.53).

FIGURE 3.52 High intake of sugar contributes to a number of health concerns.



High intake of sugar and high body mass index

Sugars are required as a fuel for energy production but, if eaten in excess, they are stored as adipose (fat) tissue. Over time, this can lead to weight gain and high body mass index. High body mass index contributes to health status and burden of disease in a number of ways (see subtopic 3.4).

FIGURE 3.53 Sweetened beverages, such as these sports drinks, have emerged as one of the main sources of sugar for Australians.



High intake of sugar and dental caries and dental disease

As well as providing a fuel for energy production, sugars provide a food source for bacteria in the mouth. These bacteria produce acids that can contribute to dental decay and the development of dental caries, which is a significant contributor to morbidity among children in Australia (figure 3.54). Dental caries can impact mental health and wellbeing as a result of reduced self-esteem if the individual's appearance is altered. If left untreated, diseases such as **periodontitis** can occur. Periodontitis is a condition characterised by inflammation and infection of the tissues that support the teeth. In the long term, periodontitis can lead to the loosening and loss of teeth.

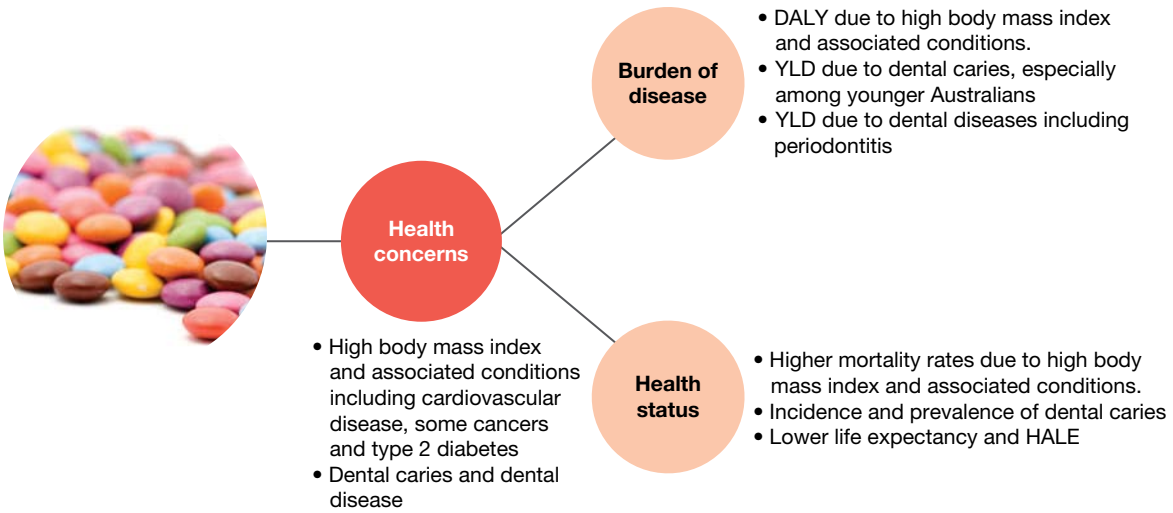
Over the past 15 years, research has established links between poor oral health (especially periodontitis) and a range of serious diseases that contribute significantly to burden of disease in Australia including heart disease, stroke,

severe infections, kidney disease, oral cancers and dementia (Dental Health Services Victoria, 2011). The causal relationship between oral health and chronic disease is the subject of ongoing research.

FIGURE 3.54 Overconsumption of sugar is a risk factor for dental caries, a major cause of morbidity for children.



FIGURE 3.55 Summary of the impact of high intake of sugar on health status and burden of disease



3.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Identify the four types of fat.
2. Briefly explain the difference between LDL and HDL cholesterol.
3. (a) Explain the process of atherosclerosis.
   (b) Explain how atherosclerosis contributes to cardiovascular disease.
4. (a) Which two fats are considered the 'bad' fats? Why?
   (b) Which two fats are considered the 'good' fats? Why?

5. Complete the following table:

	Impact on health status	Impact on burden of disease
High intake of fat		
High intake of salt		
High intake of sugar		

3.6 Exercise 2 APPLY your knowledge

1. Use figure 3.44 to answer the following questions:
   (a) What proportion of the total burden due to high cholesterol was as a result of fatal outcomes?
   (b) For which disease was the fatal proportion of high cholesterol the greatest?
   (c) For which disease did males and females have the most similar proportion of burden of disease due to high cholesterol?
   (d) What proportion of the total burden of high cholesterol was experienced by males compared to females?
2. (a) According to figure 3.45, which disease contributed the most to DALY due to high cholesterol?
   (b) Discuss how high cholesterol contributes to the disease identified in part (a).
3. (a) Using data from figure 3.50, describe the change in the proportion of those with hypertension as age increases.
   (b) Explain how the difference in rates of hypertension between those aged 18–24 and those aged 75 and over could contribute to differences in health status between these two groups.

studyON

3.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

3.7 Dietary risks of low intake of fibre and iron

KEY CONCEPT Understanding the contribution of low intake of fibre and iron to Australia's health status and burden of disease

3.7.1 Low intake of fibre

Fibre is a type of carbohydrate that is required for optimal health and wellbeing. Found in all foods of plant origin, fibre does not get absorbed by the body. Rather, it travels through the digestive system, promoting feelings of fullness and assisting in keeping the digestive tract clean by adding bulk to faeces.

Two types of fibre are essential for good health and wellbeing: soluble and insoluble. Soluble fibre (found in foods such as oats) absorbs water. If left in a bowl of water, oats will absorb moisture and turn into a mushy, gel-like substance. Other good sources of soluble fibre include fruits, vegetables, barley, seed husks, flaxseed, dried beans, lentils, peas, soy milk and soy products.

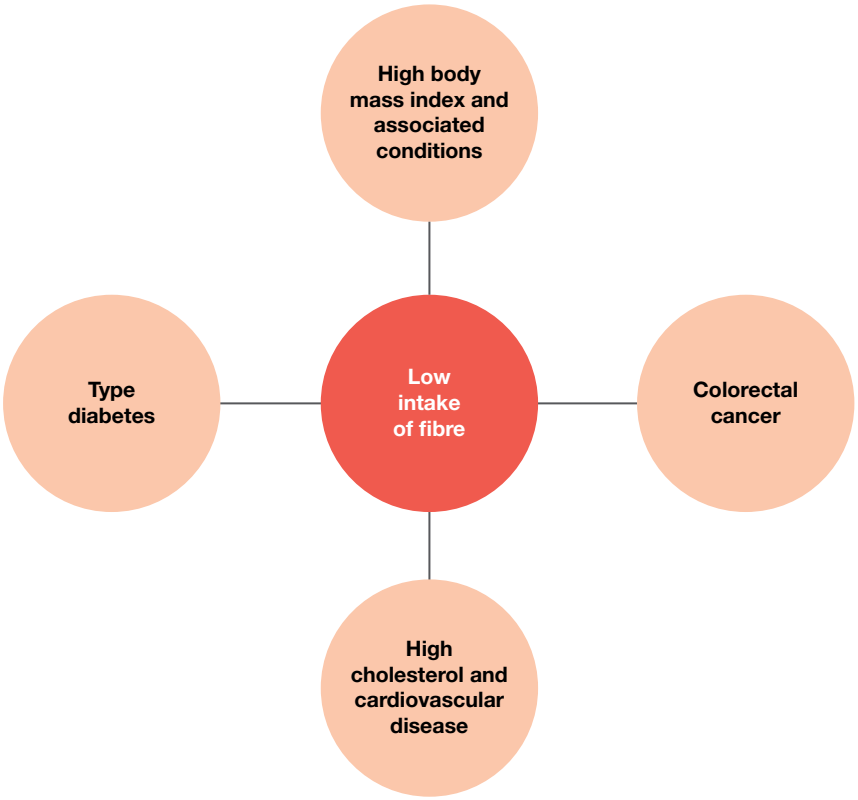
FIGURE 3.56 Bran, which is found in many breakfast cereals, is a good source of fibre. Unfortunately, too few people get enough of it.



Insoluble fibre does not absorb moisture. The peels of fruit and vegetables are sources of insoluble fibre and, if left in a bowl of water, will not change in texture. Other good sources of insoluble fibre include wheat bran, corn bran, rice bran, nuts, seeds, dried beans and wholegrain foods.

Most Australians do not consume enough fibre. On average, most Australians consume 20–25 grams of fibre daily. The Heart Foundation recommends that adults should aim to consume approximately 25–30 grams daily.

FIGURE 3.57 Low intake of fibre contributes to a number of health concerns.



Low intake of fibre and high body mass index

Both types of fibre travel through the digestive system without being absorbed by the body. This promotes feelings of fullness, which means that low intake can contribute to overeating and high body mass index. (The impacts of high body mass were explored in subtopic 3.4.)

By absorbing water, soluble fibre forms a mushy, gel-like substance which slows digestion. Low intake therefore contributes to more glucose being absorbed by the body which increases the risk of high body mass index.

Low intake of fibre and colorectal cancer

Fibre adds bulk to faeces and assists in keeping the digestive system clean. Low intake of fibre intake is associated with higher rates of morbidity and mortality from colorectal cancer, including bowel cancer.

Low intake of fibre and cardiovascular disease

In the digestive system, soluble fibre attaches to particles of LDL cholesterol and helps to excrete them. As a result of this process, soluble fibre helps to decrease levels of cholesterol in the body and reduces rates of morbidity and mortality from cardiovascular disease. Low intake has been shown to increase the rate of cholesterol absorption and the risk of cardiovascular disease.

Low intake of fibre and type 2 diabetes

Evidence shows that people with a low intake of insoluble cereal fibre or wholegrain foods have a significantly higher risk of developing type 2 diabetes.

Fibre reduces the absorption of glucose which is protective in relation to type 2 diabetes as it takes pressure off the pancreas.

FIGURE 3.58 Fibre is essential for the health of the digestive system and can decrease the risk of colorectal cancer.



Low intake of fibre and the Australian Burden of Disease Study

A diet low in fibre accounted for 1.0 per cent of all disease and injury burden in 2011, responsible for 10 per cent of the burden due to bowel cancer and 10 per cent of the burden from coronary heart disease (table 3.2).

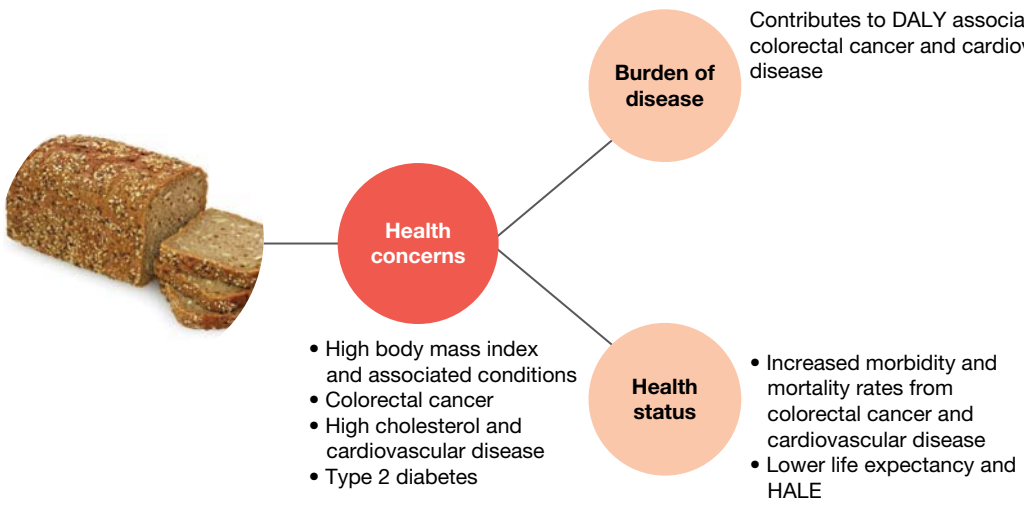
In 2011, the fatal burden contributed 86 per cent of the overall burden attributable to a diet low in fibre. Over 92 per cent of the attributable burden from bowel cancer and 80 per cent of the burden due to coronary heart disease was due to premature deaths. Nearly two-thirds of the burden attributable to a diet low in fibre was experienced by males (65 per cent).

TABLE 3.2 Burden (number and percentage of linked disease) attributable to diet low in fibre by disease, 2011

Linked disease	DALY	
	Number	Per cent
Coronary heart disease	34 206	9.9
Bowel cancer	8 982	9.7
Total	**43 188**	**1.0**

Note: The 'per cent' columns refer to the proportion of burden attributable to the risk factor within the linked disease of that row.
Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 199.

FIGURE 3.59 Summary of the impact of low intake of fibre on health status and burden of disease



3.7.2 Low intake of iron

Low intake of iron and anaemia

Iron is an essential part of blood. Iron forms the 'haem' part of haemoglobin, which is the oxygen carrying part of blood. A person who does not get enough iron may develop iron-deficiency **anaemia**, a condition characterised by tiredness and weakness.Individuals with iron-deficiency anaemia struggle to generate enough energy to complete daily tasks such as school, work, sport and socialising. Although there are different types and causes of anaemia, iron deficiency is responsible for 100 per cent of cases of iron-deficiency anaemia. Low intake of iron is a major cause of iron deficiency, although other causes exist such as an inability to absorb iron and severe blood loss.

Red meat is a rich source of iron but it often contains high levels of saturated fat. As a result, lean cuts of meat should be chosen and iron should also be gained from other sources such as nuts, brown rice and eggs. A balanced, varied diet is the best way to get adequate amounts of iron.

FIGURE 3.60 Red meat is a rich source of iron, but it can also be high in saturated fat.



CASE STUDY

A close up on anaemia

Anaemia is a condition characterised by a deficiency in the number or quality of red blood cells.

Red blood cells are responsible for transporting oxygen to cells around the body to allow them to carry out their normal functions. One of the components of red blood cells is a protein called haemoglobin. Each red blood cell contains a haemoglobin molecule and it is this molecule that gives red blood cells their red colour. When transported to the lungs, oxygen molecules attach themselves to the haemoglobin and are carried through the network of blood vessels until they are absorbed by a cell.

Anaemia occurs when there is a reduced level of red blood cells or haemoglobin in the blood.

In those with anaemia, the heart pumps harder in an attempt to ensure adequate levels of oxygen are delivered to the cells. During exercise, meeting the demands of the cells becomes increasingly difficult and the individual can become exhausted.

Anaemia isn't a disease itself, but the result of a malfunction somewhere in the body. Females are particularly susceptible to anaemia, with some estimates suggesting that around one in five menstruating females and half of all pregnant females are anaemic. Youth experiencing puberty are also at an increased risk as blood volume increases, which increases the demand for red blood cells and haemoglobin.

How are blood cells produced?

Blood cells are constantly being produced in the bone marrow, at a rate of millions per second. Bone marrow is a spongy tissue in the cavities of bones that is responsible for generating the key components of blood, including red blood cells. Bone marrow requires certain nutrients, including iron, folate and vitamin B12, to be able to create red blood cells.

In Australia, iron deficiency is one of the most common causes of anaemia. If there is not enough iron in the diet, the body will use stored supplies from the liver. Once this reserve is used up, the bone marrow will not be able to make enough haemoglobin and anaemia may result.

What causes anaemia?

Anaemia can have many causes, and although commonly associated with a deficiency in iron, folate and/or vitamin B12, anaemia can also occur as the result of:

- malabsorption — this occurs when the nutrients that are consumed are not able to be used. It can be caused by conditions such as coeliac disease.
- inherited disorders — some blood disorders such as thalassaemia and sickle cell disease can be inherited from parents and can lead to anaemia

- chronic conditions — conditions such as rheumatoid arthritis and tuberculosis can contribute to anaemia
- bone marrow conditions — such as cancer or infection
- blood loss — due to injury, surgery, cancer, stomach ulcers, heavy periods or giving blood frequently
- rapid growth or times during which large amounts of energy are required — such as puberty or while pregnant.

What are the symptoms of anaemia?

Depending on the severity, the symptoms of anaemia can include:

- pale skin
- tiredness
- weakness
- shortness of breath
- blood pressure drops on standing up suddenly — sometimes caused by blood loss, such as during a heavy menstrual period
- headaches
- fast pulse
- irritability
- difficulty concentrating
- cracks or redness of the tongue
- appetite loss
- strange food cravings (including the desire to eat dirt or rice, a condition known as *pica*).

How is anaemia treated?

Treatment for anaemia depends on the severity and the cause of the condition. In any case, the cause must be addressed in addition to treating the symptoms.

Vitamin and mineral supplements may be required in the case of dietary deficiency. Iron injections may be required if iron levels are particularly low. Note that iron supplements should be used only under the direction of a doctor. The human body does not excrete iron efficiently, which can contribute to iron poisoning if the dose is not monitored.

How can anaemia be prevented?

Anaemia caused by deficiencies in dietary intake can be prevented by making sure that certain foods are consumed on a regular basis, including lean meats, nuts and legumes, fruit and vegetables and dairy products. Those who do not consume any animal products (known as vegans) may have to increase their intake with fortified foods or vitamin and mineral supplements.

Anaemia caused by an underlying health condition may not be able to be prevented as it is caused by a fault in the cell-making process. Treatments are available to relieve the symptoms in these cases.

Source: Adapted from www.betterhealth.vic.gov.au.

Case study review

1. Briefly explain anaemia.
2. Discuss haemoglobin and the role it plays in the body.
3. How might someone know if they are anaemic?
4. Explain how anaemia could impact on the health and wellbeing of youth.
5. Discuss why female youth are more susceptible to anaemia than male youth.
6. Discuss why youth is a higher risk lifespan stage for anaemia than adulthood.

In 2011, iron deficiency contributed 11 477 years of healthy life lost, with most of the burden attributed to females under the age of 45. In females aged 0–24, iron deficiency was the second largest cause of burden of disease behind alcohol use, responsible for 1 per cent of the burden of disease. In females aged 25–44, iron-deficiency was the ninth leading cause of burden of disease, contributing 1.1 per cent of the total burden in this age group.

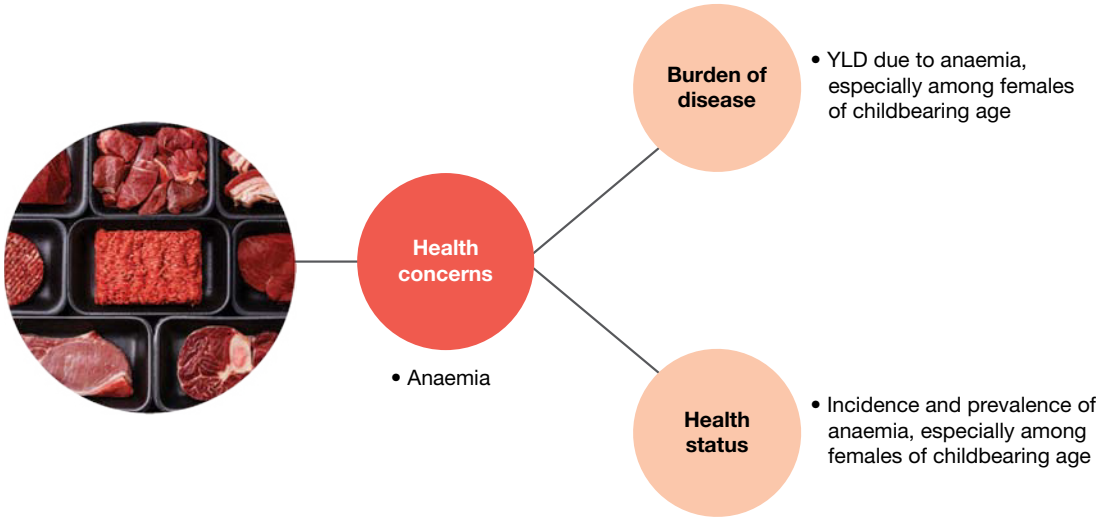
Some 98.7 per cent of the burden attributable to iron deficiency was due to non-fatal outcomes, and 85 per cent of the total burden was experienced by females.

TABLE 3.3 Burden (number and percentage) attributable to diet low in iron in relation to iron-deficiency anaemia, 2011

	DALY	
Linked disease	**Number**	**Per cent**
Iron-deficiency anaemia	11 477	100.0
Total	11 477	0.3

Note: The 'per cent' columns refer to the proportion of burden attributable to the risk factor within the linked disease of that row.
Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 189.

FIGURE 3.61 Summary of the impact of low intake of iron on health status and burden of disease



3.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Identify and briefly explain the difference between the two types of fibre.
2. Explain how low fibre intake can contribute to disease.
3. (a) For which process is iron particularly important?
   (b) Outline the role iron plays in the process identified in part (a).
4. Explain why iron intake should come from a variety of foods.
5. (a) For which disease does low fibre intake contribute the greatest DALY?
   (b) Outline the role low fibre intake plays in the development of the condition identified in part (a).
6. Complete the following table:

	Impact on health status	Impact on burden of disease
Low intake of fibre		
Low intake of iron		

3.7 Exercise 2 APPLY your knowledge

1. Which population group is most susceptible to low levels of iron? Discuss possible reasons for this.
2. Outline two ways that reducing low intake of iron could act as a resource for individuals.

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3.7 Exercise 3 studyON: Past VCAA exam questions online only

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3.8 Topic 3 review

3.8.1 Topic summary

- Around 25 per cent of the total burden of disease in Australia is due to smoking, alcohol, high body mass index, and dietary risks (underconsumption of vegetables, fruit and dairy foods; high intake of fat, salt and sugar; low intake of fibre and iron).

Smoking

- Although the rate of tobacco smoking has decreased, it still remains a leading preventable contributing factor to premature death from conditions such as cancer, cardiovascular disease, respiratory conditions such as emphysema, low birth weight and infectious diseases.

Alcohol

- Alcohol consumption can impact health status and burden of disease by increasing the risk of high body mass index and associated conditions, liver diseases, injuries, a range of cancers, mental health issues, premature birth, low birth weight and foetal alcohol spectrum disorder (FASD).

High body mass index

- High body mass index contributes to health status and burden of disease in Australia by increasing the rates of a number of conditions including cardiovascular disease, some cancers, type 2 diabetes, chronic kidney disease, arthritis and osteoporosis, asthma, mental health issues and maternal health conditions.
- Rates of high body mass index in Australia have increased over time.

Underconsumption of vegetables, fruit and dairy foods

- Underconsumption of vegetables and fruit in Australia are a concern due to the relationship between low intake of these foods and increased risks of high body mass index, cancer, cardiovascular disease, type 2 diabetes and neural tube defects.
- Underconsumption of dairy increases the risk of a range of conditions, particularly osteoporosis. Other conditions with underconsumption of dairy as a risk factor include cardiovascular disease, colorectal cancer, type 2 diabetes and dental caries.

Dietary risks of high intake of fat, salt and sugar

- High intake of fat contributes to weight gain and a range of related conditions. Of the four fats, monounsaturated and polyunsaturated fats are considered healthier fats than saturated and trans fats.
- High intake of saturated fats is of particular concern in Australia, and burden of disease could be improved by replacing saturated fats with monounsaturated and polyunsaturated fats.
- Monounsaturated fats decrease LDL or 'bad' cholesterol and play a part in protecting people from cardiovascular disease.
- Polyunsaturated fats increase HDL or 'good' cholesterol and decrease LDL or 'bad' cholesterol. Polyunsaturated fats also reduce blood clotting and inflammation, and decrease the risk of cardiovascular disease as a result.
- Trans and saturated fats increase LDL cholesterol and therefore increase the risk of cardiovascular disease. Trans fats also interfere with cell membranes and can contribute to impaired glucose regulation.

- Salt is a major source of sodium, and this can increase the risk of hypertension. Other conditions linked to high intake of sodium include heart failure, stroke and heart attack, and osteoporosis.
- High intake of sugar contributes to high body mass index and related conditions. Sugar can also contribute to the decay of teeth and is a significant cause of morbidity among children. The consumption of sweetened drinks is of particular concern in Australia.

Dietary risks of low intake of fibre and iron

- Fibre is a type of carbohydrate that is essential for the health of the digestive system. It does not contribute any energy to the body because it passes through without being digested. Low intake therefore increases the risk of high body mass index and related conditions.
- Fibre also assists in reducing blood glucose and cholesterol levels, and promoting digestive health. Low intake is therefore a risk factor for cardiovascular disease and colorectal cancer.
- Iron forms the 'haem' part of haemoglobin, which is the oxygen carrying part of blood. A person who does not get enough iron may develop iron-deficiency anaemia, a leading cause of morbidity among females under the age of 45.

on Resources

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To access key concept summaries and past VCAA exam questions, download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0004).

3.8 Exercise 1 Exam preparation

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Question 1

In 2011, cancer was the leading contributor to burden of disease in Australia, accounting for 19 per cent of the total burden (AIHW, 2016).

Identify two factors and explain how each may have contributed to this outcome. **(4 marks)**

Question 2

Explain two ways that high body mass index contributes to Australia's health status. **(4 marks)**

Question 3

Explain how low intake of iron contributes to the burden of disease in Australia. **(2 marks)**

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Past VCAA exam questions online only

Sit past VCAA examinations and receive immediate feedback, marking guides and examiner's report notes.
Access Course Content and select 'Past VCAA examinations' to sit the examination online or offline.

on Resources

Interactivities Crossword (int-6883)
Definitions (int-6884)

4 Variations in health status between population groups

4.1 Overview

Key knowledge

- Health status of Australians and the biological, sociocultural and environmental factors that contribute to variations between population groups including:
  - males and females
  - Indigenous and non-Indigenous
  - high and low socioeconomic status
  - those living within and outside of Australia's major cities

Key skills

- Analyse patterns in morbidity and mortality in Australia over time
- Analyse health information to explain factors that contribute to variations in health status between population groups

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 4.1 The harsh environment provides just a few of the challenges facing different population groups in Australia.



KEY TERMS

Biological factors factors relating to the body that impact on health and wellbeing, such as genetics, body weight, blood pressure, cholesterol levels, birth weight
Environmental factors the physical surroundings in which we live, work and play. Environmental factors include workplaces, housing, roads and geographical access to resources such as healthcare.
Fertilisation the fusing of a sperm and egg cell. Marks the beginning of pregnancy. Also known as conception.
Foetal alcohol spectrum disorder a group of conditions that can occur in a person whose mother drank alcohol during pregnancy. Problems that may occur in babies exposed to alcohol before birth include low birth weight, distinctive facial features, heart defects, behavioural problems and intellectual disability.
Food insecurity when healthy, affordable food is not obtainable
Food security 'the state in which all persons obtain nutritionally adequate, culturally appropriate, safe food regularly through local non-emergency sources' (VicHealth, 2008)
Genetic predisposition an increased likelihood of developing a particular disease based on a person's genetic makeup (often indicated by a person's family history of disease)
Health literacy the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions
Indigenous Australians Australians of Aboriginal or Torres Strait Islander origin
Infrastructure the physical and organisational structures, facilities and systems (e.g. buildings, roads, power supplies) needed for the operation of a society
Low birth weight weighing less than 2500 grams at birth
Menopause when the menstrual cycle stops permanently, ending the ability of a female to reproduce
Sanitation the process of eliminating contact between humans and hazardous wastes, including human and animal faeces and urine, solid wastes, domestic wastewater (sewage and grey water), industrial wastes and agricultural wastes
Social exclusion the segregation that people experience if they are not adequately participating in the society in which they live
Social isolation refers to individuals who are not in regular contact with others
Sociocultural factors the social and cultural conditions into which people are born, grow, live, work and age. These conditions include socioeconomic status, social connections, family and cultural norms, food security, early life experiences, and access to affordable, culturally appropriate healthcare.
Socioeconomic status the social standing of an individual in comparison to others in that society. It is based on education, income and occupation.
Syndrome X (also called metabolic syndrome) when a person exhibits a range of factors that increase their risk of cardiovascular disease and type 2 diabetes. Examples of the factors include abdominal obesity, high cholesterol and insulin resistance.

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4.2 Biological factors contributing to variations in health status

KEY CONCEPT Understanding the biological factors contributing to variations in health status

In topic 3, a range of particularly influential factors that contribute to health status and burden of disease in Australia were explored. In addition to these factors, there are a range of influences that contribute to

differences in health status among population groups within Australia. These factors can be sorted into one of three categories:

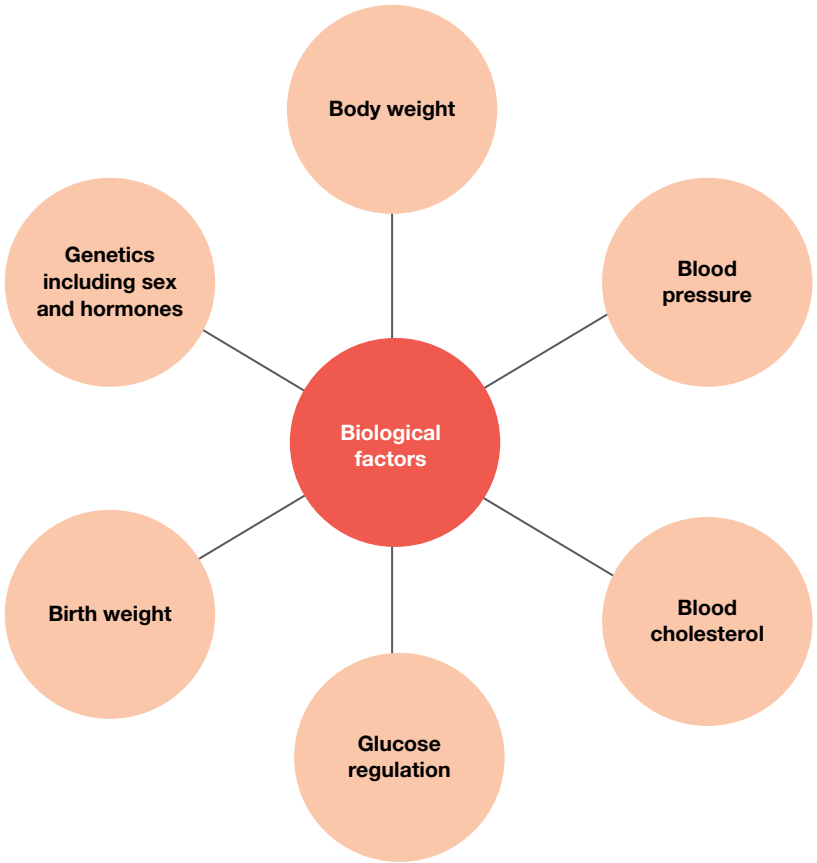
- biological
- sociocultural
- environmental.

These categories and the factors that relate to each will be explored so the differences in health status between population groups in Australia can be analysed and explained. We begin with biological factors.

Biological factors relate to the structure of the cells, tissues and systems of the body and how adequately they function. There is a range of biological factors and, although many are the outcome of various sociocultural and environment factors, there is often a genetic influence that cannot be controlled. In some cases, examples of biological factors are also examples of physical health and wellbeing, such as body weight, blood pressure, blood cholesterol and blood glucose levels.

The biological factors explored in this section are shown in figure 4.2.

FIGURE 4.2 The biological factors that impact health status



4.2.1 Body weight

The impact of high body mass index on the health status and burden of disease of the Australian population was explored in subtopic 3.4. High body mass, which includes overweight and obesity, is also responsible for a range of differences in health status between population groups within Australia.

A biological factor, high body mass can impact on health and wellbeing and influence other biological factors. It therefore contributes significantly to variations in health status between individuals and population groups. For example, obesity increases the chances of developing high blood pressure, high

blood cholesterol and impaired glucose regulation (which are also biological factors). Other health concerns associated with high body mass include:

- cardiovascular disease
- some cancers (including colorectal cancer)
- respiratory problems
- type 2 diabetes
- arthritis
- self-esteem issues and depression
- social exclusion.

4.2.2 Blood pressure

As blood circulates around the body through the blood vessels, it applies pressure to the blood vessel walls (see figure 4.3). As the heart contracts and the blood is pushed around the body, this pressure increases. As the heart relaxes and fills with more blood, the pressure on the walls decreases. Blood pressure is simply a measure of these two levels of pressure.

FIGURE 4.3 Blood pressure is the force exerted on the blood vessel walls.



A person with high blood pressure has hypertension, a common health concern throughout the world. The blood of a person with hypertension does not flow through the blood vessels as easily as that of someone with normal blood pressure. This may mean that their heart and kidneys (which regulate blood pressure and filter the blood) have to work harder, and blood flow may be restricted. Hypertension is a contributing factor to many conditions, including cardiovascular disease such as heart attack and stroke, and kidney failure. These conditions cause many deaths in Australia. Hypertension has been called the 'silent killer' because it has no symptoms. Regular checkups are the only way to monitor blood pressure (figure 4.4). Hypertension can be controlled with medication and lifestyle changes.

FIGURE 4.4 Regular checkups are required to monitor blood pressure.



The risk factors for hypertension are:

- high body mass
- lack of physical activity
- stress
- smoking
- excessive alcohol consumption
- **genetic predisposition**
- poor diet (in particular, excess sodium).

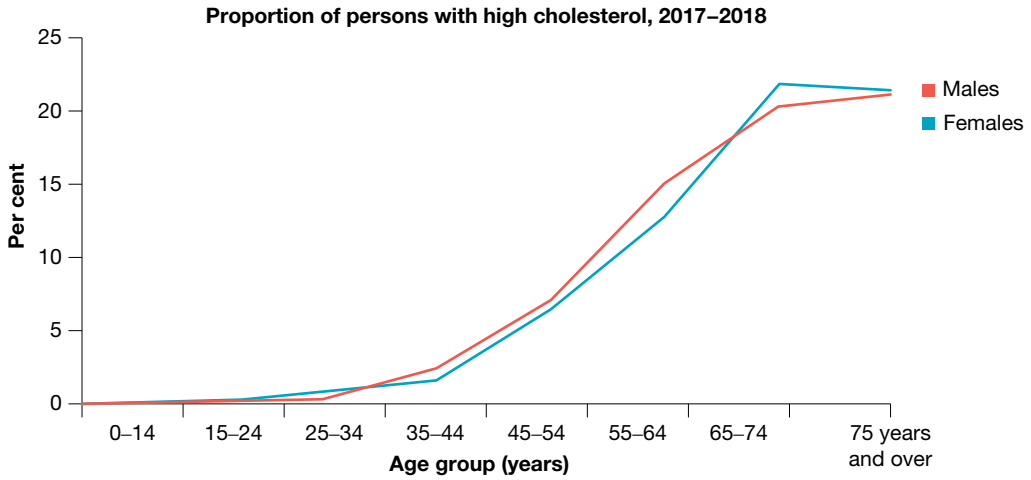
Individuals and population groups that display higher rates of these risk factors are more likely to experience hypertension, which in turn increases their risk of associated health concerns such as cardiovascular disease and kidney failure. These risk factors often occur in conjunction with each other, which further increases the risk among some individuals and population groups.

4.2.3 Blood cholesterol

Cholesterol is a type of fat that was discussed in section 3.6.1, and high blood cholesterol is a biological factor that contributes to many differences in health status between population groups. Too much LDL

cholesterol is a key risk factor for cardiovascular disease, particularly heart attack and stroke. The incidence of high blood cholesterol increases with age (see figure 4.5).

FIGURE 4.5 Proportion of people with high blood cholesterol according to sex, 2017–18



Source: *National Health Survey: First Results, 2017–18.*

Blood cholesterol can be checked by a simple blood test. Lifestyle changes can sometimes reverse high levels of blood cholesterol. However, if the main contributor is a genetic predisposition, medication may be required to bring cholesterol levels down.

A range of factors can increase the risk of high blood cholesterol, including:

- excessive alcohol intake
- smoking
- a diet high in saturated fat and/or trans fats
- a lack of exercise
- genetic predisposition.

4.2.4 Glucose regulation

Glucose is the preferred fuel for energy within the cells. Glucose is usually obtained from breaking down carbohydrates. When carbohydrates are eaten, the resulting glucose is absorbed into the bloodstream. When blood glucose levels rise, insulin is released from the pancreas to allow the glucose to travel from the bloodstream into the cells to be used for energy (see figure 4.6).

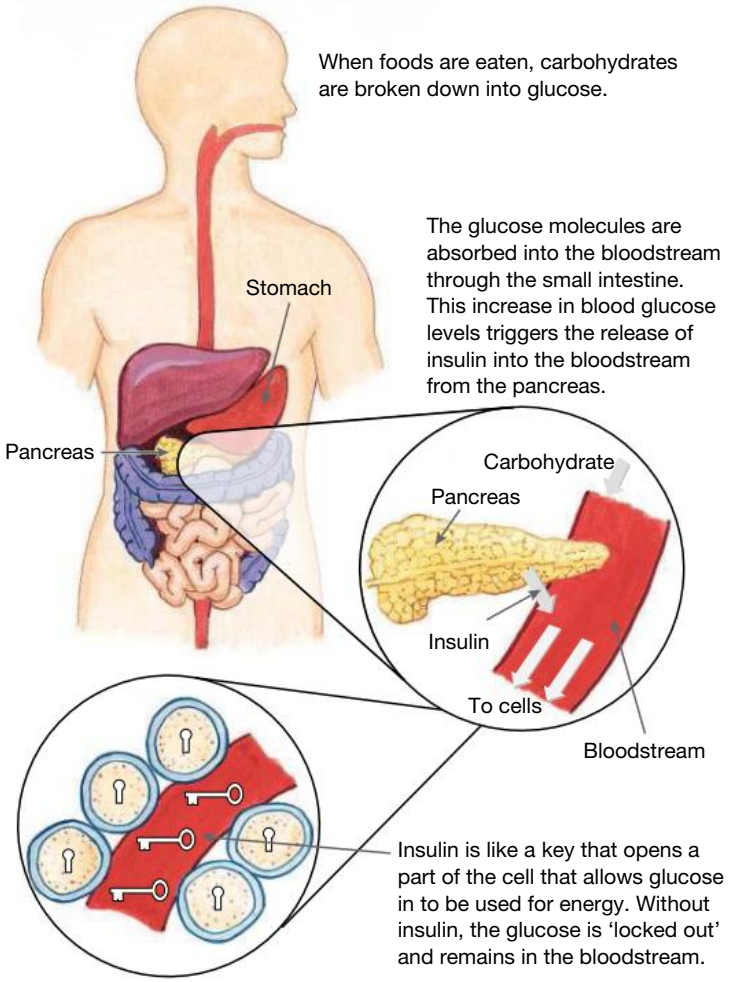
A range of factors can impact on this mechanism and contribute to the cells becoming resistant to the action of insulin, preventing glucose from being absorbed into the cells.

This is known as impaired glucose regulation (or insulin resistance). Impaired glucose regulation is seen as a precursor to type 2 diabetes.

Impaired glucose regulation can occur as a result of:

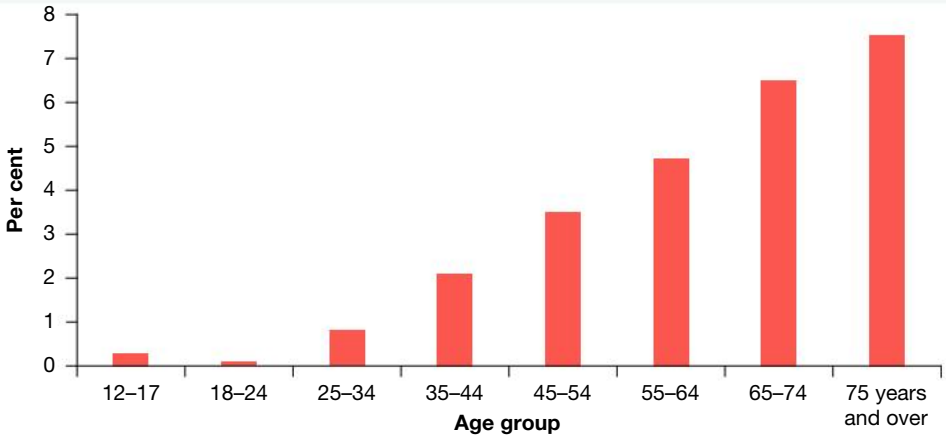
- genetic predisposition
- stress
- pregnancy
- lack of exercise
- smoking
- high body mass (particularly if excess weight is stored around the abdomen)
- a diet high in fat, particularly trans fat
- excessive alcohol consumption
- high LDL cholesterol
- high blood pressure.

FIGURE 4.6 How insulin acts on glucose



Individuals and population groups who display the risk factors associated with impaired glucose regulation experience higher rates of cardiovascular disease and type 2 diabetes. These conditions can contribute to significant differences in health status, such as higher rates of heart attack, stroke, kidney disease and premature death. The prevalence of impaired glucose regulation increases with age (see figure 4.7).

FIGURE 4.7 Prevalence of impaired glucose regulation among those aged 12 and over, by age group, 2011–12



Source: ABS, *Australian health survey, 2011–12.*

Treatment for impaired glucose regulation consists of lifestyle changes such as losing weight, quitting smoking, managing stress and eating a healthy diet.

4.2.5 Birth weight

Birth weight contributes to variations in health status among individuals and population groups. Birth weight is related to health outcomes directly after pregnancy and later in life. Babies born with a **low birth weight** (under 2.5 kilograms) are more likely to have an underdeveloped immune system, making them more susceptible to infections. They are also more likely to suffer from premature death and significant disabilities such as speech and learning disabilities.

Studies suggest that low birth weight can also contribute to health concerns in adulthood such as:

- high blood pressure
- type 2 diabetes
- cardiovascular disease.

There are many causes of low birth weight including:

- *Premature birth*. Less time spent in the uterus means less time to grow and develop.
- *Age of the mother*. Young mothers (especially those under 15 years of age) and older mothers (those over 45 years of age) have higher rates of low birth weight babies.
- *The mother's nutritional status*. An inadequate supply of nutrients can lead to underdevelopment of the foetus.
- *Smoking, excessive alcohol consumption and drug use by the mother during pregnancy*. Use of these substances has been shown to reduce foetal growth.
- *Illness of the mother during pregnancy*. Infections in the uterus can lead to early labour, while other infections, such as chickenpox and rubella, can cause slowed growth.

FIGURE 4.8 Babies born with a healthy weight are at lower risk of having a number of conditions in early and later life.



4.2.6 Genetics

The genetic material contained in body cells controls many aspects of life that influence health status, such as sex, body type, hormone production and aspects of personality. A person's genetic blueprint and genetic potential are determined at **fertilisation**.

Sex

Certain conditions are either exclusive to males or females or are more common in one of the sexes due to the biological differences between the sexes, which is caused by genetics. Examples include:

- Women can't get prostate or testicular cancer.
- Men can't get ovarian cancer.
- Women are more likely to develop breast cancer (less than one per cent of all breast cancer cases occur in men), largely due to most women having more breast tissue than most men.

Hormones

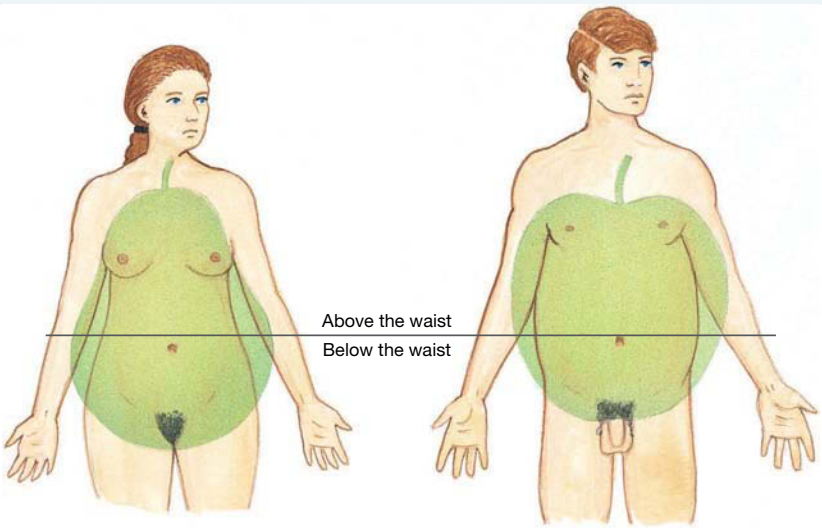
Hormones regulate many processes in the body and control many aspects of health and wellbeing. Hormones are also responsible for the formation of male and female sex characteristics that lead to differences in some of the conditions experienced by males and females.

Males have a different combination of hormones to females, which could contribute to some of the differences in health concerns experienced by the two sexes. Of particular note are the hormones oestrogen and testosterone.

Oestrogen

Oestrogen is a key hormone needed for the regulation of the menstrual cycle in women. Oestrogen also helps to maintain bone density in women by keeping the bones strong, a role played by testosterone in males. When a woman enters **menopause**, the levels of oestrogen decline. This decline leads to a loss of bone mass from the skeletal system, which can contribute to osteoporosis — a disease characterised by weak, porous bones that are more susceptible to breaks and fractures. Although the levels of testosterone also decline in males as they age, they do not decrease to the same extent as oestrogen does in females, contributing to higher rates of osteoporosis among women. Oestrogen may have a protective role in the development of cardiovascular disease, which might explain the lower rates of this disease in women prior to menopause. Oestrogen is also linked to distribution and deposition of fat in the body. Oestrogen tends to result in fat being deposited around the buttocks and thighs (pear shape), whereas men and post-menopausal women tend to accumulate more fat around the abdomen (apple shape), increasing the risk of heart disease (see figure 4.9).

FIGURE 4.9 Hormones are partly responsible for the body shapes that are characteristically male and female.



Testosterone

Testosterone is also known as the male sex hormone (even though it is also found in small quantities in females). Testosterone is mainly responsible for the male sex characteristics and the production of sperm, but may also play a role in increased risk-taking behaviours and aggression in males compared to females. Risks such as skylarking, violence and substance misuse can contribute to higher rates of injury and mortality compared to females.

EXAM TIP

When asked to identify and discuss the impact of a biological factor on health status you need to:

- Identify a biological factor
- Discuss how this factor contributes to ill health
- Link to health status terms such as morbidity, mortality, etc.

For example:

> Body weight — Being overweight or obese increases blood pressure and increases the risk of heart attack and stroke. This impacts on health status as cardiovascular disease is a leading cause of morbidity and mortality in Australia.

4.2 Activities

1. Access the **Blood pressure animation** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Hypertension** weblink and worksheet in the Resources tab then complete the worksheet.
3. Access the **Glucose regulation** weblink and worksheet in the Resources tab then complete the worksheet.

4.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Identify three conditions that can occur as a result of high body mass.
2. (a) What causes pressure on the walls of the blood vessels?
   (b) Explain why blood pressure changes with each beat of the heart.
3. What is hypertension?
4. What is the relationship between blood pressure and disease?
5. What is cholesterol?
6. Describe how high blood cholesterol rates change over the lifespan according to figure 4.5.
7. What role does glucose play in the body?
8. What role does insulin play in the ability of the body to use glucose?
9. What two conditions are associated with impaired glucose regulation?
10. Describe the trend evident in figure 4.7.
11. What weight is classified as low birth weight?
12. Identify three factors that increase the risk of giving birth to a low birth weight baby.
13. Explain the role hormones can play in relation to health status.

4.2 Exercise 2 APPLY your knowledge

1. Complete the following table summarising the impact of biological factors on health status:

Biological factor	Impact on health status
High body mass/Overweight and obesity	
Hypertension	

(continued)

(continued)

Biological factor	Impact on health status
High cholesterol levels	
Impaired glucose regulation	
Low birth weight	
Genetics	

2. Explain how high cholesterol could contribute to hypertension.
3. Using figure 4.2 as the basis of your response, create a mind map of the biological factors and include a brief description of their impacts on health status.

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4.2 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

ON Resources

Digital documents
- Blood pressure animation worksheet (doc-32192)
- Hypertension worksheet (doc-32193)
- Glucose regulation worksheet (doc-32194)

Weblinks
- Blood pressure animation
- Hypertension
- Glucose regulation

4.3 Sociocultural factors contributing to variations in health status

KEY CONCEPT Understanding the sociocultural factors contributing to variations in health status

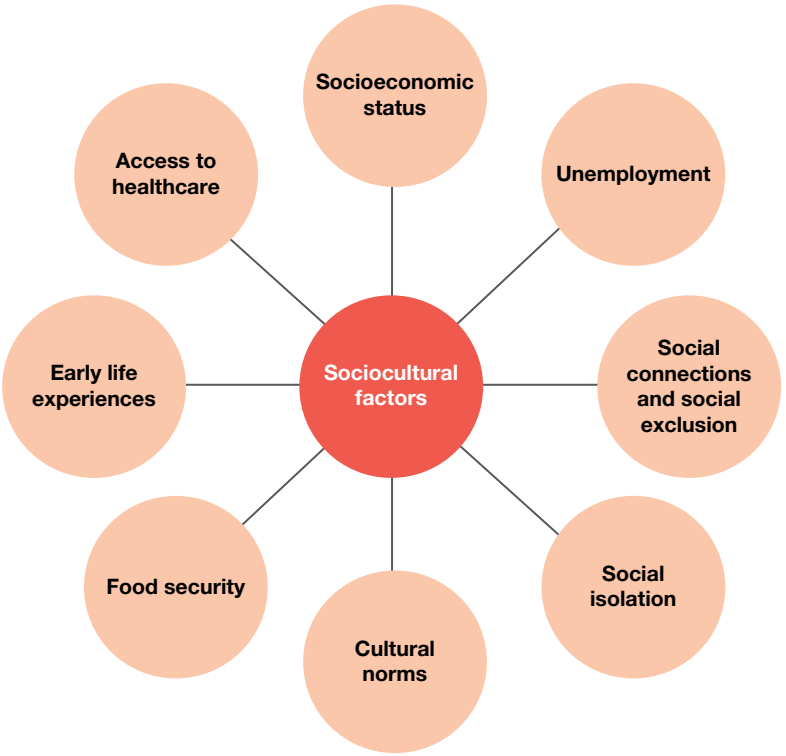
Sociocultural factors relate to the social and cultural conditions into which people are born, grow, live, work and age. The sociocultural factors examined in this section are identified in figure 4.10.

Many sociocultural factors are beyond the control of individuals, yet they have a significant impact on health status at an individual and population level.

People who experience poor sociocultural conditions experience worse health status in all societies. The gap between those at the top and those at the bottom of the sociocultural ladder has widened over the years, and those towards the bottom experience much worse health status. For this reason, sociocultural factors have now become the focus of most health authorities, who are trying to narrow the gap.

Too often, sociocultural factors interrelate, so that a person who experiences one of them is more likely to experience two or more of them when compared with people who are more fortunate. The longer the person lives in sociocultural distress, the more physiological wear and tear they will suffer, which ultimately means they are less likely to enjoy a healthy old age.

FIGURE 4.10 The sociocultural factors that contribute to variations in health status



4.3.1 Socioeconomic status

Socioeconomic status (SES) refers to a person's position in society relative to other people based on three factors: income, occupation and education (see figure 4.11). People who are more socioeconomically disadvantaged have poorer health status across most countries and cultures.

FIGURE 4.11 The three factors that determine socioeconomic status



All three components of socioeconomic status are related and affect each other. For example, a person who has a high level of education is more likely to work in a higher paying job. Such jobs usually carry greater status than lower paying jobs. As the level of education increases (for example, high school versus tertiary), in general, so does the status of occupation and the average income.

Income

Income can influence people's ability to access resources such as adequate housing, food, healthcare (including private health insurance), recreation, transport and education. These resources can assist people in maintaining a healthy body weight and preventing disease, staying socially connected and accessing healthcare when required, which can reduce morbidity and mortality rates.

Occupation

The occupation a person has also influences health status. Some occupations (including many trades) involve manual labour, which can increase the risk of soft tissue injuries and back pain. Other occupations

are sedentary in nature (including many administrative roles), which can reduce levels of physical activity and increase the risk of obesity. There is also evidence of a relationship between occupation and mortality. People in manual occupations, such as builders and farmers, have higher mortality rates than those in managerial/professional occupations (Draper et al. 2004, *Health inequalities in Australia: mortality*). Manual workers (such as those working in factories) often come from a lower socioeconomic background and experience more occupational hazards than those in managerial/professional occupations.

Education

As well as influencing income and occupation, education impacts health status in a number of ways. Those who are more educated are more likely to be health literate, for example. **Health literacy** describes the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health decisions. This can relate to healthy lifestyles and accessing healthcare when required, both of which promote health status and decrease the impact of preventable and treatable conditions including cardiovascular disease, some cancers, respiratory diseases and type 2 diabetes.

Low levels of health literacy contribute to those of low socioeconomic status being:

- less likely to take notice of health promotion messages, therefore increasing the risk of preventable diseases
- more likely to smoke and be obese due to poor nutrition and physical inactivity.

4.3.2 Unemployment

The link between unemployment and health status is well established. According to the AIHW (2006), 'the unemployed have a higher chance of dying and [suffer from] more illnesses than those of similar age who are employed'. In fact, the rates of suicide, lung cancer and cardiovascular disease are higher for those who are unemployed.

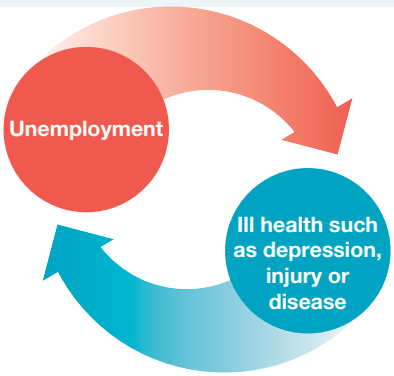
The effects of long-term unemployment on health status can be particularly serious, mainly due to psychological and financial factors (especially if the person falls into debt).

The effect on health status can start even while the person is still working. An employee concerned about job security may begin to experience elevated levels of stress and anxiety before they even become unemployed. This can have a range of physiological implications, such as sleep problems (see figure 4.14) and increased risk of cardiovascular disease.

FIGURE 4.12 Unemployment can be stressful, and long-term unemployment can lead to a range of health issues, including a deterioration in mental health and wellbeing.

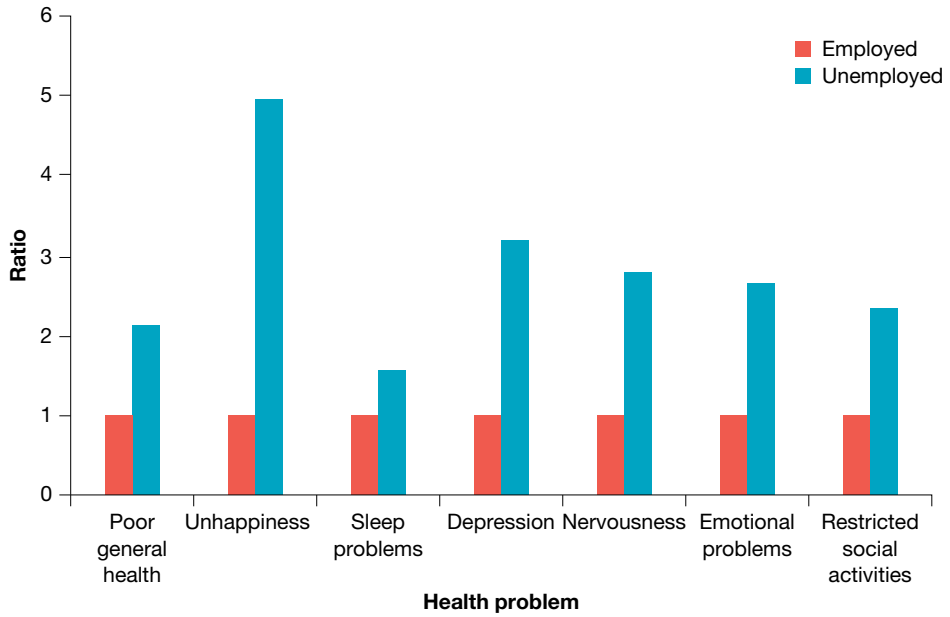


FIGURE 4.13 The cycle of unemployment and ill health.



There is a two-way relationship between health outcomes and unemployment. For some it is ill health that causes unemployment (such as an injury or disease), and for others it is unemployment that causes health problems (such as stress and depression). Despite the causal relationship, ill health and unemployment often create a cycle (figure 4.13).

FIGURE 4.14 Some health problems associated with unemployment, compared with employment



Source: *Medical Journal of Australia.*

4.3.3 Social connections and social exclusion

Social connections relate to the bonds between an individual and their relations, friends and acquaintances and the ability to participate in the society in which they live. Being socially connected has been associated with lower morbidity and increased life expectancy (Kawachi et al. 1997). The opposite of social connectedness is social exclusion, which contributes to significant variations in health status. **Social exclusion** refers to the segregation that people experience if they are not adequately participating in the society in which they live. It also includes those who experience feelings of disconnectedness and do not get opportunities to make use of the resources available to them in a society, such as education, employment, housing, healthcare and social security services. In the past, such people have been referred to as 'social outcasts'.

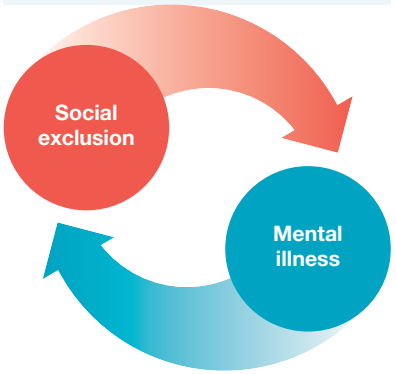
The causes of social exclusion are often the result of social exclusion as well. Therefore, the sufferer can find themselves in a vicious cycle (see figure 4.16). Social exclusion can be caused by, or contribute to a range of characteristics:

- increased risk taking such as alcohol and drug misuse
- poor physical and mental health and wellbeing, including increased risk of mental disorders
- disability
- inability to access services such as healthcare, education, employment and social security
- family breakdown
- homelessness
- discrimination, including racism
- low income.

FIGURE 4.15 Social exclusion can have significant effects on health and wellbeing.



FIGURE 4.16 One example of how social exclusion can form part of a cycle with other areas of health and wellbeing



4.3.4 Social isolation

Social isolation refers to not being in regular contact with others. Geographical barriers can prevent people from being able to interact with others and is an issue particularly for many people in remote areas. Disability, disease, lack of transport, and communication barriers can also prevent people from socialising and contribute to social isolation, especially among the elderly and those from non-English speaking backgrounds.

Regular social contact gives people the opportunity to communicate and socialise, which can promote physical, social, emotional, mental and spiritual health and wellbeing. People who are isolated from others lack the emotional, psychological and health-related support that can improve health status. In times of difficulty, people who are socially isolated can feel they have no-one to turn to, and this can contribute to a range of mental health problems such as depression and stress.

4.3.5 Cultural norms

Cultural norms relate to customs, ideas, values, and traditions of a particular society that are passed through generations. Cultural norms that impact health status include gender stereotypes, food intake, attitudes and beliefs.

Gender stereotypes relate to behaviours that are culturally acceptable for males and females. Although many of these roles and expectations have broken down over the past decades, some cultures still retain distinct roles for males and females. These roles are learned from a very young age and shape many aspects of the wider society. Examples of stereotypes related to gender include:

- males working and females staying at home to look after the children
- males being 'macho' and needing to feel strong.

The dietary intake of cultural groups often evolves over a long period of time and influences the sorts of foods people consume. Changes to traditional diets can contribute to differences in health status. The traditional diet of Indigenous Australians, for example, included low fat meats and a range of fruits and vegetables. The change in diet that accompanied European settlement contributes significantly to the high rates of obesity seen today in Indigenous Australians.

Attitudes towards education and employment, recreation including substance use such as alcohol consumption, health and healthcare including traditional medicine, all affect health status. The traditional medicine of Indigenous Australians, for example, is culturally different from western medicine. This can reduce the ability of Indigenous Australians to access culturally appropriate medicine in a society dominated by western practices.

Alcohol consumption is an accepted part of life for many Australians. This contributes to a range of negative health outcomes for many, especially males, who typically consume more alcohol than females. Alcohol consumption contributes to a range of conditions, including injuries which males experience more than females.

FIGURE 4.17 Culture influences many factors that impact on health status, including food intake. This collection of nuts and seeds are traditional foods eaten by Indigenous people in northern Australia and are considered very healthy.



4.3.6 Food security

The quality, availability and affordability of the food supply all affect what people eat. A shortage of such products (called **food insecurity**) can lead to deficiency diseases and other health complications. The other end of the scale is food plenty, which can contribute to people eating too much and therefore putting themselves at risk of diet-related diseases such as type 2 diabetes and cardiovascular disease.

Although the environment has an impact on food availability (for example, when people live too far away from food outlets), sociocultural factors such as income and nutritional knowledge also have an effect. People who are unable to afford healthy foods may be forced to buy cheaper processed foods. These are often made from poorer quality produce and have added fat, salt and/or sugar in an attempt to add flavour to the product. Such additives increase the risk of diet-related diseases, including obesity and cardiovascular disease.

FIGURE 4.18 Food security exists when people can obtain nutritionally adequate, culturally appropriate, safe food regularly through local non-emergency sources.



4.3.7 Early life experiences

Every person is, in part, a product of their past experiences. Such experiences help to shape each individual, their outlook on life and the behaviours they engage in throughout their lives.

Behaviours of women while they are pregnant are early life experiences for unborn babies that can contribute to a range of health issues. Maternal tobacco, alcohol and drug use, and maternal nutrition and exposure to certain chemicals, bacteria and viruses during pregnancy, can all have significant impacts on the individual after birth and into adulthood. Possible impacts on the baby include low birth weight, increased risk of infections and higher under-five mortality rates (U5MR). In later life, low birth weight can contribute to higher rates of cardiovascular disease and diabetes.

Having optimal growth and strong emotional attachment in the early years can assist physical, social, emotional, mental and spiritual health and wellbeing in adulthood (figure 4.19). Such experiences begin even before conception with the physical health and wellbeing of the mother, and become more important after conception and during pregnancy.

FIGURE 4.19 Strong emotional attachment in the early years can promote positive health outcomes later in life.



Infants who have experienced positive emotional stimulation are better prepared to take on the challenges of formal education and to exhibit positive behaviour, and are less likely to be socially excluded in adulthood. Infants who have had the best possible health and wellbeing are also more likely to have been exposed to healthy lifestyle choices such as a healthy food intake, a non-smoking environment and physical activity.

On the other hand, abuse or neglect during the early years affects brain function and development, and contributes to emotional and behavioural problems later in life, including tobacco and substance use. Slowed growth during infancy may lead to impaired cardiovascular, respiratory and kidney function, which can lead to ill health in later life.

4.3.8 Access to healthcare

Healthcare refers to services that promote and preserve health and wellbeing. These services diagnose, treat and/or manage disease and injury. In Australia, these services are carried out by doctors, nurses, scientists, dentists, pharmacists and other health professionals such as physiotherapists and naturopaths. These health professionals often work together in a hospital or medical centre.

Numerous factors can limit an individual's ability to access healthcare. Geographical access or proximity to health services is an environmental factor and will be explored in section 4.4.3, but there are many cultural, financial and other sociocultural barriers that prevent many Australians from accessing services they might otherwise use.

Some people who have geographical access to health services fail to use them. This may result from a lack of health literacy. Cultural barriers may influence an individual's access. Many Indigenous people find it culturally inappropriate to access western medicine, and associate hospitals with death.

Patients are sometimes responsible for paying for healthcare services. Those with a low socioeconomic status may avoid healthcare as a result. The proportion of Australians who delayed or did not see a general practitioner due to cost was around 4 per cent in 2017–18 (ABS, 2018).

Sociocultural barriers to healthcare can contribute to conditions going undiagnosed and untreated, which can result in a range of variations in health status including higher mortality rates and lower life expectancy.

4.3 Activity

Access the **Social justice** weblink and worksheet in the Resources tab then complete the worksheet.

4.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What are the three components of socioeconomic status?
2. Discuss how:
   (a) unemployment can lead to ill health
   (b) ill health can lead to unemployment.
3. (a) Explain the difference between social exclusion and social isolation. List three impacts of social exclusion.
   (b) List two possible causes of social isolation.
4. Outline three ways in which culture may contribute to differences in health status.
5. Define 'food security'.
6. Why are processed foods generally less healthy than fresh produce?
7. Why are processed foods often cheaper than fresh produce?
8. Discuss variations in health status that may occur as a result of food insecurity.
9. (a) Make a list of ways parents can enhance the health and wellbeing of their child during pregnancy and in the first year after birth.
   (b) Outline three variations in health status that may occur as a result of early life experiences.
10. (a) Outline the sociocultural factors that can affect a person's ability to access healthcare.
    (b) Discuss the variations in health status that may result from a lack of access to healthcare.

4.3 Exercise 2 APPLY your knowledge

1. Discuss variations in health status that may occur as a result of being socially excluded and socially isolated.
2. (a) Which resources may socially excluded people not get the opportunity to use?
   (b) How could not using these resources lead to ill health?
3. Describe one way that mental illness could lead to social exclusion, and one way that social exclusion could lead to mental illness.
4. 'A good start in life means supporting mothers and young children: the health impact of early development and education lasts a lifetime' (WHO, 2003). Draw a flowchart illustrating how conditions early in life could have lifelong effects.
5. Using figure 4.10 as the basis of your response, create a mind map of the sociocultural factors and include a brief description of their impacts on health status.

studyON

4.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

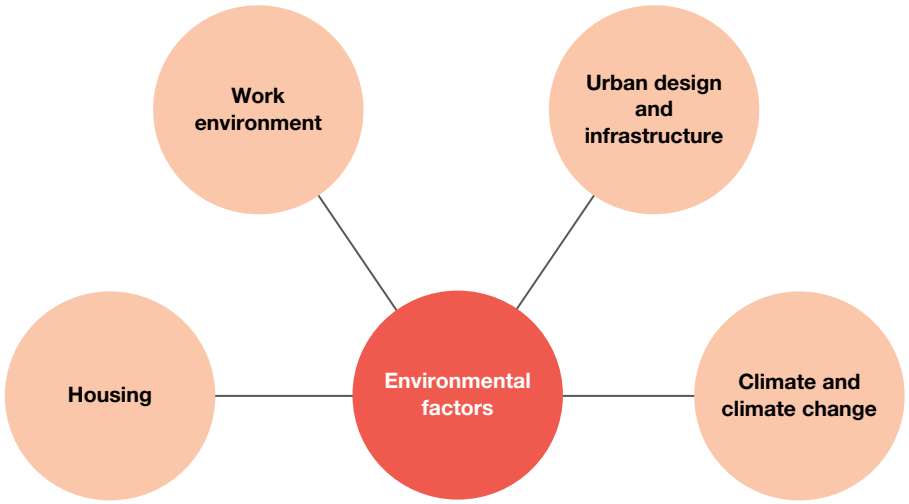
Digital document Social justice worksheet (doc-32195)
Weblink Social justice

4.4 Environmental factors contributing to variations in health status

KEY CONCEPT Understanding the environmental factors contributing to variations in health status

Environmental factors, in the context of this course, relate to the physical features that surround us. These can be natural features or those built by people. As with all factors, the relationship between the physical environment and health status is complex, but there is growing evidence to suggest that the way people interact with the physical environment can increase or decrease the risk of negative health outcomes. One World Health Organization study (2002) estimated that 24 per cent of the global burden of disease and 23 per cent of all deaths were due to aspects of the physical environment. Factors related to the physical environment that are explored in more detail in this subtopic are identified in figure 4.20.

FIGURE 4.20 Environmental factors that impact health status



Understanding how the physical environment can affect health status allows government and non-government groups to implement strategies to modify the physical environment to reduce the risk of ill health occurring among the population.

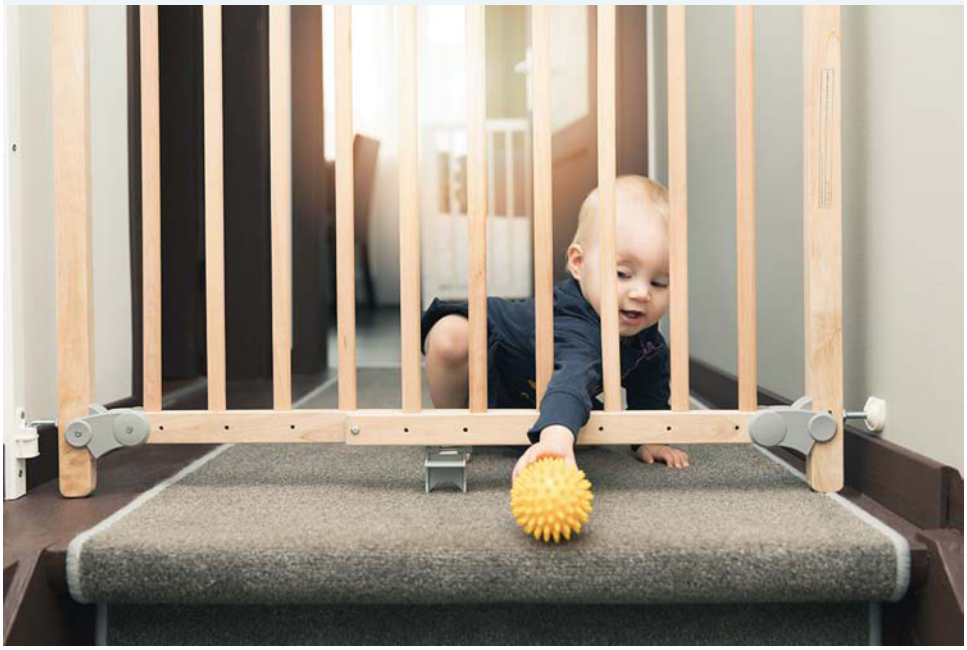
4.4.1 Housing

Most people spend more time in their house than in any other environment. The housing environment therefore plays a significant role in determining health status. Some of the specific concerns of the home environment that contribute to variations in health status include:

- *Ventilation and hygiene*. Inadequate housing has been linked to increased rates of morbidity from infectious and chronic diseases. For example, a house that is damp and has poor ventilation can promote the growth of mould, which can increase the risk of developing respiratory and asthma-related symptoms such as coughing, wheezing and irritation of the upper respiratory tract by 30–50 per cent (AIHW, 2010).
- *Design and safety*. If not adequately maintained, features of houses such as stairs, floor surfaces (especially those that may become slippery when wet), bodies of water (such as ponds, dams and pools), balconies, electrical wiring and furniture can increase the risk of falls, cuts, drowning and electrocution. Young children and the elderly are often the most at risk of these injuries.

- *Overcrowding*. Those living in overcrowded housing experience higher rates of mental health issues because occupants find it difficult to find their own space. Overcrowded conditions also place added strain on bathroom, kitchen and laundry facilities, which can lead to unsanitary conditions and increases the risk of infectious diseases. Education and employment opportunities can also be impacted by overcrowded living conditions.
- *Sleeping conditions*. Sleep is an important aspect of good health and wellbeing, and sleeping conditions should promote restful sleep. Noise and overcrowding can impact on sleeping conditions and contribute to mental health issues.
- *Security*. Having a house that is not seen as secure from the elements and intruders can promote fear among the residents and lead to high levels of stress and anxiety.
- *Pollutants*. Environmental tobacco smoke, asbestos, dust, pet hair and other pollutants can lead to respiratory conditions such as asthma.
- *Resources conducive to eating a nutritionally sound diet*. Refrigeration for storing food, and adequate cooking appliances, are examples of resources that promote healthy eating. If individuals do not have access to such resources, they may rely on takeaway foods. Such foods may be high in fat and contribute to obesity and related conditions such as cardiovascular disease and type 2 diabetes.
- *Access to water and* **sanitation** *facilities*. An adequate water supply and the infrastructure to deliver clean water to homes are required to access clean water, and this decreases the risk of infectious diseases. Sanitation facilities are essential to remove human waste from the immediate environment. This reduces the risk of infectious diseases, such as cholera, that are spread by contact with human waste.

FIGURE 4.21 Young children are often at risk of injury in the home, although safety devices such as gates can be used to decrease the risk.



4.4.2 Work environment

Many Australians spend a significant amount of time in their place of employment. As a result, the physical environment of the workplace plays a significant role in determining health status. Examples of how the physical environment of the workplace can impact on health status include:

- *UV exposure*. Those working outdoors are more exposed to UV radiation. This can increase the risk of skin cancer among these workers.

- *Dangerous working conditions*. According to the ABS (2018), around 4.2 per cent of all employees aged 15 and over sustained a work-related injury in the previous year. Many workplaces have risks associated with the specific environment in which the work is carried out. People working on farms, fishing trawlers and mining operations, for example, often use heavy machinery, which can increase the risk of injuries. Those working in transport, such as truck drivers and taxi drivers, may have an increased risk of road trauma as a result of spending extended periods on the roads. Those working with tools such as sewing machines and saws may have an increased risk of lacerations.
- *Exposure to hazardous substances*. Hazardous substances such as paint, asbestos, fuels, gases, acids and corrosive chemicals are used in many workplaces; for example, those used for manufacturing and building. Although the use of protective equipment can reduce the risks associated with handling such substances, they still contribute to morbidity and mortality in the workplace.

FIGURE 4.22 Australia's large farming industry has a range of associated workplace hazards, including UV exposure and injuries associated with the use of heavy machinery.



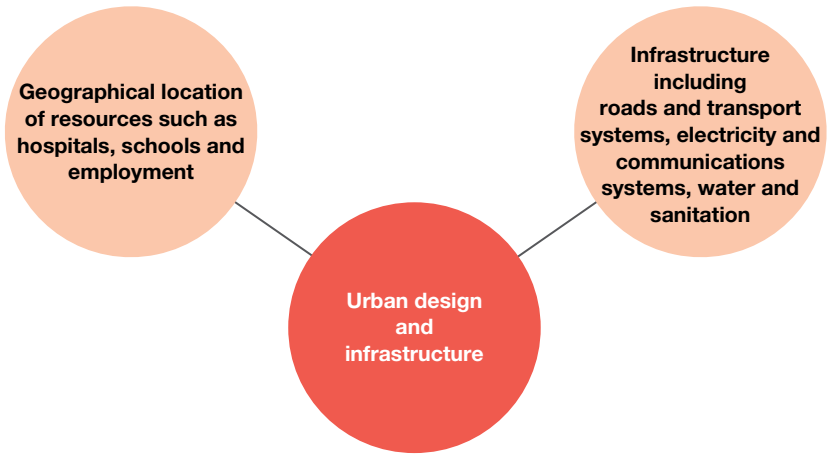
FIGURE 4.23 The use of protective equipment, such as hazardous materials suits and gas masks, can reduce the effects of exposure to dangerous substances in the workplace.



4.4.3 Urban design and infrastructure

Urban design and **infrastructure** relate to the features and structures of the suburbs, towns, regions and cities in which people live. Features of such areas that contribute to variations in health status for a range of population groups include the aspects summarised in figure 4.24.

FIGURE 4.24 Factors relating to urban design and infrastructure



Geographical location of resources

Having access to goods and services can increase the ability of many people to access resources required for good health and wellbeing. Being close to supermarkets, shops and hospitals, and having the means to reach these resources, can decrease morbidity and mortality rates, because people can access the resources required to obtain adequate food and healthcare.

EXAM TIP

It is important to discuss the selected factor in the correct context. For example, access to healthcare can be influenced by a range of factors such as health literacy, cultural influences, geographical location of hospitals and access to transport systems. If asked to discuss a sociocultural factor, access to healthcare may be appropriate, provided that the discussion relates to sociocultural influences on accessing healthcare such as health literacy and cultural influences. To discuss the impact of geographical location of hospitals or access to transport systems in relation to accessing healthcare relates to environmental factors and will not be awarded full marks.

Being in close proximity to fast-food outlets may increase the frequency at which people consume such products. This can increase energy intake and contribute to overweight and obesity.

Industrial sites located in close proximity to residential areas may increase air and noise pollution in the area. This can increase the risk of mental health issues. In one study of neighbourhoods near Sydney airport, residents who were chronically exposed to high aircraft noise were more likely to report stress and high blood pressure than those living in a matched suburb unaffected by aircraft noise (AIHW, 2012).

FIGURE 4.25 Living in close proximity to services such as hospitals can increase access to health promoting resources such as healthcare.



Infrastructure

Having adequate infrastructure, such as sealed roads, public transport systems, information and communication technologies, such as telephone and internet connections, electricity grids and supply, clean water facilities and sanitation systems, and adequate parks, gardens and recreation facilities, assists in promoting health status.

FIGURE 4.26 The availability of public transport increases access to goods and services for many Australians.



Adequately maintained roads and traffic systems such as traffic lights, signage and road lighting can improve safety and decrease the risk of morbidity and mortality from road trauma.

Public transport systems can help people to access resources that can promote health status, such as food, employment, healthcare and social interaction. People living outside of Australia's major cities may be particularly vulnerable to transport issues. In this sense, a lack of transport can actually prevent people from taking steps to promote their health status, such as having a balanced food intake and seeking medical care when required.

Information and communication technologies can assist in maintaining social connections, and this promotes mental health and wellbeing and can decrease the risk of mental illness. Internet connections can also promote education for those living outside major cities, helping to increase socioeconomic status by increasing opportunities for employment. Web-based resources are increasingly being used to educate consumers in relation to health-related matters, for example through sites providing symptom checkers, healthy living advice and online counselling and support. Together, these resources can improve health literacy and health status outcomes.

FIGURE 4.27 Access to information and communication technologies can assist in maintaining social connections and promotes educational outcomes.



Electricity is required for heating and cooling, cooking and refrigeration, telecommunications and recreation. All of these resources can assist in promoting health and wellbeing.

Water is essential for life. It is required for drinking, bathing, cooking and sanitation. Having access to a clean and reliable water supply reduces the risk of infectious diseases, such as dysentery, and promotes health and wellbeing.

Adequate sanitation infrastructure, such as sewerage systems, eliminates waste from the environment. Removing substances such as faeces, solid wastes and domestic wastewater reduces the risk of infectious diseases such as cholera.

Having access to adequate public spaces such as parks and gardens, and recreation facilities such as walking paths, cycling tracks and basketball and tennis courts, means people are more likely to be physically active. This can reduce the risk of mental health problems and obesity.

4.4.4 Climate and climate change

Geographically, Australia is a large country and experiences a range of climates as a result. Rainfall, temperature and wind patterns vary across the country, producing different impacts on health status. Weather patterns have been changing in Australia over the past century, and such changes also bring about impacts on health status.

Climate

Australia is the driest inhabited continent on Earth, and is more susceptible to bushfires than many other countries as a result. As well as the loss of human and animal life that occurs with bushfires, houses and infrastructure can also be destroyed, limiting the availability of goods and services that are required for optimal health and wellbeing. Access to resources such as water, food and healthcare can all be affected, further increasing morbidity and mortality rates in affected areas.

Ultraviolet radiation levels are also comparatively high in Australia, contributing to Australia having the highest rates of skin cancer in the world.

Climate change

There is increasing concern that changes to the environment are contributing to climate change, resulting in extreme temperatures, rising sea levels, and increases in the occurrence of natural disasters and the spread of vector-borne diseases such as dengue fever and Ross River fever, which are spread by infected mosquitoes. Human settlement, industrialisation, land clearing and farming practices all affect environmental systems, including climate systems (AIHW, 2010).

The impacts of climate change on the health status of individuals and population groups will vary depending on a range of factors. However, according to the Australian Institute of Health and Welfare (2012), 'the most vulnerable groups will be those living in remote areas, on lower incomes or with poor housing; the young and elderly; and the sick. Aboriginal and Torres Strait Islanders living in remote communities are also likely to be disproportionally affected by climate change because of their relative isolation and limited access to support facilities.'

Changes in climate also result in more natural disasters such as bushfires and floods. Extreme weather across Australia during 2015 was associated with floods in the northern states and bushfires in the southern states.

Increasing temperatures are expected to lengthen bushfire seasons and increase the frequency and intensity with which bushfires occur. In 2009, Victoria experienced the Black Saturday fires, which were the most intense and most lethal in Australia's recorded history. Over 170 people died, and many others suffered severe burns and were hospitalised. Towns were completely wiped out by fires that destroyed infrastructure such as electricity supply, dams, housing and schools. Thousands of sheep and cattle were also killed, and entire crops destroyed. As well as the immediate impact on mortality and morbidity, such

FIGURE 4.28 The results of bushfires continue to affect health and wellbeing long after the fires are extinguished.



events take a long time to recover from and can increase the risk of mental health disorders and reduce access to health promoting resources for years to come.

Floods in Queensland, New South Wales and Victoria in 2010–11 caused widespread damage, including the loss of life. Thousands of farms were affected by extensive livestock and crop losses. Infrastructure was also destroyed, limiting the ability of people to access resources such as food, clean water and healthcare.

4.4 Activities

1. Draw an annotated diagram highlighting the features a house should have in order for it to promote optimal health and wellbeing.
2. Access the **Climate change** weblink and worksheet in the Resources tab then complete the worksheet.

4.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain what is meant by 'environmental factors'.
2. Outline one way that adequate housing could promote:
   (a) physical health and wellbeing
   (b) mental health and wellbeing.
3. Explain what is meant by urban design and infrastructure.
4. Explain how geographical location of resources may impact food security.
5. Explain how climate and/or climate change can impact health status.

4.4 Exercise 2 APPLY your knowledge

1. Draw a flowchart that illustrates how poor housing could lead to poor health status.
2. Outline two ways that urban design and infrastructure may affect health status.
3. Complete the following table by identifying three work environments and explaining how each may contribute to differences in health status for people working in them:

Work environment	How it may contribute to differences in health status

4. Brainstorm the infrastructure in your neighbourhood that promotes health status. Explain the link between each resource and improved health status.
5. Explain why those with poor housing may be particularly susceptible to the impacts of climate change.
6. Explain how education and employment opportunities may be impacted by overcrowded housing.
7. Using figure 4.20 as the basis of your response, create a mind map of the environmental factors and include a brief description of their impacts on health status.
8. (a) List the types of infrastructure that are affected by climate change.
   (b) Discuss how damage to each type of infrastructure could impact health status.

studyON

4.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Climate change worksheet (doc-32199)
Weblink Climate change

4.5 Differences between Indigenous and non-Indigenous population groups

KEY CONCEPT The variations in health status as experienced by Indigenous Australians and the factors that explain the differences

The biological, sociocultural and environmental factors explored in the previous sections provide a basis to analyse and explain why some population groups experience poorer health status than the rest of the population. It is important to remember that no single factor acts in isolation, and the differences in health status usually occur as a result of the complex interplay between a range of factors.

With all the improvements that have occurred in education, technology and research in the past 100 years, the life expectancy of the Australian population has increased from approximately 57 years in 1901 to approximately 82 years in 2017. Unfortunately, these improvements in health status have not been shared by the entire population. There are still population groups that have life expectancies significantly lower than the average. These include Indigenous people, males, people of low socioeconomic status (SES), and those living outside major cities. We will explore the health status of these groups, along with an investigation of the factors that contribute to such differences.

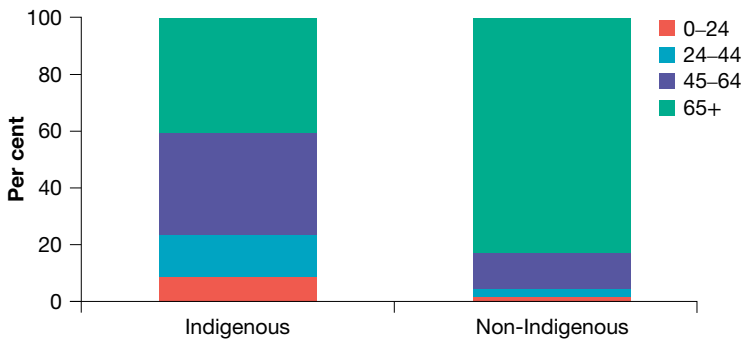
Indigenous Australians make up 3.3 per cent of the Australian population and experience poorer health status than the rest of the population in relation to nearly all health indicators.

4.5.1 Key differences in health status

Estimates of Indigenous life expectancy for 2017 were 71.6 years for men and 74.6 years for women (ABS, 2018). This represents a difference of about 10.5 and 10.2 years for males and females respectively when compared with the rest of the population (see figure 4.29).

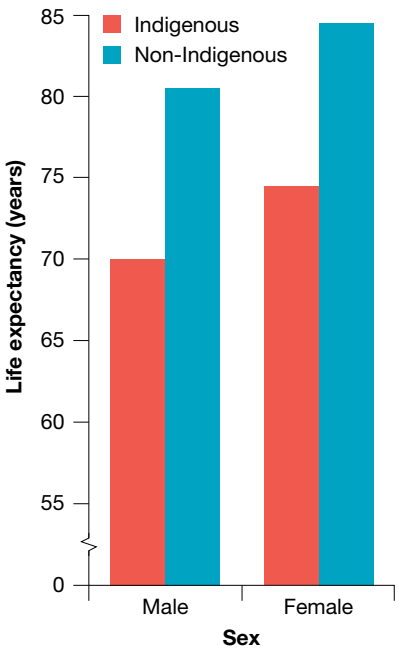
Even though there have been some significant improvements in recent years in Indigenous mortality rates, Indigenous Australians are more likely to die at every stage of the lifespan and at younger ages than the non-Indigenous population. In fact, approximately 60 per cent of Indigenous Australians die before their sixty-fifth birthday compared to just under 20 per cent for the non-Indigenous population (see figure 4.30).

FIGURE 4.30 Age distribution of deaths among Indigenous and non-Indigenous Australians, 2017



Source: Adapted from http://stat.data.abs.gov.au/Index.aspx?DatasetCode=DEATHS_INDIGENOUS# c04f029.

FIGURE 4.29 Life expectancy at birth, by Indigenous status and sex, 2017

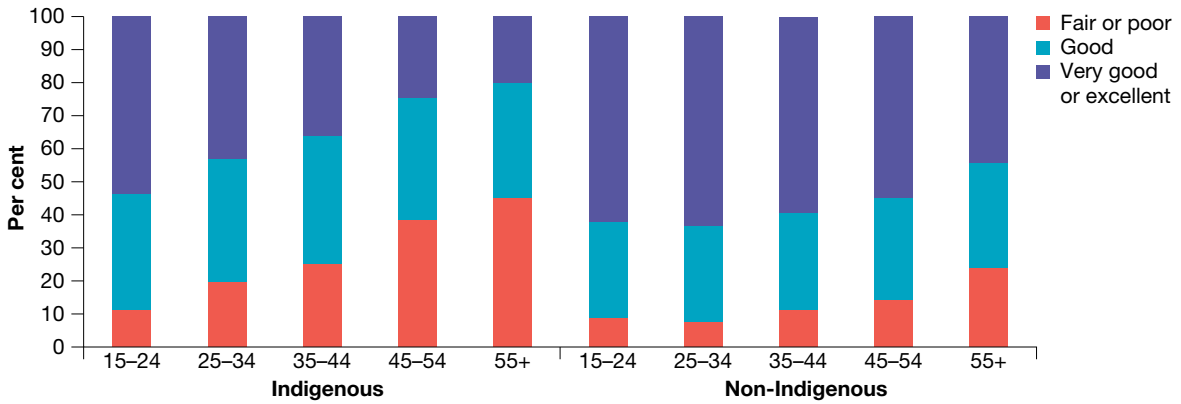


Source: ABS, 3302055003DO001_2015 2017 Life Tables for Aboriginal and Torres Strait Islander Australians, 2015–2017 and ABS, Life tables, States, Territories and Australia, 2015–17.

Other variations in health status reported by the ABS and AIHW (2015–18) include:

- an overall mortality rate that is more than one and a half times that of non-Indigenous Australians, and four times as high among Indigenous people aged 35–44
- infant mortality rates that are one and a half times higher than the rest of the population
- being half as likely as non-Indigenous Australians to report their health status as excellent or very good, and twice as likely to report their health status as fair or poor (see figure 4.31).
- burden of disease that was 2.3 times the rate of non-Indigenous Australians
- higher rates of hospitalisation and death from injury than the non-Indigenous population
- higher incidence and mortality rates from cardiovascular disease — 1.5 times greater than the non-Indigenous population
- higher mortality rates as a result of cancer (1.2 times higher), with significantly higher mortality rates from cervical and liver cancers
- being nearly twice as likely to have a disability or a restrictive long-term health condition
- high or very high levels of psychological distress experienced at nearly three times the rate of the non-Indigenous population, with rates of suicide that were four times higher than non-Indigenous Australians and rates of hospitalisation for mental health issues twice as high
- rates of diabetes and high blood glucose levels more than three times higher than the rest of the population. Indigenous Australians are also more likely to develop diabetes at a younger age and die from it earlier than the non-Indigenous population.
- a rate of chronic kidney disease (also referred to as CKD, which is the long-term loss of kidney function) nearly four times the rate of the rest of the population
- being almost twice as likely as non-Indigenous people to report having asthma
- higher rates of sexually transmissible infections (STIs) than non-Indigenous people
- higher rates of dental decay and gum disease.

FIGURE 4.31 Age-specific self-assessed health status among people aged 15 and over, by Indigenous status, 2012–13



Source: AIHW 2015, *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2015*, p. 83.

4.5.2 Factors contributing to variations in the health status of Indigenous Australians

The reasons for the comparatively low health status of Indigenous Australians compared with the rest of the population are varied and complex. However, there are a range of identifiable factors that adversely affect the health status of Indigenous Australians.

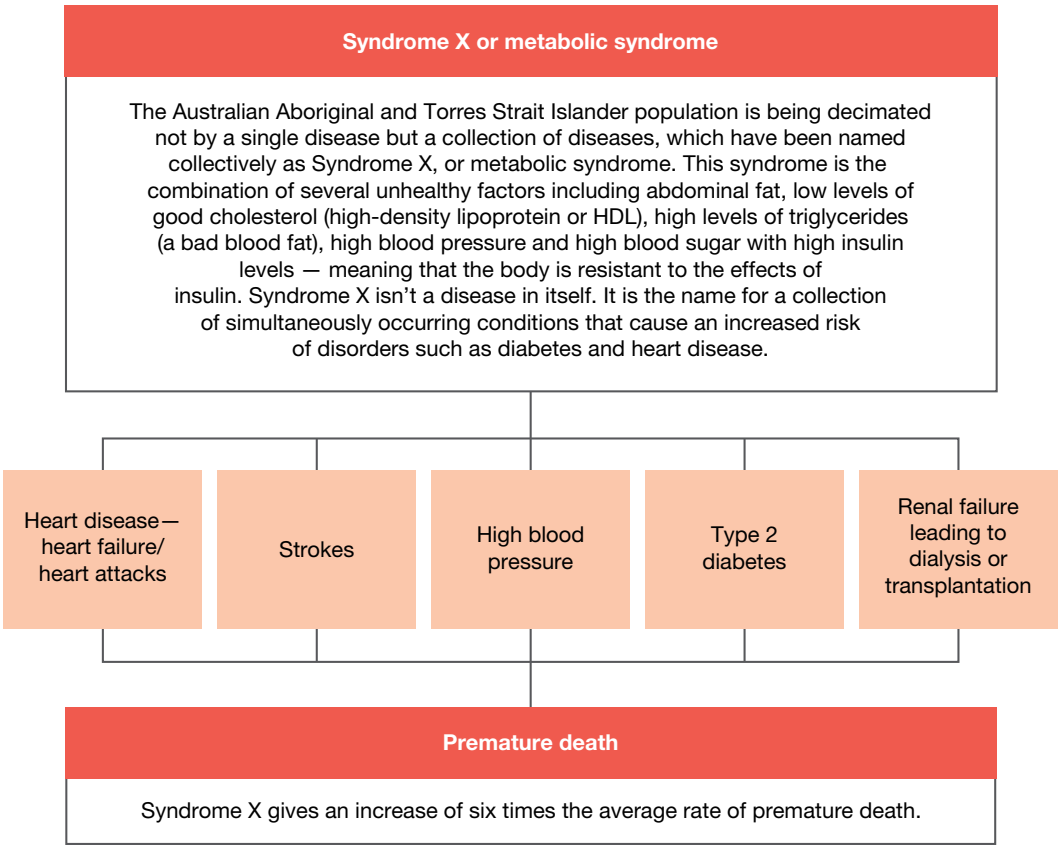
Biological factors

Many biological factors contribute to variations in the health status of Indigenous Australians compared to non-Indigenous Australians. We will examine four factors: body weight, blood pressure, glucose regulation and birth weight.

Body weight

Indigenous Australians have higher rates of high body mass index across all ages, which increases the risk of suffering from chronic conditions such as cardiovascular disease, type 2 diabetes and osteoarthritis. The obesity rate among Indigenous adults is one and a half times higher than in the non-Indigenous population. Being obese is linked to **Syndrome X**, a major problem in the Indigenous population (see figure 4.32).

FIGURE 4.32 Syndrome X, or metabolic syndrome, has a profound effect on the health status of Indigenous people.



Source: Australian Medical Association Report Card Series 2005: Aboriginal and Torres Strait Islander Health.

Blood pressure

Indigenous Australians are 1.2 times more likely to report hypertension, a risk factor for stroke and heart disease.

Glucose regulation

Indigenous Australians experience higher rates of impaired glucose regulation than the rest of the population, contributing to the higher rates of diabetes and kidney disease experienced.

Birth weight

Indigenous mothers are almost twice as likely to give birth to a baby with low birth weight when compared with non-Indigenous Australians, contributing to a higher U5MR. Of live births to Indigenous mothers in 2017, 11.1 per cent were classified as low birth weight, compared with 6.7 per cent for live-born babies of non-Indigenous mothers. Maternal tobacco use, nutrition and access to healthcare are significant

contributors to this difference. Babies of Indigenous mothers were also more likely to be premature (11.7 per cent) compared with babies of non-Indigenous mothers (7.4 per cent).

Sociocultural factors

A range of sociocultural factors contribute to the variations in health status experienced between Indigenous and non-Indigenous Australians. They include socioeconomic status, unemployment, social exclusion including discrimination and homelessness, food insecurity, early life experiences and cultural norms.

Socioeconomic status

Indigenous Australians are more likely to experience a lower socioeconomic status than other Australians. According to the Australian Institute of Health and Welfare (2018), Indigenous Australians, on average, had lower incomes, poorer education achievements and lower rates of home ownership than other Australians. Lower educational outcomes contribute to lower levels of health literacy. This also places Indigenous Australians at greater risk of behaviours such as smoking, dietary risks and sedentary lifestyles, further contributing to obesity, type 2 diabetes, cardiovascular disease and lung cancer.

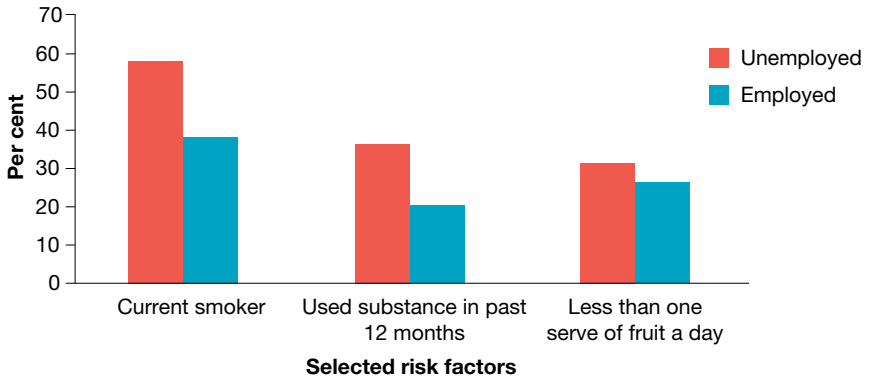
FIGURE 4.33 Having a good birth weight increases the chance of optimal health and wellbeing in later life.



Unemployment

In 2016, Indigenous Australians were more than twice as likely to be unemployed than other Australians (18.4 per cent compared with 6.8 per cent). Unemployment is more pronounced for those who live outside Australia's major cities where Indigenous unemployment rates are in excess of 28 per cent. There is a relationship between unemployment and a range of risk factors (figure 4.34) and variations in health status, including increased rates of smoking and alcohol abuse, reduced overall feelings of wellbeing, and increased rates of cardiovascular disease, mental health problems and lung cancer.

FIGURE 4.34 Selected risk factors, by employment status, Indigenous Australian adults, 2012–13



Source: AIHW, *Australia's health 2016*.

Social exclusion

Discrimination and racism have been associated with ill health and lower health status for Indigenous people — in particular, mental health disorders (such as anxiety) and risky health behaviours such as tobacco, drug and alcohol use. According to the *Australian Aboriginal and Torres Strait Islander health*

survey (AATSIHS), 7 per cent of Indigenous adults (about 26 500 people) reported that they avoid seeking healthcare because they had been treated unfairly by doctors, nurses or other staff at hospitals or doctor surgeries. This can increase the duration and severity of disease and contribute to higher levels of morbidity and mortality.

Data from an *Aboriginal experience of racism survey* (2010–11) conducted in Victoria indicated that almost all (97 per cent) the respondents had experienced at least one racist incident in the preceding 12 months. The survey found that 2 in 3 (67 per cent) experienced racism in shops, 59 per cent in public spaces and 29 per cent within health settings. Indigenous adults who had experienced high levels of racism were more likely to have high or very high levels of psychological distress than those who had experienced no, low or medium levels of racism.

Many Indigenous Australians have experienced forced removal from their natural family. According to the AIHW (2015):

- 13 per cent of Indigenous adults reported having been removed from their natural family by welfare authorities or the government, or by being taken away to a mission
- 44 per cent of Indigenous adults reported that they had relatives who had been removed from their natural family
- 9.2 per cent of Indigenous adults fell into both groups — in total, almost half (48 per cent) of Indigenous adults reported that either they or their relatives had been removed from their natural family.

Levels of high or very high psychological distress were significantly more common among Indigenous adults:

- who had been removed from their family (35 per cent) compared with those who had not (29 per cent)
- who had relatives removed (34 per cent) compared with those who had not (26 per cent).

High levels of psychological distress relates to an increased rate of risky behaviours, such as tobacco and alcohol use and self-harm, and increase the risk of a range of causes of ill health that may otherwise be preventable, such as cardiovascular disease, respiratory diseases, some cancers and suicide.

Social exclusion has been an issue for Indigenous Australians since European settlement, and this has generated a sense of alienation that is not easily rectified. According to a report by the WHO ('Solid facts'), social exclusion also results from racism, discrimination and unemployment. Racial discrimination complaints still form more than 10 per cent of all complaints received by anti-discrimination bodies in NSW, Queensland, SA, WA and NT, many of which involve Indigenous Australians. Social exclusion contributes to a range of physical and mental health problems, and to the higher rates of morbidity and mortality experienced by Indigenous Australians.

In 2016, an estimated 23 437 Indigenous people were experiencing homelessness in Australia — a rate nearly 10 times that of non-Indigenous Australians. Of all the homeless people who provided information on their Indigenous status, 20 per cent were Indigenous. Homelessness increases the risk of psychological distress and risk-taking behaviour including tobacco and alcohol abuse, contributing to higher rates of mental health disorders, obesity, type 2 diabetes, cardiovascular disease and some cancers.

Food insecurity

Indigenous Australians are significantly more likely to report food insecurity compared with those in the general population. A range of factors contribute to this difference including lower incomes, poorer quality and overcrowded housing, the higher cost of fresh foods in many areas outside of Australia's major cities, lack of transport and lower levels of nutritional knowledge. Food insecurity contributes to higher rates of obesity and associated conditions such as type 2 diabetes, kidney disease and cardiovascular disease. Traditional Indigenous diets were high in protein and low in fat. European influences have changed the traditional diet for many Indigenous Australians, contributing to higher rates of obesity and associated conditions.

FIGURE 4.35 Foods that formed the traditional Indigenous diet, such as kangaroo meat, are high in protein and low in fat. This is in stark contrast to many of the foods introduced by European settlers.



Early life experiences

Early life experiences including maternal tobacco, alcohol and drug use have significant impacts on health status. In Australia:

- One study (Hutchinson, 2015) showed that 48 per cent of Indigenous women smoked while pregnant, compared to 10 per cent of non-Indigenous women.
- National data relating to maternal alcohol consumption are not readily available, but some studies suggest that up to 50 per cent of babies born in some Indigenous communities display effects of maternal alcohol use.
- According to the AIHW (2013), babies born to Indigenous mothers were around 3.5 times more likely to display signs of exposure to drugs while in the uterus.

These differences in substance use during pregnancy in the Indigenous community contribute to a range of variations in health status, including higher rates of:

- low birth weight babies
- some infections among infants
- **foetal alcohol spectrum disorder**
- under-five mortality
- cardiovascular disease
- type 2 diabetes.

Cultural norms

Cultural norms contribute to the lower rate at which many Indigenous Australians access Western medicine. Many Indigenous people feel Western medicine is culturally inappropriate, and associate hospitals with death. As a result, many conditions go unchecked for extended periods of time. This can increase morbidity and mortality rates, and reduce life expectancy.

Environmental factors

The physical environment factors that contribute to variations in health status for Indigenous Australians include housing, water and sanitation, access to health services, and infrastructure.

Housing

Housing plays a major role in the health and wellbeing of Indigenous Australians. The absence of affordable, secure and appropriate housing can result in a number of negative consequences, including

homelessness, poor health and wellbeing, and lower rates of employment and education participation. All of these can lead to social exclusion and the associated impacts on health status.

Housing quality is an issue for many Indigenous Australians, and much of the housing in Indigenous Australian communities is substandard in regard to shelter, drinking water and sanitation. According to the Australian Institute of Health and Welfare (2015), among Indigenous households in 2012–13:

- more than one in three (35 per cent) reported living in a dwelling with one or more major structural problems such as electrical or plumbing problems, major cracks in floors or walls, or roof defects
- more than one in seven (15 per cent) reported living in a dwelling that was lacking at least one working facility such as a fridge, cooking facilities, toilet, or bath or shower (AIHW analysis of 2012–13 AATSIHS).

FIGURE 4.36 Many Indigenous Australians live in communities outside major cities. This presents many challenges including overcrowded housing, lack of access to healthcare, and an unreliable water supply.



These dwellings posed many risks to the health status of Indigenous Australians, including increased risk of injury, disease and mental health problems.

Ten per cent of Indigenous Australians were reported to be living in overcrowded housing in 2016 compared to 3.8 per cent of non-Indigenous Australians (AIHW, 2018). Overcrowded housing places a strain on bathroom, kitchen and laundry facilities. This strain can lead to unhygienic living conditions and increased risk of injury, disease and mental health issues.

In 2014–15, Indigenous children aged 0–14 were five times as likely as non-Indigenous children to live in households with a daily smoker who smoked at home indoors (13 per cent and 2.8 per cent, respectively). Exposure to environmental tobacco smoke increases the risk of respiratory disease such as asthma, and can increase the risk of children becoming smokers when they get older. Tobacco use is associated with a range of variations in health status including high rates of cardiovascular disease.

Water and sanitation

Most Australians have access to one of the cleanest and most reliable water supplies in the world, but the 2006 *Community housing and infrastructure needs survey* (the most recent data available) found that 48 of the 148 Indigenous communities (about 12 000 people) that were tested had drinking water supplies that failed testing at least once in the 12 months before the survey. Of the 82 300 people surveyed, 59 per cent (about 48 500 people) also reported experiencing an interruption to their water supply in the previous 12 months.

Sewerage systems are also inadequate in many Indigenous communities. In 2006, 40 per cent of Indigenous communities (about 30 000 people) experienced a sewage leak or overflow. Lack of clean water

and sanitation has been shown to increase the risk of infectious diseases including gastroenteritis, diarrhoea, dysentery and cholera. Such sanitary conditions can be particularly dangerous for children, who are likely to experience repeated infections. Increased morbidity and mortality rates can also be attributed to a lack of clean water and sanitation in Indigenous communities. Indigenous Australians living outside Australia's major cities are less likely to have access to a fluoridated water supply, and this contributes to the higher rates of dental decay in these areas.

Access to health services

The Indigenous population has lower levels of access to, and use of, health services and resources such as Medicare-funded services, the Pharmaceutical Benefits Scheme (or PBS, which subsidises medication) and private GPs. About 21 per cent of Indigenous Australians live in remote areas, compared to 2 per cent of the rest of the population, which makes service delivery and access to services more difficult for many. As a result, conditions may go undiagnosed or untreated, and this may limit treatment options and so increase morbidity and mortality rates.

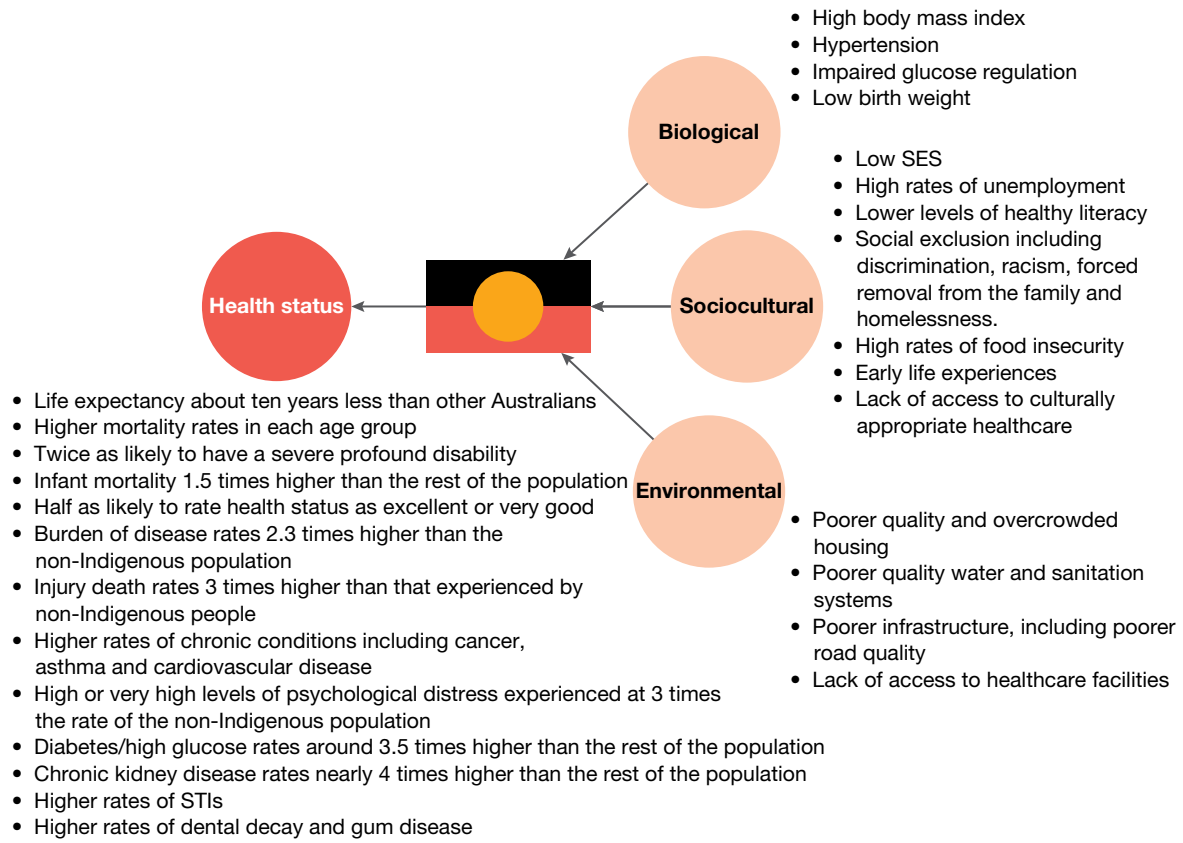
Infrastructure

Indigenous Australians living outside of Australia's major cities are exposed to aspects of the physical environment that can increase the risk of injuries and deaths from road crashes, including unsealed roads and poorer lighting at night.

Summary of factors contributing to variations in the health status of Indigenous Australians

Figure 4.37 summarises the factors affecting the health status of Indigenous Australians.

FIGURE 4.37 Factors contributing to variations in the health status of Indigenous Australians



4.5 Activity

Access the **Discrimination** weblink and worksheet in the Resources tab then complete the worksheet.

4.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Outline one similarity and one difference between Indigenous and non-Indigenous Australians according to figure 4.29.
2. (a) According to figure 4.30, approximately what percentage of deaths occurred in the under-65 age groups for:
   i. the Indigenous population
   ii. the non-Indigenous population?
   (b) Suggest two reasons that might account for this difference.
3. (a) Compare the proportion of those assessing their health status as very good or excellent between Indigenous and non-Indigenous Australians according to figure 4.31.
   (b) Outline three reasons that may account for the difference identified in part (a).
4. List three diseases that Indigenous people suffer from at higher rates than non-Indigenous people.
5. (a) Explain what is meant by Syndrome X.
   (b) Suggest two ways that someone could reduce their chances of developing Syndrome X.
   (c) Outline two variations in health status that may occur as a result of higher levels of Syndrome X.

4.5 Exercise 2 APPLY your knowledge

1. Many Indigenous Australians report lower education achievements than non-Indigenous Australians. How can not completing secondary school lead to poor health status? Draw a flow chart to illustrate this relationship.
2. Use biological, sociocultural and/or environmental factors to explain the following variations in health status in the Indigenous population:
   (a) higher rates of death from injuries
   (b) higher rates of infant mortality
   (c) higher rates of cardiovascular disease
   (d) higher rates of type 2 diabetes.
3. (a) What was the rate of unemployment for Indigenous Australians in 2016 compared with that for non-Indigenous Australians?
   (b) Make a list of the factors that could contribute to this difference.
4. Create a flow chart that illustrates how poor housing can impact on the health and wellbeing and health status of Indigenous Australians.

studyON

4.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Discrimination worksheet (doc-32197)

Weblink Discrimination

4.6 Differences between male and female population groups

KEY CONCEPT The variations in health status as experienced by males and females and the factors that explain the differences

The health status of males in Australia has always been below the health status of females. There have been some improvements in recent decades, but males are still not expected to live as long as females and they experience a range of conditions at higher rates than their female counterparts.

4.6.1 Key differences in health status

Although the life expectancy for males has been steadily increasing, they are still more likely to die at every stage of the lifespan than females. A male baby born in 2017 is expected to have a lifespan about four years shorter than a female baby born at the same time.

According to the Australian Bureau of Statistics and the Australian Institute of Health and Welfare:

- Males have greater rates of burden of disease than females.
- Males experience higher rates of premature death than females — 62 per cent of premature deaths were experienced by males.
- Males have higher rates of injury than females. The male death rate from injury is about twice the female death rate from injury.
- Males have higher rates of deaths due to suicide, road trauma and violence.
- Males suffer higher rates of cancer. By age 75, one in three males and one in four females will have been diagnosed with some form of cancer, but 57 per cent of all cancer deaths occur in males. Males are also more likely to develop melanoma — by age 75, one in 22 males and one in 33 females have been diagnosed with melanoma (AIHW, *Cancer in Australia: an overview, 2012*).
- Males have higher rates of diabetes (6.8 per cent of males compared with 5.4 per cent of females) and higher mortality rates due to diabetes (1.7 times higher in males).
- Males experience higher rates of kidney disease than females.
- Males are more likely to be diagnosed with cardiovascular disease and experience heart attacks, and mortality rates due to these conditions are also higher when compared with females (168 and 120 deaths per 100 000 people respectively).
- Males have higher mortality rates from chronic obstructive pulmonary disease than females.

The types of long-term conditions suffered are similar for both males and females, although there are some areas where males fare better than females:

- Males experience lower rates of osteoporosis (see figure 3.39 in subtopic 3.5); 85 per cent of all osteoporosis cases occur in females
- Males experience lower rates of arthritis than females (11.8 per cent of males compared to 17.7 per cent of females).
- Males report slightly fewer cases of long-term mental and behavioural problems: 17.9 per cent of males compared with 22.3 per cent of females in 2017–18.

FIGURE 4.38 Males are more likely to be injured at every stage of the lifespan and experience higher rates of morbidity and mortality due to injury.



- Males are less likely to experience high or very high levels of psychological distress than females (11.3 per cent and 14.5 per cent respectively).
- Males are less likely to experience a severe or profound core activity limitation than females. That is, males are less likely to 'sometimes' or 'always' need help with core activities of daily living (mobility, self-care or communication) than females.

4.6.2 Factors contributing to variations in the health status between males and females

A range of factors contribute to the variations in health status experienced by males and females.

Biological factors

The biological factors that contribute to the variations in health status experienced by males when compared to females include body weight, blood pressure, glucose regulation and genetics.

Body weight

High body mass is more prevalent in males than females with 42.0 per cent of males being overweight compared with 29.6 per cent of females and 32.5 of males being obese compared to 30.2 per cent of females. This means that overall, 74.5 per cent of males experience a high body mass index compared to 59.8 per cent of females, contributing to higher rates of hypertension, cardiovascular disease and type 2 diabetes among males.

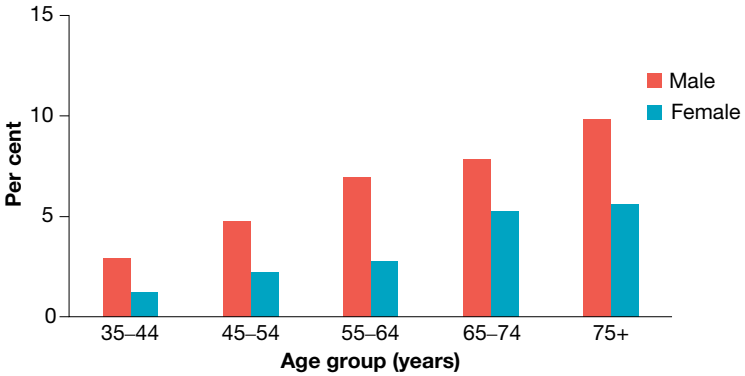
Blood pressure

Males are more likely to experience hypertension until they are in the 65–74 age group. From this age group onwards, females are more likely to experience hypertension. Across all other age groups, 25.4 per cent of males experience hypertension compared to 20.3 per cent of females, contributing to higher rates of cardiovascular and kidney disease among males.

Glucose regulation

In the *Australian health survey, 2011–12* (ABS), males were more likely to experience impaired glucose regulation than females (see figure 4.39), which increases the risk of type 2 diabetes and kidney disease.

FIGURE 4.39 Prevalence of impaired fasting glucose in persons aged 18 and over, by sex, 2011–12



Source: https://www.aihw.gov.au/reports/biomedical-risk-factors/risk-factors-to-health/contents/impaired-fasting-glucose.

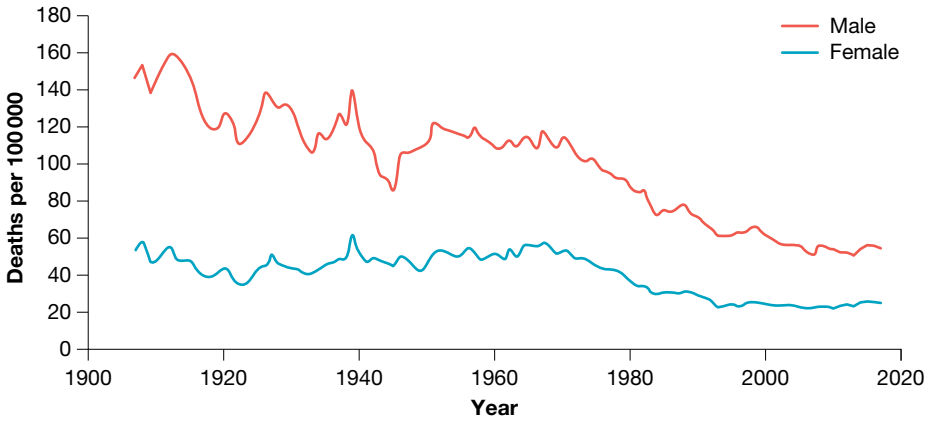
Genetics

Males tend to store more fat around their abdomen. This is associated with greater health risks — especially cardiovascular disease, which is more common in males in almost all countries and cultures around the world. Research is still being conducted to ascertain the exact genetic difference that leads to this variation.

Declining amounts of oestrogen at menopause have been shown to accelerate the loss of bone density in women. In males, testosterone is responsible for maintaining bone density. This difference contributes to the higher rates of osteoporosis among females over the age of 60. Whether oestrogen protects against heart disease is still a matter of debate.

Higher levels of testosterone among males have been linked to increased risk-taking behaviours contributing to the higher levels of injuries experienced compared to females (see figure 4.40).

FIGURE 4.40 Trends in death rates for injury and poisoning, 1907–2017



Source: ABS, *Causes of death*, various years.

Sociocultural factors

A range of sociocultural factors contribute to the variations in health status experienced by males compared to females. They include unemployment, socioeconomic status, and cultural norms.

Unemployment

The effects of unemployment can be particularly influential on the health status of males. Males have traditionally been the breadwinners of the family and many males feel it is their duty to provide material resources for the family. An inability to do this can make males feel inadequate and stressed, which affects mental health and wellbeing. Males who are unemployed experience greater rates of morbidity and mortality compared to unemployed females. Specifically, rates of obesity, cardiovascular disease and suicide are higher for unemployed males.

Socioeconomic status

According to the ABS (2018), males employed on a full-time basis earn higher incomes on average than females employed full time ($1678.40 per week compared to $1433.60 per week). As a result, males often have a higher socioeconomic status than females, especially those who are single parents. This difference contributes to lower levels of mental and behavioural problems and lower levels of psychological distress among males.

Cultural norms

A range of gender stereotypes in Australia contribute to variations in health status between males and females, including:

- Males are less likely to be carers of children. This means that some men have more opportunities for adult contact than some women. Women who provide full-time care may experience a form of social isolation, which can impact their mental health and wellbeing and contribute to higher rates of psychological distress. Females who don't get the opportunity to communicate with people their own age may 'bottle up' problems and issues, which can impact their mental health and wellbeing.
- Physically laborious jobs are generally considered to be masculine. This can increase the risk of injury in the workplace for males undertaking such jobs.
- Although more females are playing than ever before, contact sports such as Australian Rules Football and Rugby League are still generally considered to be masculine sports. These sports can increase the risk of injuries among males.
- According to the Australian Institute of Health and Welfare (2011), males may be less likely to access healthcare than females as a result of 'social norms and values associated with a traditional view of masculinity — self-reliance, suppression of emotion and perseverance in the face of pain or discomfort'. This contributes to higher rates of morbidity and mortality among males.

- Researchers have indicated that the way the media represent beauty, especially of females, has contributed to increasing rates of eating disorders and the greater prevalence of eating disorders among females compared to males. Female beauty is often portrayed by thin models, whereas male beauty is often portrayed by muscular individuals. These representations may have an effect on eating and exercise patterns, particularly among male and female youth.
- Peer pressure can have differing impacts on males compared to females. Males may encourage traditional stereotypes among their peers when in groups with other males. This can include the use of violence to resolve conflicts, risk-taking behaviour and risky alcohol consumption. These behaviours increase the incidence of injury among males.

FIGURE 4.41 Gender stereotypes, such as different sports being considered masculine or feminine, can affect the type and risk of injuries experienced by males and females.



Environmental factors

The work environment is the main environmental factor that contributes to differences in health status between males and females.

Males are more likely to work in industries such as trades, farming and mining. The environments associated with these occupations can increase the risk of serious injury and death. These workplaces often involve the use of heavy machinery and tools, and exposure to hazardous substances such as chemicals and asbestos. As a result, males are more likely to be injured or killed at work and to develop respiratory conditions as a result of air pollution in the workplace.

FIGURE 4.42 Sociocultural factors contribute to males being less likely to access healthcare than females.



Of the 182 work-related deaths recorded in 2016, 168 (92 per cent) involved male workers. The fatality rate for male workers was 10 times the rate for female workers.

Males are more likely to work outside and therefore have increased exposure to UV rays. This could explain the higher rates of melanoma and other skin cancers in males.

Males are also more likely to work in transport, which can lead to extended periods of time on public roads. This increases the risk of injury and death associated with road trauma.

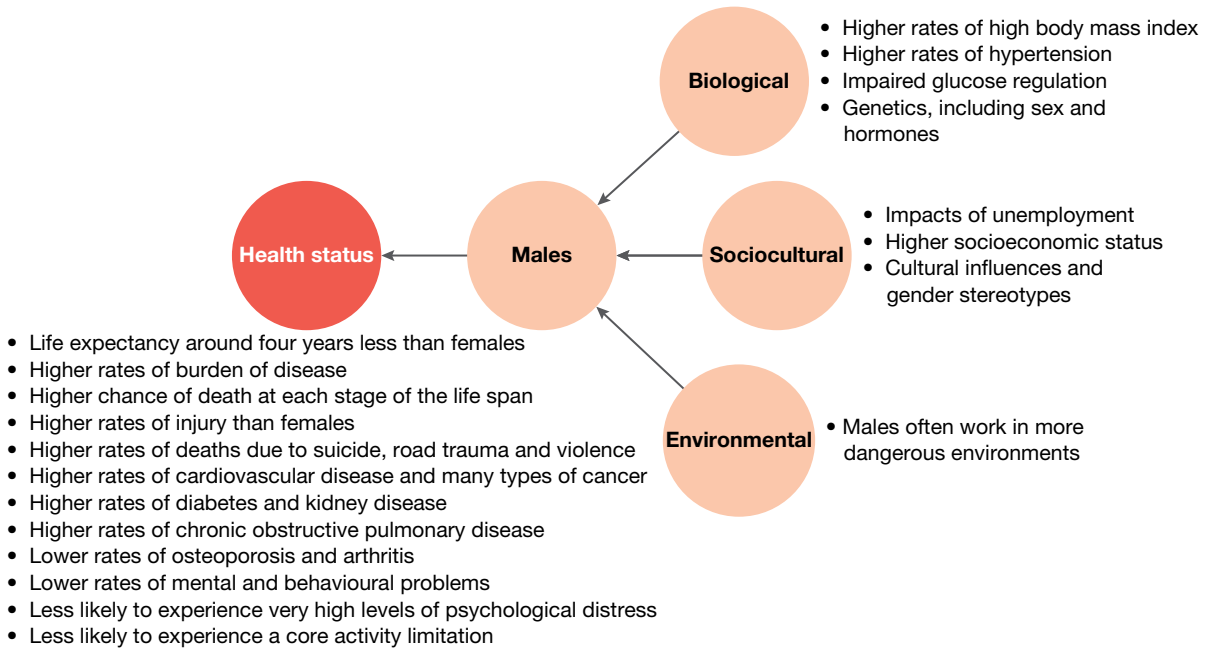
FIGURE 4.43 Jobs such as mining involve a certain amount of risk.



Summary of factors contributing to variations in the health status between males and females

Figure 4.44 summarises the factors affecting the health status of males.

FIGURE 4.44 The biological, sociocultural and environmental factors contributing to the health status of males



4.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the difference in life expectancy between males and females?
2. List two conditions that females are more likely to report suffering from.
3. (a) Identify two trends shown in figure 4.40.
   (b) Explain possible reasons for these trends.
4. Explain why females experience higher rates of osteoporosis than males.
5. Explain why males may experience more detrimental effects on their health status than females when unemployed.

4.6 Exercise 2 APPLY your knowledge

1. Identify and discuss three factors that might account for the higher death rates due to injuries in males.
2. Males are more likely to have a greater body mass than females. Outline two variations in health status that may occur as a result of this difference.
3. Use biological, sociocultural and/or environmental factors to explain the following:
   (a) Males have higher rates of type 2 diabetes.
   (b) Males experience higher rates of some cancers.
   (c) Males are less likely to access healthcare than females.

studyON

4.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

4.7 Differences between high and low socioeconomic status population groups

KEY CONCEPT The variations in health status as experienced by low socioeconomic groups and the factors that explain the differences

People in the highest socioeconomic status (SES) groups tend to have more choices and resources available to them and therefore enjoy better health status. People in the lowest socioeconomic status groups are at the other end of the spectrum. Health status tends to improve for each step taken towards the highest socioeconomic status level (see figure 4.45).

FIGURE 4.45 The social gradient



4.7.1 Key differences in health status

People living in lower socioeconomic status groups have:

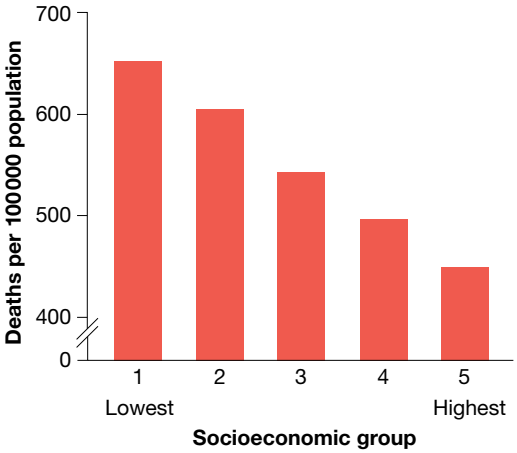
- lower life expectancy (life expectancy is around three years lower for the most disadvantaged groups)
- greater burden of disease for both fatal and non-fatal outcomes (see table 4.1)
- mortality rates 1.3 times higher than the higher socioeconomic status groups (see figure 4.46).
- higher infant mortality rates
- higher rates of disability
- higher mortality rates from cardiovascular disease, lung cancer, type 2 diabetes, respiratory diseases and injuries

- a greater rate of potentially avoidable deaths
  Potentially avoidable deaths are those deaths that might have been avoided through prevention, or through treatment, within the current health system. Examples include deaths due to road traffic accidents, lung cancer, diabetes and skin cancer (AIHW, 2014).

Low socioeconomic status groups also experience higher rates of morbidity relating to a range of conditions (see table 4.2), specifically:

- higher rates of cardiovascular disease
- twice the rate of type 2 diabetes
- higher rates of mental and behavioural problems
- higher rates of arthritis
- higher rates of asthma and chronic obstructive pulmonary disease (COPD).

FIGURE 4.46 Mortality rates, by socioeconomic status, 2015



Source: AIHW 2018, *Australia's Health 2018*, p. 257.

TABLE 4.1 DALY, YLL and YLD counts, age-standardised rates and rate ratios, by socioeconomic status, 2011

	Total burden			Non-fatal burden			Fatal burden		
Socio-economic group	DALY ('000)	Age-standardised rate (per 1000 people)	Rate ratio*	DALY ('000)	Age-standardised rate (per 1000 people)	Rate ratio*	DALY ('000)	Age-standardised rate (per 1000 people)	Rate ratio*
Quintile 1 (lowest)	1067	230.2	1.5	492	110.3	1.4	575	120.0	1.7
Quintile 2	1020	212.6	1.4	494	106.7	1.3	526	105.8	1.5
Quintile 3	922	192.3	1.3	459	98.1	1.2	462	94.1	1.3
Quintile 4	800	173.0	1.2	423	91.7	1.2	377	81.3	1.2
Quintile 5 (highest)	708	149.7	1.0	372	79.2	1.0	335	70.5	1.0
Australia	4494	189.9		2224	96.0		2270	93.9	

* The rate ratio indicates how many DALY, YLL or YLD were contributed in each area for every 1 DALY, YLL or YLD that was contributed by those in the highest socioeconomic group. For example, a rate ratio of 1.5 for total DALY for those in Q1 (the lowest socioeconomic group) indicates that for every 1 DALY contributed by those in the highest socioeconomic group, there were 1.5 DALY contributed by those in the lowest socioeconomic group.

Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 98.

Quintiles are used when the population has been broken into fifths. Each fifth refers to 20 per cent of the population. In table 4.1, the first quintile refers to the most disadvantaged fifth of the population with regards to socioeconomic position.

TABLE 4.2 Inequalities in certain chronic conditions

	Year	Lowest socioeconomic group (%)	Highest socioeconomic group (%)	Rate ratio: lowest/highest socioeconomic group
Arthritis	2017–18	19.0	11.4	1.7
Asthma	2017–18	13.3	10.0	1.3
Back problems	2017–18	18.7	13.6	1.4
Chronic kidney disease	2017–18	1.3	0.9	1.4
Cardiovascular disease	2017–18	6.0	3.9	1.5
Diabetes	2017–18	7.4	3.4	2.2
Lung cancer incidence	2006–09*	52 per 100 000	33 per 100 000	1.6
Mental and behavioural problems	2017–18	24.3	16.0	1.5
Oral health rated as fair or poor	2010*	31.2	12.2	2.6

* Oral health and long cancer incidence were not included in the National Health Survey of 2017–18.
Source: ABS, National Health Survey 201718 & AIHW, *Australia's health 2016*, p. 184.

4.7.2 Factors contributing to variations in health status between those with high and low socioeconomic status

People from low socioeconomic status groups tend to have poorer health status because they experience higher levels of risk factors for most health indicators.

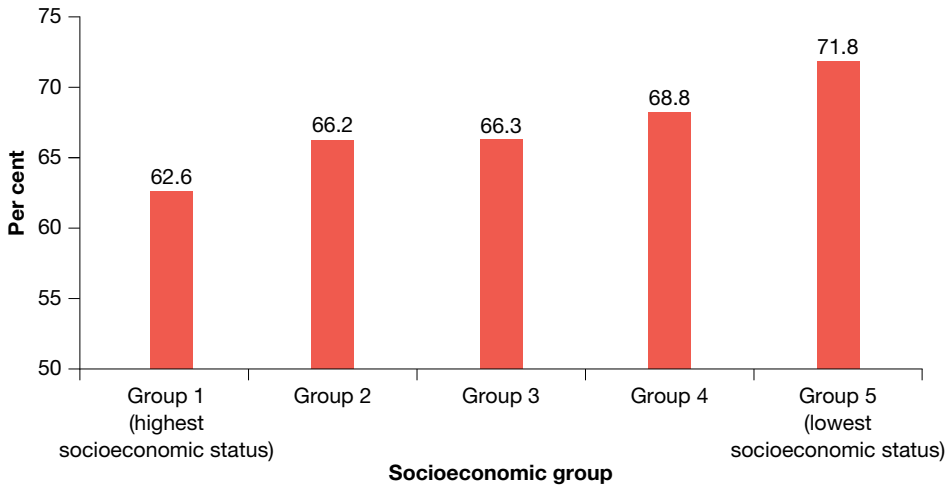
Biological factors

The biological factors that contribute to the variations in health status among low socioeconomic groups compared to the rest of the population include body weight, blood pressure, glucose regulation and birth weight.

Body weight

Rates of high body mass are higher for those in low socioeconomic status groups. As socioeconomic disadvantage increases, so does the rate of overweight/obesity (see figure 4.47). This contributes to lower life expectancy largely due to the increased rates of death from conditions such as cardiovascular disease and type 2 diabetes.

FIGURE 4.47 Prevalence of overweight/obesity by socioeconomic status



Source: ABS, National *health survey, 2017–18.*

Blood pressure

Rates of hypertension are higher among low socioeconomic status groups (25 per cent compared to 20 per cent in the highest socioeconomic group). This contributes to higher rates of cardiovascular disease and higher rates of premature death.

Glucose regulation

Rates of impaired glucose regulation are higher among low socioeconomic status groups. This contributes to higher rates of type 2 diabetes and kidney disease.

Birth weight

Women experiencing socioeconomic disadvantage are more likely to give birth to low birth weight babies. Babies born into low socioeconomic status families in 2016 were 30 per cent more likely to have a low birth weight compared with those of high socioeconomic status (8.5 per cent compared with 6.1 per cent respectively). This contributes to higher rates of under-five mortality, infection and disability among low socioeconomic groups.

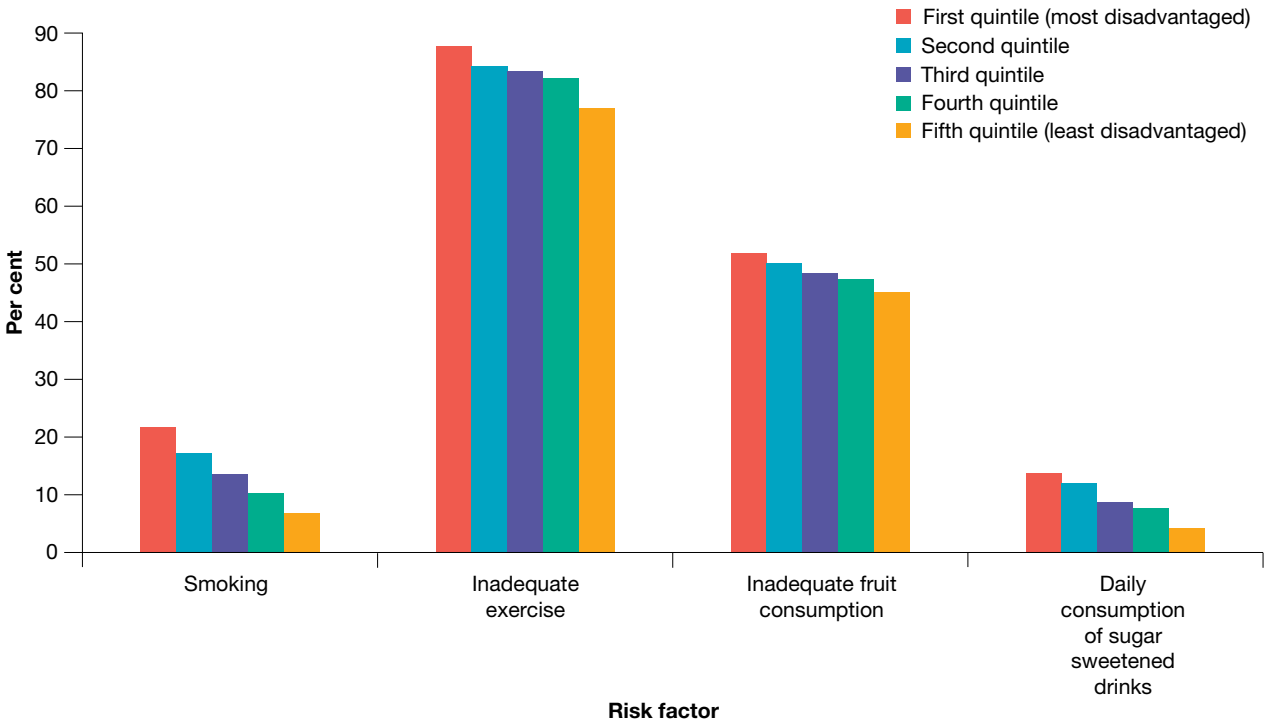
Sociocultural factors

A range of sociocultural factors contribute to the variations in health status experienced by low socioeconomic groups, including education and income, unemployment, social exclusion, food security, early life experiences, access to healthcare, and neighbourhood safety.

Education and income

People in low socioeconomic status groups have lower educational attainment, lower incomes and jobs with lower social status. These factors are interrelated and all influence higher rates of risky behaviours such as unhealthy food intake, smoking, lack of physical activity, and lower likelihood of accessing healthcare (see figure 4.48). Such factors in turn influence the lower health status experienced by these groups including lower life expectancy, higher morbidity rates and higher mortality rates.

FIGURE 4.48 Prevalence of smoking, lack of physical activity, inadequate fruit consumption and daily consumption of sugar sweetened drinks by socioeconomic status groups, 2017–18



Source: Adapted from ABS, *National health survey 2017–18.*

According to the AIHW (2012), those in low SES groups have lower health literacy rates than those in higher SES groups; 55 per cent of the population in the highest SES group had at least an adequate level of health literacy compared with 26 per cent of those in the lowest group.

This difference contributes to the higher rates of risk factors displayed, such as lower rates of healthcare usage (including during pregnancy) for those in low SES groups. This contributes to more conditions going undiagnosed and untreated, which partly explains the higher rates of morbidity and mortality experienced among low SES groups, including among pregnant women and children.

FIGURE 4.49 Education comes in many forms and is related to health outcomes.

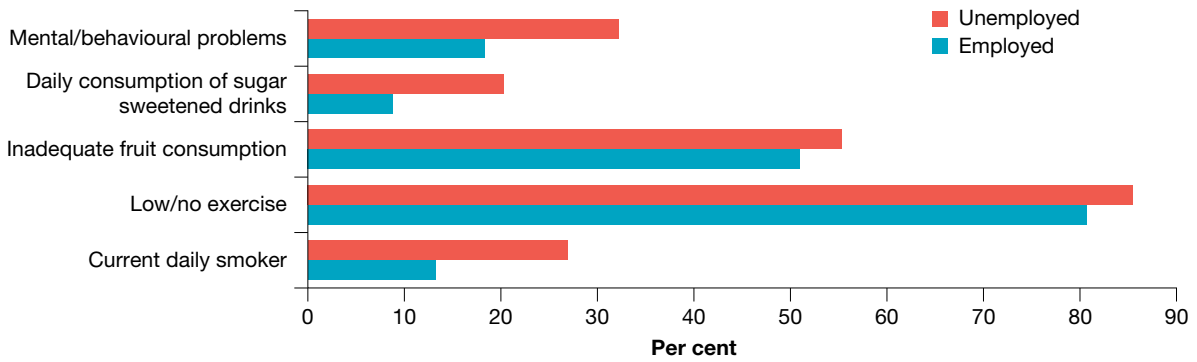


Those in lower socioeconomic groups may also feel that they have less control over their lives (including in relation to finances, work and health status), and this can contribute to a sense of helplessness and a reluctance to modify risk factors such as smoking. This contributes to higher rates of premature mortality and lower life expectancy.

Unemployment

People experiencing socioeconomic disadvantage are more likely to be unemployed. As already explored, those who are unemployed are also more likely to experience poor health status. This can lead to unemployment, creating a cycle between unemployment and poor health status. There is a relationship between unemployment, risk-taking behaviours and impacts on health status (see figure 4.50).

FIGURE 4.50 Prevalence of health-related factors by employment status, people aged 15 and over, 2017–18



Source: Adapted from ABS, *National health survey 2017–18.*

Social exclusion

Socioeconomic disadvantage can also lead to social exclusion as individuals are less likely to gain education, meaningful employment and access community resources, such as healthcare and social security, which can contribute to a cycle of disadvantage. Those who are socially excluded experience poorer physical and mental health and wellbeing than those who are socially connected.

Food security

People living with socioeconomic disadvantage are more likely to experience food insecurity. Lack of financial resources can lead to an inability to afford nutritious foods. Research suggests that healthy food options are often more expensive and harder to access in areas of socioeconomic disadvantage (DHS, 2010), which adds to the insecurity of the food supply to these groups.

Higher rates of obesity and lower rates of fruit and vegetable consumption are often the product of food insecurity. This can contribute to higher rates of cardiovascular disease, diabetes and some types of cancer.

Those with low socioeconomic status may also lack sufficient knowledge of what constitutes healthy eating.

Early life experiences

Early life experiences impact those in low socioeconomic groups in a number of ways. According to the AIHW (2018), mothers in the lowest socioeconomic status groups were more than five times as likely to have smoked in pregnancy than those in the highest socioeconomic status groups (17.4 per cent and 3.1 per cent respectively). This contributes to higher rates of respiratory conditions such as asthma, low birth weight among babies, and higher infant and under-five mortality rates for those born to mothers living in low socioeconomic environments.

Women from the lowest socioeconomic areas were more likely to begin antenatal care later in pregnancy, and to have a higher body mass index in pregnancy, than women from the highest socioeconomic areas. They were also more likely to give birth early (or pre-term) to babies of low birth weight than women from the highest socioeconomic areas, contributing to the higher U5MR experienced by these groups.

Access to healthcare

People from low socioeconomic status groups are also less likely to access preventative and early detection health services such as BreastScreen and cervical cancer screens. This can lead to health conditions going undiagnosed. As a result, fewer treatment options are available once a diagnosis is made, contributing to higher rates of mortality from conditions such as breast and cervical cancer.

Those with low socioeconomic status are less likely to have private health insurance, with 75.7 per cent of the most disadvantaged not having private health insurance compared with 28.8 per cent of the most advantaged. This can contribute to psychological distress and extend waiting times for surgery, which can increase rates of morbidity and mortality.

Neighbourhood safety

According to the ABS (2010), people living in areas with the highest SES were more likely to feel safe or very safe at home alone both during the day and at night (88 per cent) than those living in the lowest SES areas (72 per cent). Those living in areas with the highest SES were more likely to report feeling safe or very safe (71 per cent) walking in their local area at night than those living in areas with the lowest SES (41 per cent). Lower feelings of safety in the home and neighbourhood can increase anxiety and stress, and contribute to higher rates of mental health issues among low socioeconomic status groups.

Environmental factors

A range of environmental factors influence the variations in health status between high and low socioeconomic groups, including geographic location, housing, and the work environment.

Geographic location

Suburbs where socioeconomic disadvantage is greater are often the suburbs with the highest number of fast-food outlets. Fast food is generally higher in fat, salt and sugar than other options. Living in close proximity to such outlets may increase the likelihood of people consuming these foods, contributing to higher rates of obesity and associated conditions. People in low socioeconomic status groups are often less educated about healthy eating and may be more likely to be influenced by marketing.

According to VicHealth (2015):

> It is clear that disparities in sports and recreational facilities exist according to neighbourhood-level SES. For example, a study of public open space in neighbourhoods of low and high SES in Victoria found little variation in the number of playgrounds or leisure facilities according to SES. However, public open space in high SES neighbourhoods were of higher quality than in low SES neighbourhoods in terms of amenities and aesthetics, such as picnic areas, foliage (provision of shade), water features, walking and cycling paths.

This contributes to lower rates of physical activity in lower socioeconomic groups, which in turn contributes to many variations in health status when compared to those living in higher socioeconomic areas.

CASE STUDY

'Living here will make you fat' — do we need a public health warning?

By Karen Charlton, Associate Professor, School of Medicine, University of Wollongong and Abhijeet Ghosh, Researcher, University of Wollongong

Governments have invested billions in efforts to prevent obesity, yet Australians keep getting fatter, especially in areas of socioeconomic disadvantage.

Over the past two decades, the prevalence of obesity rose in adults from 19 per cent to 28 per cent. The proportion who are overweight remained similar at around 38 per cent. This means two-thirds of Australian adults are now overweight, with a body mass index (BMI) of 25–29.9, or obese (BMI >= 30).

A new study published in BMJ Open confirms that obesity is highest in Australians who live in areas of socioeconomic disadvantage. The age-adjusted odds ratio of being overweight or obese was determined for high and low levels of socioeconomic disadvantage. We analysed data collected from almost 37 000 patients based on their interactions with their general practitioners over two years (September 2011 to 2013).

This study is part of the larger Sentinel Practices Data Sourcing project. This aims to develop a surveillance system for monitoring chronic diseases within the South-eastern NSW Primary Health Network.

Patients' area of residence was categorised using the Socio-Economic Index for Areas of relative socioeconomic disadvantage. Both men and women living in areas of highest socioeconomic disadvantage had a 29 per cent higher risk of being obese. The opposite association was found for being overweight, at least in men (those in areas of lesser relative socioeconomic disadvantage were more likely to be overweight).

'What makes low-SES areas 'obesogenic'?

It is well recognised that an inverse relationship exists between socioeconomic status (SES) and obesity. But the reasons for this are not straightforward.

'Obesogenicity' (the sum of influences that physical surroundings have on promoting excessive weight gain) of neighbourhoods may relate to the food environment (inadequate access to local sources of healthy foods, such as supermarkets and greengrocers, or easy access to unhealthy foods, such as fast-food restaurants) or the physical activity environment (less green space, unsafe neighbourhoods).

In the US, it has been demonstrated that neighbourhoods in lower socioeconomic areas are more 'obesogenic' than those in richer areas. This translates to higher levels of obesity in children and adults. But these findings are not directly transferable to Australia.

A study of socioeconomically disadvantaged areas in Victoria ranked neighbourhoods using an index that included three domains:

- food resources (supermarkets, green grocers, fast-food restaurants)
- recreational activity resources (gyms, pools, park space)
- walkability (four or more intersections within a 2 km buffer, walking environment, neighbourhood safety).

Surprisingly, neighbourhood 'obesogenicity' was not associated with BMI of residents. It seems other factors may be at play.

Supermarkets and shelf space

Supermarket proximity may not necessarily reflect access to healthier foods. About 30 per cent of supermarket shelf space comprises junk (or non-core) foods. However, the shelf space dedicated to non-core foods does not differ according to the location of the supermarket.

There is also no association between proportion of shelf space allocated to non-core foods and their purchase. But low-SES Australian shoppers do buy significantly more non-core foods than high-SES shoppers, especially chips and sugar-sweetened carbonated beverages and cordials.

This behaviour is likely to be driven by the economics of food choice theory: people on low incomes maximise energy availability per dollar. They buy foods that provide the most energy (usually with few other nutrients) for the least cost. This has been shown to influence food purchases in Indigenous communities.

There may also be less segregation in Australia between neighbourhoods classified as high versus low SES. Or there may be less clustering of fast-food restaurants in low-SES neighbourhoods than occurs in the US. Also, people may not necessarily shop or eat out where they live, particularly if they commute to work and access fast-food outlets on their way home.

Green space effects vary

A study in NSW found that proximity of residence to green space was associated with undertaking more moderate-to-vigorous physical activity and having less sitting time in both men and women.

However, this activity translated into lower body weight only in women; those who lived close to green space had a 10–20 per cent lower risk of being overweight or obese, respectively, compared to those who lived further from such areas.

It could be that men compensate for being active by eating more, regardless of where they live, but this hypothesis remains to be proven.

There is little doubt that state government investment to enhance green spaces may promote physical activity in middle-to-older-aged adults. This has to be a good thing, but the impact on obesity may not benefit everyone to the same extent.

How can we reduce obesity in low-SES areas?

Our study provides new insights for population health planning. The findings highlight a need for preventive health initiatives to be specific to gender and the socioeconomic attributes of the target population.

We propose that, in areas of highest socioeconomic disadvantage, primary care providers could have more streamlined approaches to direct obese patients to existing weight loss programs. These include the free government-funded, population-based Get Healthy Information and Coaching Service.

In areas of low socioeconomic disadvantage, efforts could be focused on preventing further weight gain in adults, particularly men, who are already in the overweight range.

Encouraging patients to keep a close eye on their weight could be achieved through routine weighing every time they attend their general practitioners. This is an effective strategy and is relatively simple. However, recording of height and weight measures in general practices especially in regional settings is much lower than optimal.

The (large) elephant in the room

The Australian government has been heavily criticised over recent weeks for its lack of commitment to preventing chronic diseases within the primary healthcare system. Less than 2 per cent of health funding is spent on prevention.

As part of the Primary Health Care Review, the 'Healthier Medicare' package focuses on treatment of chronic diseases, but ignores the elephant in the room — prevention of obesity.

Obesity is the most important cause of chronic conditions, including type 2 diabetes and cardiovascular disease. Surely it would make better economic sense to stem the tidal wave of obesity, which brings with it chronic diseases, rather than wait for the already overburdened health system to cope with the increasing prevalence of these conditions.

As well as a health services approach, population-level strategies are urgently required to influence dietary behaviours, with reach across all SES levels.

Other countries are ahead of the game in this regard. For example, Mexico, France, South Africa and, most recently, the UK have implemented sugar taxes on soft drinks. Scandinavian countries and Ireland have legislated a reduction of junk-food marketing to children. In Australia, this relies on voluntary adherence by the food industry.

Perhaps neighbourhoods in pockets of high socioeconomic disadvantage need to carry a health risk message: 'Living here will make you fat'. Or perhaps policymakers need to look at the glaringly obvious health data and shift resources to where they are most needed to prevent obesity.

Source: 'Living here will make you fat' – do we need a public health warning?, Karen Charlton and Abhijeet Ghosh, *The Conversation online*, 4 May 2016. http://theconversation.com/living-here-will-make-you-fat-do-we-need-a-public-health-warning-57119.

Case study review

1. Compared to those in high socioeconomic areas, how much more likely were those in low socioeconomic areas to be obese?
2. What is meant by the term 'obesogenic'?
3. Identify the factors that may contribute to a neighbourhood being obesogenic.
4. Outline variations in health status that occur for low socioeconomic groups as a result of the differences between low and high socioeconomic groups discussed in the article.

Housing

People of low socioeconomic status are less likely to be able to afford high quality housing. As a result, they are more likely to experience:

- overcrowding, which can put strain on sanitation facilities, resulting in an increased rate of infection. Overcrowding can also result in increased rates of psychological distress and mental health disorders.
- inadequate cooking facilities, which can lead to a reliance on processed foods, contributing to higher rates of obesity and associated conditions
- an unsafe physical environment due to hazards such as inadequate ventilation and fire hazards such as unserviced heating appliances and lack of smoke detectors, which increase the risk of injuries and respiratory conditions such as asthma
- closer proximity to industrial sites. This can increase the level of air and noise pollution, which can contribute to respiratory diseases, anxiety and stress.

As smoking rates are higher among low socioeconomic groups, children and non-smoking adults in these groups have an increased risk of exposure to environmental tobacco smoke. This increases the risk of sudden infant death syndrome (SIDS), respiratory diseases such as asthma and other conditions, including cancer and cardiovascular disease. According to AIHW data (2016), children living in households in the lowest SES areas were nearly four times as likely as those in the highest SES areas to be exposed to tobacco smoke in the home (7.2 per cent compared with 2 per cent).

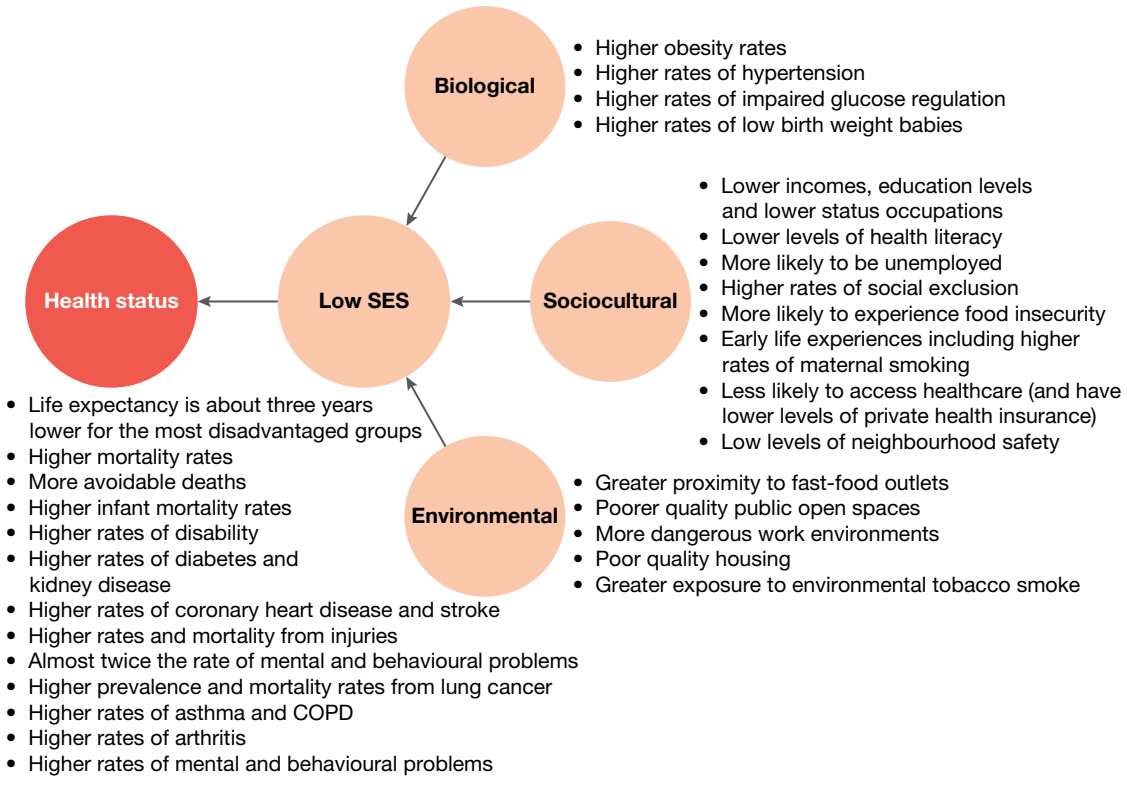
Work environment

People living in socioeconomic disadvantage are more likely to work in jobs that have dangerous working environments, such as factories and manufacturing plants, and involve exposure to toxic substances and heavy machinery. This may contribute to higher rates of illness, injury, respiratory conditions and some cancers.

Summary of factors contributing to variations in the health status between those with high and low socioeconomic status

Figure 4.51 summarises the factors affecting the health status of high and low socioeconomic groups.

FIGURE 4.51 Factors contributing to variations in health status between high and low socioeconomic groups



4.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Identify three differences in health status between low and high socioeconomic status groups.
2. What relationship exists between socioeconomic status and health status?
3. Identify a trend from figure 4.46 and suggest possible reasons for the trend.
4. From table 4.2, which condition shows the biggest difference between high and low socioeconomic status?
5. What is a quintile?
6. Explain the differences in rates of overweight/obesity for lowest and highest quintiles of socioeconomic advantage as shown in figure 4.47.
7. Refer to figure 4.48 to answer these questions.
   (a) What percentage of the most socioeconomically advantaged quintile are smokers, physically inactive and consume sugar sweetened drinks on a daily basis? How does this compare with the most disadvantaged quintile?
   (b) Outline socioeconomic and environmental factors that contribute to the differences identified in part (a).

4.7 Exercise 2 APPLY your knowledge

1. Making reference to biological, sociocultural and environmental factors, discuss why people from lower socioeconomic status groups are more likely to suffer from mental and behavioural problems.
2. (a) Referring to table 4.1, identify a relationship between socioeconomic status and rate ratio of burden of disease.
   (b) Explain how one biological, sociocultural and environmental factor may contribute to the relationship identified in (a).
3. Suggest possible reasons why people from lower socioeconomic status groups may experience higher rates of infant mortality.
4. Many health services (such as screening for breast and cervical cancers) are available free through Medicare, yet people from low socioeconomic status groups are less likely to use them. Suggest possible reasons for this.
5. People who are born into low socioeconomic status families are more likely to belong to low socioeconomic status groups later in life. Draw a cycle diagram illustrating how this may occur.
6. Select two factors from each category (biological, sociocultural and environmental) presented in figure 4.51 and discuss the likely impact on health status for each one.
7. Why might people with a low socioeconomic status be less likely to take notice of health promotion messages?

studyON

4.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

4.8 Differences between those living within and outside of Australia's major cities

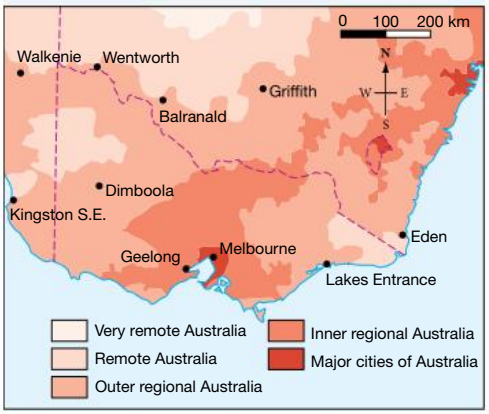
KEY CONCEPT The variations in health status as experienced by those living within and outside of Australia's major cities and the factors that explain the differences

The vast landscape in Australia poses many challenges for its inhabitants. As well as factors influenced by the remoteness in which some people live, such as access to services and social isolation, many people living outside of major cities also experience challenges from the natural environment, such as droughts, bushfires and floods.

Overall, people living outside major cities experience worse health status than their urban counterparts. Many people who live outside major cities are of Indigenous background (65 per cent of Indigenous Australians live outside major cities compared to around 29 per cent of non-Indigenous Australians) and are also more likely to be of lower socioeconomic status. This means that many of the health concerns for people of Indigenous and low socioeconomic status are carried over to those living outside major cities.

Classifying people based on geographical location is difficult in Australia as a result of the various landscapes and characteristics of this vast country. For the sake of this course, the population living inside major cities relates to those living in cities classified as 'major cities' according to the Australian Bureau of Statistics. In Victoria, this includes Melbourne and Geelong. In other states, major cities are Sydney, Newcastle, Wollongong, Tweed Heads and the Tweed Coast, Brisbane, most of the Gold Coast and much of the Sunshine Coast, Adelaide, Perth, and Canberra and Queanbeyan. Hobart and Darwin are not included in the major cities group.

FIGURE 4.52 The two major cities in Victoria are Melbourne and Geelong.



Source: AIHW, *Rural, regional and remote health indicators of health status and determinants of health, March 2008.*

'Those living outside major cities' relates to those in or near regional centres (such as Hobart, Darwin, Bendigo and Ballarat) and those in remote and very remote areas (such as Genoa and Murrayville; note that, unlike other states, Victoria contains no 'very remote' areas). As this definition encompasses many different groups, the variations in health status between those living outside major cities is considerable. Using this classification, about one-third of Australia's population lives outside of major cities (AIHW, 2018): 18 per cent in *Inner regional* areas, 8.9 per cent in *Outer regional* areas, 1.4 per cent in *Remote* areas and 0.9 per cent in *Very remote* areas.

4.8.1 Key differences in health status

Health status decreases as remoteness increases, so those living in remote areas generally experience poorer health outcomes than those living in regional areas.

Those living outside major cities experience the following differences in health status when compared to their major city counterparts:

- lower life expectancy (life expectancy decreases as the level of remoteness increases: one to two years less for rural areas and up to seven years less for remote areas)
- higher burden of disease from both fatal and non-fatal causes. The rate of DALY attributed to each group increases with remoteness (see table 4.3).
- mortality rates 1.4 times higher than those in major cities
- higher rates of preventable cancers (lung, melanoma and detectable cancers, such as cervical cancer)
- higher death rates from cardiovascular disease, including coronary heart disease
- higher rates of avoidable deaths
- higher rates of injury, including a mortality rate 4 times higher than those in major cities for land transport accidents
- higher rates of diabetes
- higher rates of arthritis
- higher rates of suicide
- higher rates of asthma and chronic obstructive pulmonary disease
- higher rates of dental decay.

As can be seen in table 4.3, the DALY age-standardised rate for many conditions increases with remoteness.

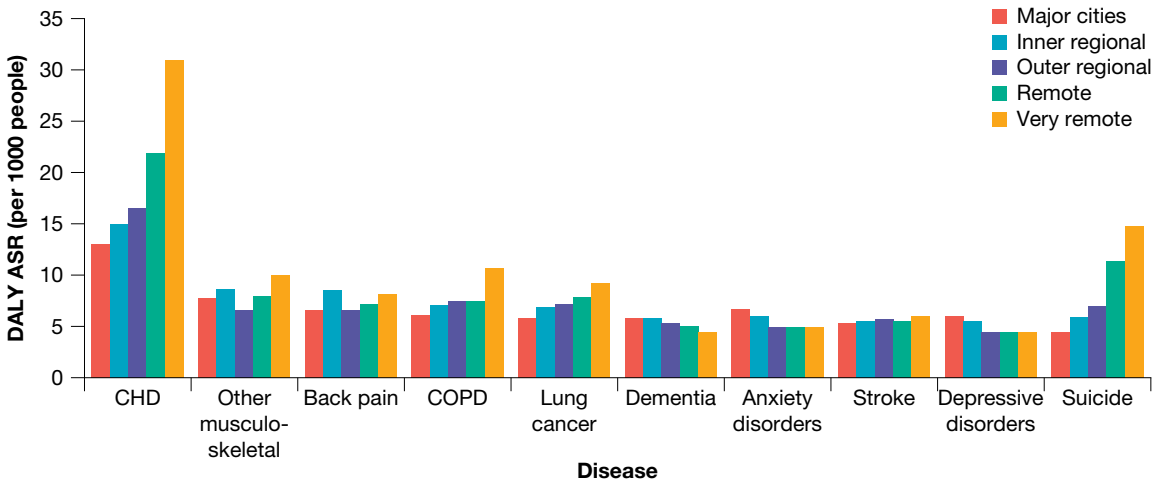
TABLE 4.3 DALY, YLL and YLD counts, age-standardised rates and rate ratios, by remoteness, 2011

	Total burden			Non-fatal burden			Fatal burden		
Remoteness area	DALY ('000)	Age-standardised rate (per 1000 people)	Rate ratio*	DALY ('000)	Age-standardised rate (per 1000 people)	Rate ratio*	DALY ('000)	Age-standardised rate (per 1000 people)	Rate ratio*
Major cities	2961	181.4	1.0	1517	94.2	1.0	1443	87.2	1.0
Inner regional	950	205.3	1.1	450	102.2	1.1	501	103.1	1.2
Outer regional	456	206.8	1.1	202	94.3	1.0	254	112.5	1.3
Remote	73	242.0	1.3	33	107.0	1.1	41	135.0	1.5
Very remote	52	300.8	1.7	20	122.8	1.3	31	178.0	2.0
Australia	**4494**	**189.9**		**2224**	**96.0**		**2270**	**93.9**	

* The rate ratio indicates how many DALY, YLL or YLD were contributed in each area for every 1 DALY, YLL or YLD that was contributed by those in major cities. For example, a rate ratio of 1.7 for total DALY for those in very remote areas indicates that for every 1 DALY contributed by those in major cities, there were 1.7 DALY contributed by those in very remote areas. The rate ratios are scaled to the number of people living in each area and therefore provide a fair way of comparing the total contribution in each area.

Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 86.

FIGURE 4.53 Age-standardised DALY rate (per 1000 people) of the top 10 diseases, by remoteness, 2011



Source: AIHW 2016, *Australian burden of disease study: impact and causes of illness and death in Australia 2011*, p. 95.

4.8.2 Factors contributing to variations in health status for those living within and outside of Australia's major cities

A number of factors contribute to poorer health status due to the location in which people live. People living outside Australia's major cities experience a range of environmental risk factors as well as higher rates of many biological and sociocultural risk factors.

Biological factors

The biological factors that contribute to the variations in health status experienced by those living outside of Australia's major cities include body weight, blood cholesterol, glucose regulation, birth weight, and blood pressure.

Body weight

Levels of high body mass index are higher among those living outside of major cities (about 10 per cent higher than in major cities). This puts this group at higher risk of developing type 2 diabetes, cardiovascular disease and some cancers.

Blood cholesterol

Those living outside of major cities are 10 per cent more likely to experience high blood cholesterol than their city-dwelling counterparts. This contributes to the higher rates of cardiovascular disease, including hypertension, experienced by those living outside Australia's major cities.

Glucose regulation

People living outside of major cities are more likely to experience impaired glucose regulation than those in major cities, and the rate increases with remoteness. This raises the risk of conditions such as type 2 diabetes and kidney disease.

Birth weight

The percentage of low birth weight infants is higher in remote and very remote areas (about 11.8 per cent) compared with rates for those in major cities (6.9 per cent in 2016).

Blood pressure

People living outside of major cities experience higher rates of hypertension (1.2 times the rate of those in major cities). This increases the risk of cardiovascular disease and contributes to the higher burden of disease seen in these areas.

Sociocultural factors

The sociocultural factors that contribute to variations in health status among people living outside of Australia's major cities include socioeconomic status, unemployment, access to healthcare, food security, early life experiences, and social isolation.

Socioeconomic status

Over half of outer regional, remote, and very remote residents live in areas of socioeconomic disadvantage, while the corresponding figure in major cities is about one-quarter. Limited opportunities for education and employment account for part of this difference. This contributes to higher rates of risky behaviours such as smoking and low levels of physical activity. These in turn influence health status outcomes such as rates of preventable diseases, including cancer and cardiovascular disease and lower life expectancy.

People living outside Australia's major cities are more likely to rely on social security payments than those in major cities, indicating that more people struggle financially in rural and remote areas. This can impact on access to an adequate food supply and healthcare.

Unemployment

People living outside Australia's major cities experience higher rates of unemployment compared with those in major cities. Unemployment is one aspect that results in people from rural and remote areas experiencing lower socioeconomic status, which in turn contributes to lower health status.

Access to healthcare

Outside Australia's major cities, it is much more difficult to access healthcare professionals. According to the AIHW (2018), in 2015 the proportion of medical practitioners decreased with increasing remoteness — from 420.5 per 100 000 people in major cities to 251.3 per 100 000 in remote areas. This further reduces access to healthcare for those in rural and remote areas, and contributes to higher morbidity and mortality rates. In addition, if specialist health services are required or hospitalisation is needed, family members often have to take time off work to transport those who are ill to these services. This adds additional costs and increases the level of stress and anxiety experienced.

FIGURE 4.54 For many Australians in remote areas, the Royal Flying Doctor Service is the only access they have to emergency medical care.



Food security

People in rural and remote areas are 1.2 times more likely to experience food insecurity than their city counterparts. This is largely due to high costs and lack of access. Transporting food to remote areas adds significant costs, particularly to fresh foods. This can lead to the consumption of more processed food items with a long shelf life such as canned and packaged foods, which often have high levels of fat, salt and/or sugar. This can contribute to higher rates of obesity, type 2 diabetes and cardiovascular disease.

Early life experiences

According to AIHW data (2018), about one-third (35 per cent) of mothers in very remote areas who gave birth in 2016 smoked during pregnancy — five times the rate in major cities (7 per cent). This contributes to higher rates of low birth weight babies, babies with asthma, and infant and under-five mortality.

Social isolation

People living outside Australia's major cities often have higher rates of community participation and feel like they are part of a community, but they may still be socially isolated due to geographic distances. Social isolation results from a lack of contact with other people such as family, neighbours and friends. Social isolation contributes to higher rates of mental health disorders and suicide as the individual may experience feelings of loneliness and have no-one to talk to in times of trouble.

Environmental factors

Factors within the physical environment that contribute to variations in health status for people living outside Australia's major cities include infrastructure, geographic location, climate and climate change, and work environments.

Infrastructure

In rural and remote areas, roads are generally in poorer condition, driving times and distances are longer, wildlife is more likely to cross the path of vehicles, and roads may be poorly lit at night. All of these factors contribute to higher mortality and morbidity rates due to injuries in these areas.

Many communities in remote areas do not have access to mains water supplies from towns or cities, which is often fluoridated. Non-fluoridated water supplies can increase dental health issues such as dental caries.

Geographic location

Proximity to resources is a significant challenge for many living outside of major cities.

The location of health services can influence whether a person living outside major cities can access healthcare in times of need. Conditions can go undiagnosed and untreated, which can increase morbidity and mortality rates.

The area in which a person lives may determine the type of foods that they can access. Living in remote areas may make it difficult to access fresh food items such as fish, fruit and vegetables. As a result, some people may rely on processed foods, which are often higher in fat, salt and sugar. This can increase the risk of overweight, obesity, cardiovascular disease and type 2 diabetes.

Those living outside Australia's major cities also experience geographical barriers to recreation facilities, transport and employment opportunities. This can contribute to a range of issues such as low socioeconomic status, unemployment, increased risk of morbidity and mortality, and lower life expectancy. Geographical isolation also contributes to social isolation, a sociocultural factor that was explored in the previous section.

Climate and climate change

People living in rural and remote areas may experience greater hardship in regard to climate. Droughts, floods and fires can disrupt farmers and lead to unstable income. This in turn lowers socioeconomic status and increases stress levels. Climate change is also predicted to have a greater impact on those living in rural and remote areas compared to those in major cities (Climate Commission, 2011). Increased frequency of natural disasters such as fires, floods and droughts can affect health status by increasing the risk of injuries and mental health disorders. The relative isolation of people in remote areas can particularly reduce access to support services to deal with climate change.

FIGURE 4.55 Rural and remote Australia poses many challenges for its inhabitants. The natural environment is one of these challenges.



Rainfall patterns in many parts of Australia are unpredictable. For example, for much of the 2010s, many parts of south-eastern Australia, including Victoria, experienced ongoing drought. This reduced the availability of water for agriculture and livestock, which affected the livelihoods of many people living outside major cities. Mental health disorders increased during this time, as did rates of self-harm.

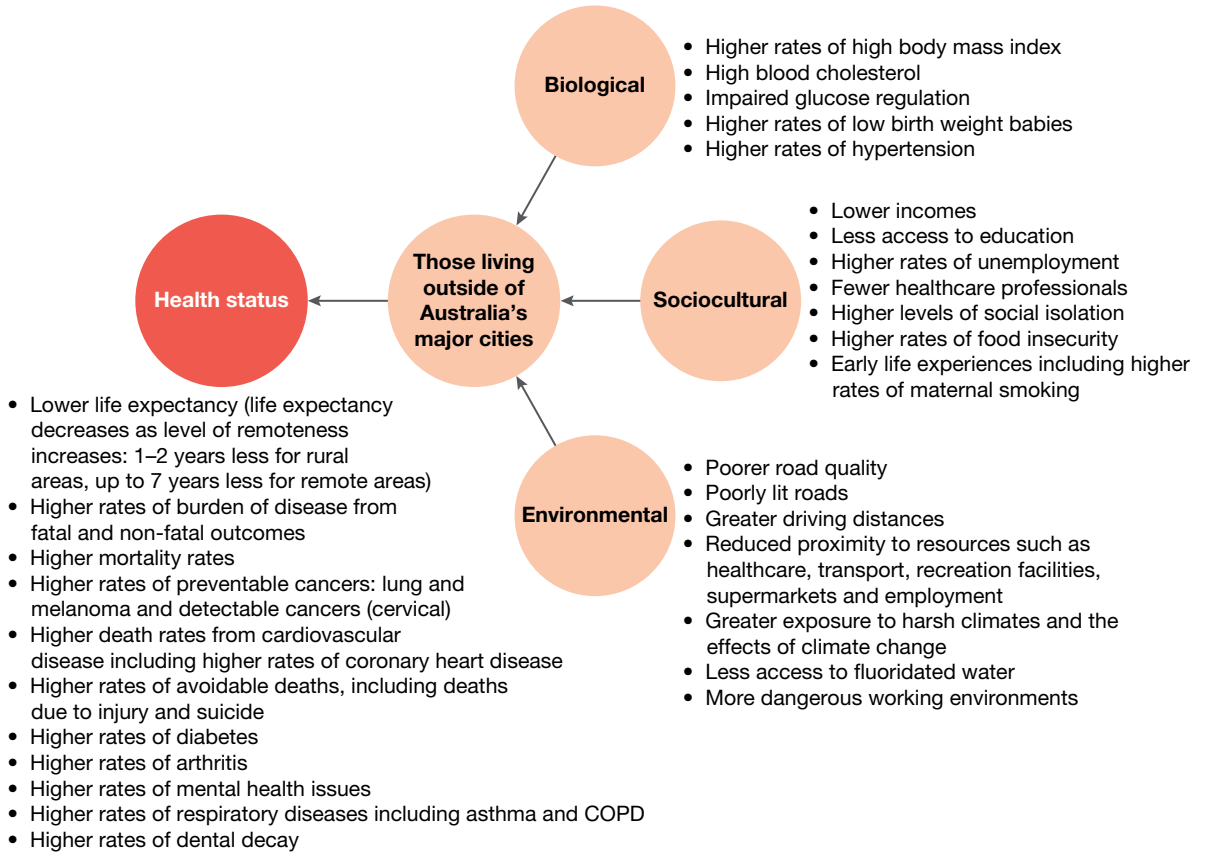
Work environments

Common occupations for those living outside major cities include farming, mining and fishing. All of these industries have certain risks (including a higher risk of injuries) associated with the physical environments in which they occur. According to the AIHW (2005), an undersupply of work may mean that workers accept working conditions that are more hazardous. Many jobs in rural and remote areas are based outdoors, which can increase UV exposure and the incidence of skin cancer.

Summary of factors contributing to variations in health status for those living within and outside of Australia's major cities

Figure 4.56 summarises the factors affecting the health status of those living within and outside of Australia's major cities.

FIGURE 4.56 Factors contributing to variations in health status for those living within and outside of Australia's major cities



4.8 Activities

1. Access the **Losing the farm** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Geography and health status** weblink and worksheet in the Resources tab then complete the worksheet.

4.8 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Outline the relationship between health status and remoteness.
2. Approximately what percentage of Australians live in areas that would be classified as major cities?
3. List three health status concerns of people living outside of major cities in Australia.
4. (a) Why might some families living outside major cities in Australia rely on processed foods to feed themselves?
   (b) What is the disadvantage of relying on processed foods? How can they impact health status?
5. Using data, outline one trend in relation to the burden of disease and remoteness as shown in table 4.3.

4.8 Exercise 2 APPLY your knowledge

1. (a) What proportion of Indigenous people live outside major cities compared to non-Indigenous people?
   (b) Explain how this difference impacts health status data for those living outside of Australia's major cities.
2. What role does the natural environment play in the health status of people living outside of major cities in Australia?
3. Would you expect the health status of those living outside of major cities in Victoria to be better than the health status of those living outside of major cities in Western Australia? Justify your response.
4. Discuss two biological, two socioeconomic and two environmental factors that may contribute to higher rates of cardiovascular disease for people living outside of major cities in Australia.
5. (a) Referring to table 4.3, identify a relationship between remoteness and the rate ratio of the fatal component of burden of disease.
   (b) Discuss three reasons that may account for the relationship identified in (a).

studyON

4.8 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Losing the farm worksheet (doc-32196)
Geography and health status worksheet (doc-32198)

Weblink Losing the farm
Geography and health status

4.9 Topic 4 review

4.9.1 Key skills

KEY SKILLS Analyse patterns in morbidity and mortality in Australia over time

This skill requires the ability to analyse patterns in both morbidity and mortality over time. Analysis is a skill that requires careful examination of patterns presented in data. Often, data are provided to assist in demonstrating this skill. Possible reasons to explain patterns may also be required.

Relevant WHO prerequisites (explored in topic 1) and factors explored in topics 2 and 3 can be used to explain patterns in morbidity and mortality over time.

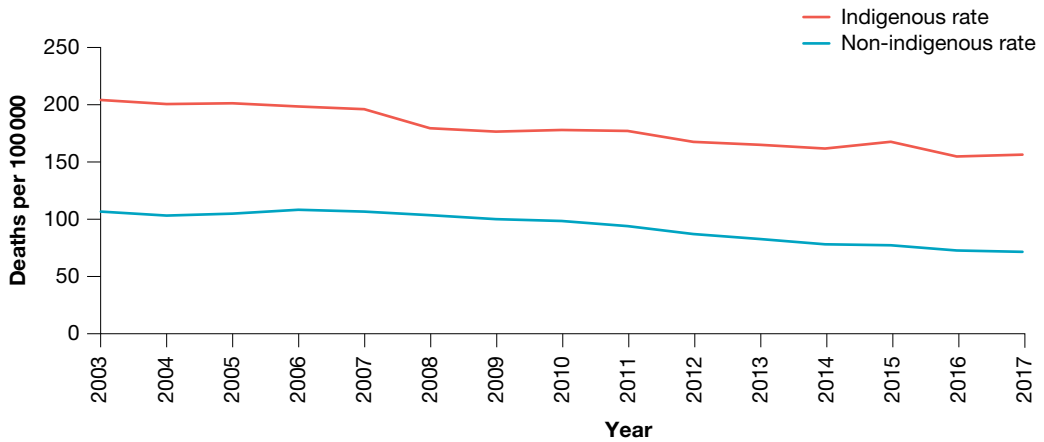
The following example identifies patterns in the under-five mortality rate for Indigenous and non-Indigenous children over time (see figure 4.57).

The rate for Indigenous children fluctuated over time, but decreased overall from around 205 per 100 000 people in 2003 to around 170 per 100 000 in 2017. For non-Indigenous, the rate remained more stable and decreased gradually from around 105 per 100 000 in 2003 to around 70 per 100 000 in 2017.[1]

1 The data are analysed and the pattern in the under-five mortality rate over time is described with the use of data.

Once the patterns in mortality are discussed, an explanation of possible reasons for the trends may be required. Read the question carefully to ensure the reasons are appropriate to the focus of the question. In this example, the decrease in under-five mortality rates in Australia is the focus of the discussion, and reasons for the difference in under-five mortality rates between Indigenous and non-Indigenous Australians will not receive marks as this information is not relevant here.

FIGURE 4.57 Child mortality rates for children aged under five, by Indigenous status, 2003–17



Source: http://stat.data.abs.gov.au/Index.aspx?DatasetCode=DEATHS_INDIGENOUS#

If the question asks you to provide possible reasons for the patterns identified in figure 4.57, the following would be suitable:

Education[2]— education relating to maternal nutrition and the importance of maternal healthcare may have improved over time. This can mean that babies are more likely to develop optimally, which decreases the under-five mortality rate.[3]

Access to healthcare[4] — improvements in access to and quality of healthcare can mean that conditions may be prevented more easily, and this may have contributed to decreased under-five mortality rates in Australia over time.[5]

2 The first factor is identified.

3 The factor is used to explain the decrease in the under-five mortality rate in Australia over time.

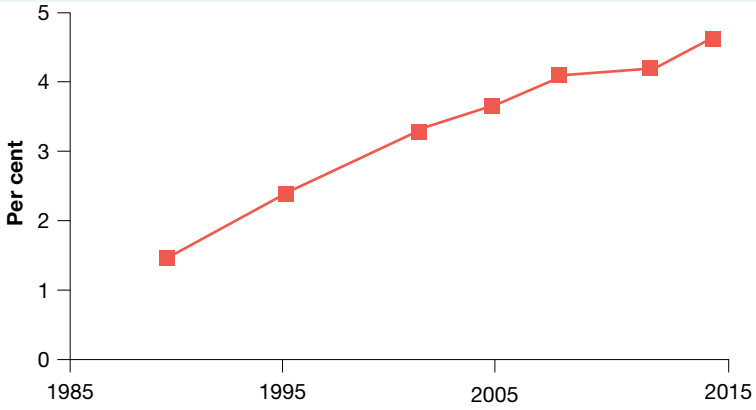
4 A second factor is identified.

5 The second factor is used to explain the decrease in the under-five mortality rate in Australia over time.

Practise the key skill

1. Describe the pattern in the prevalence of diabetes as shown in figure 4.58.
2. Identify two factors and explain how each may have contributed to the pattern described in question 1.

FIGURE 4.58 Prevalence of diabetes over time



Source: AIHW, *Diabetes indicators, Australia.*

KEY SKILL Analyse health information to explain factors that contribute to variations in health status between population groups

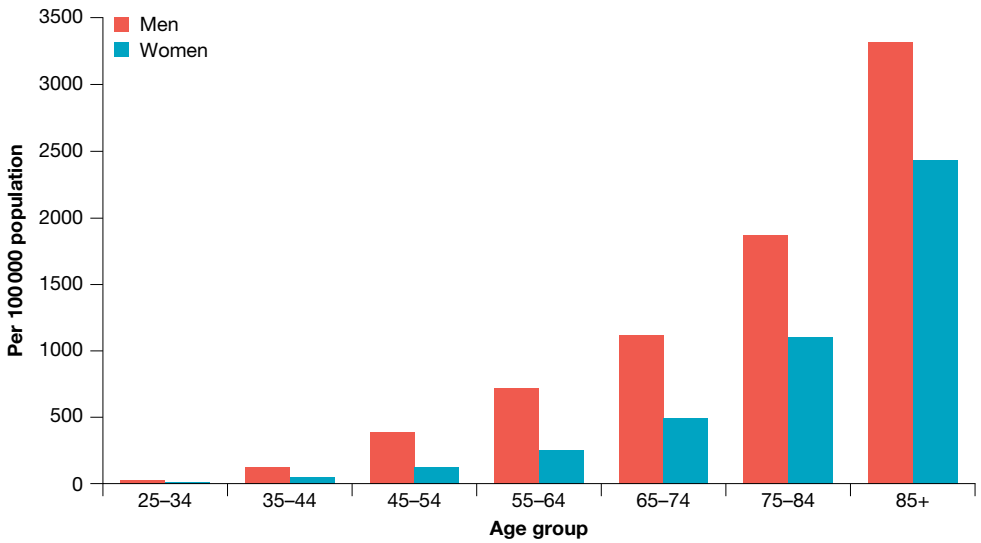
Analysing health information and having knowledge about the factors that contribute to the variations in health status is important so that interventions can be put in place to promote health status for all.

Analysing health information is the first step in this skill — such analysis is required to identify differences in health status and/or risk factors that exist between population groups. In addition to differences in health status and/or risk factors, health information may relate to differences between two groups over time. Information can be presented in many different forms including written text, graphs, tables and charts. Practising identifying trends, similarities and differences in health status and/or risk factors is important to develop this skill.

The possible impacts of a range of factors on health status must be understood so reasons for differences in health status can be explained. Once these are known, it is possible to identify and explain the factors that may contribute to specific differences in health status between groups.

For example, if information relating to rates of heart attacks for males and females were provided (see figure 4.59), the factors that may have led to the differences between males and females could be discussed.

FIGURE 4.59 Rates of heart attacks among people aged 25 years and over, 2013



Source: AIHW, *Australia's health 2016*, p. 388.

Males had higher rates of heart attacks than females for each age group.[6] For example, the rate of heart attack for males in the 35–44 age group was around 100 per 100 000 population compared to around 30 per 100 000 for females. In the 65–74 age group, the rate for males was around 1100 per 100 000 compared to around 500 per 100 000 for females in the same age group.[7]

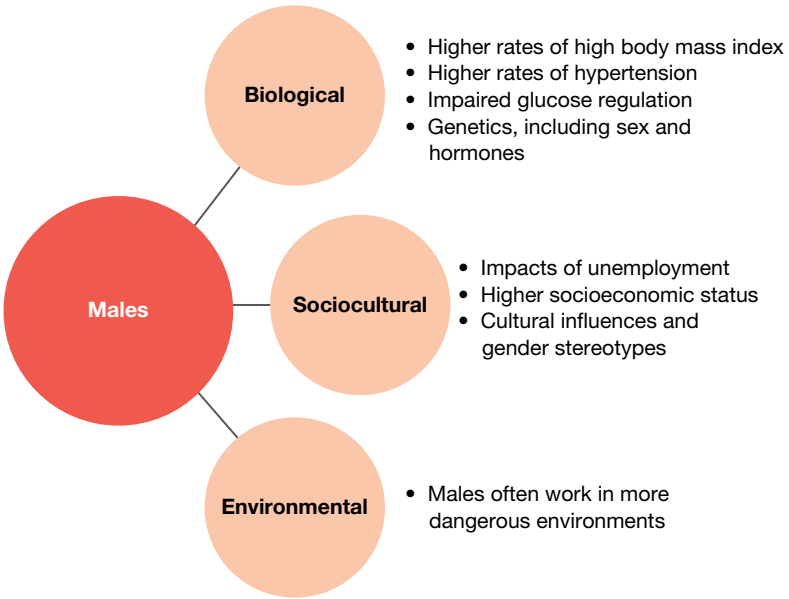
6 An overall statement relating to the difference in rates of heart attack between males and females is made.
7 Data is used to support the initial statement.

The next step is to brainstorm factors that contribute to differences in health status between males and females (see figure 4.60).

Once a list of options has been created, the ones that contribute to differences in the rates of heart attack can be used as the basis for discussion. Choose factors that are easy to discuss in terms of their relationship to heart attack.

The next step in this process is to re-read the question. Can any factors be used for the discussion, or did the question specify that particular factors (i.e. biological, sociocultural or environmental) had to be used? In this case, biological and sociocultural factors must be used in the discussion. If no types of factors are specified, it is recommended to include a mix of biological, sociocultural and/or environmental factors to demonstrate a greater level of understanding.

FIGURE 4.60 Factors contributing to differences in health status between males and females



The conclusion can be drawn that there are numerous factors that could contribute to the differences in heart attack rates as experienced by males compared to females:

- Biological[8] — males are more likely to store fat around the abdomen compared to females. Fat stored around the abdomen increases the risk of heart attack and may contribute to the difference in the rate of heart attacks experienced between males and females.[9]

8 The appropriate category of factor is identified.
9 A specific biological factor is identified and linked to the difference in heart attack rates between males and females.

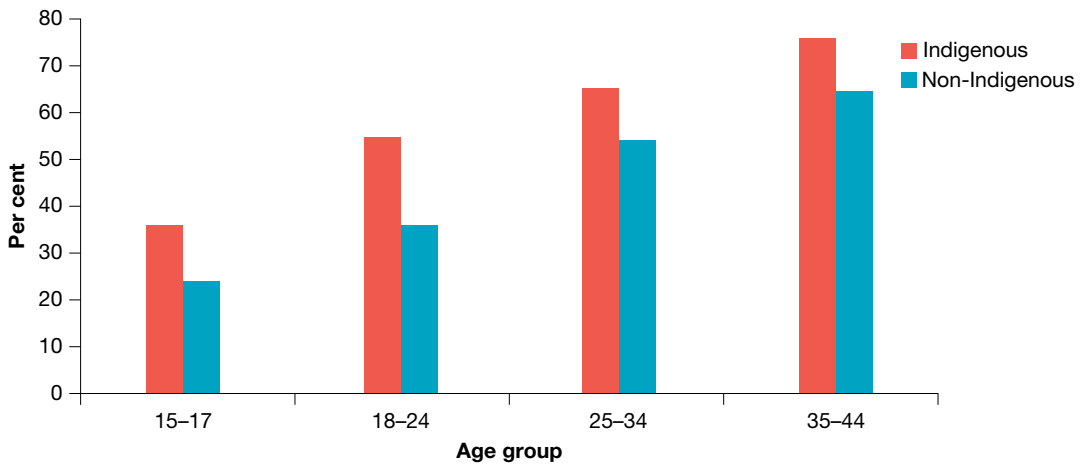
- Sociocultural [8]— gender stereotypes and peer pressure play a role in health outcomes for males compared to females. Males are often portrayed as having to be strong, and this contributes to males being less likely to access healthcare. As a result, risk factors for heart attack such as hypertension may go untreated, and this can increase the rate of heart attacks for males compared to females.[10]

10 A sociocultural factor is identified and linked to the difference in rates of heart attack between males and females.

Practise the key skill

3. Identify two trends within the overweight/obesity rates shown in figure 4.61.
4. Using two biological, sociocultural and/or environmental factors as a basis of your discussion, discuss possible reasons for the difference in rates of overweight/obesity between Indigenous and non-Indigenous Australians.

FIGURE 4.61 Proportion of overweight/obese Australians aged 15–44, by Indigenous status and age group, 2012–13



Source: ABS, *Australian Aboriginal and Torres Strait Islander health survey: first results, Australia, 2012–13.*

4.9.2 Topic summary

Biological factors contributing to variations in health status

- There are three categories of factors that influence health status: biological, sociocultural and environmental. These factors influence overall health and wellbeing and lead to variations in health status between individuals and population groups.
- Factors affecting health are interrelated and can affect each other. For example, lack of education (sociocultural) can contribute to obesity (biological) by not having the knowledge and skills to consume healthy foods.
- Biological factors include factors that usually have both genetic and lifestyle causes. Examples include body weight, blood pressure, blood cholesterol, glucose regulation, birth weight, sex and hormones.
- High body mass index is a risk factor for a range of conditions including high blood pressure, impaired glucose regulation, cardiovascular disease, some cancers, respiratory problems, type 2 diabetes, arthritis and mental health problems.
- High blood pressure is one of the leading contributors to the overall burden of disease in Australia.
- Excessive cholesterol production can be caused by genetics and poor diet, and elevated cholesterol levels are associated with a range of cardiovascular conditions.

- Impaired glucose regulation is becoming more common in Australia and can be thought of as a precursor to type 2 diabetes.
- Babies born with a low birth weight (under 2.5 kilograms) are more likely to have an underdeveloped immune system, making them more susceptible to infections. Low birth weight also increases the risk of some conditions later in life including hypertension, type 2 diabetes and cardiovascular disease.
- Genetic factors such as sex and hormones all play a role in putting people at greater risk of, or protecting them from, ill health.

Sociocultural factors contributing to variations in health status

- Sociocultural factors include socioeconomic status (SES), unemployment, social exclusion, social isolation, cultural norms, food security, early life experiences, and access to culturally appropriate, affordable healthcare.
- Socioeconomic status (SES) refers to a person's income, occupation and education in relation to others in their society. People with low socioeconomic status (SES) generally have poorer health status.
- Unemployment can lead to stress and financial hardship. People without secure employment are at higher risk of a range of health issues.
- Social exclusion occurs when a person cannot or does not participate adequately in the society in which they live. Social exclusion often forms part of a vicious cycle with other health issues such as mental illness.
- Social isolation occurs when individuals are not in regular contact with others. Social isolation increases the risk of mental health issues and psychological distress.
- Cultural norms include customs, ideas, values and traditions of particular social groups. Examples include factors relating to gender stereotypes, dietary choices, attitudes towards employment, education and healthcare, all of which impact health status.
- Food availability and affordability (called food security) has a relationship with health status. Those who cannot afford or access healthy foods are at higher risk of chronic conditions.
- Early life experiences impact health status in both the short and long term. Maternal tobacco, alcohol and drug use, and maternal nutrition and exposure to certain chemicals, bacteria and viruses during pregnancy can contribute to a range of health issues in the individual after birth and into adulthood.
- Being able to access affordable and culturally appropriate healthcare is an important part of promoting health status. Many conditions can be avoided or treated effectively with regular check-ups and early diagnosis.

Environmental factors contributing to variations in health status

- Environmental factors relate to the physical environment and include housing, work environment, urban design and infrastructure, climate and climate change.
- The housing environment can promote or detract from health and wellbeing. Poor quality housing is associated with higher rates of injury, mental health problems and infectious diseases.
- Many Australians are employed and spend significant periods of time in their work environment. All working environments have associated risks. Factors such as UV exposure, accidents and injuries, and exposure to hazardous substances can all impact on health status.
- Urban design and infrastructure relate to the features and structures in the areas in which people live. They include aspects such as geographical location of resources (including healthcare), and the quality of infrastructure relating to roads and transport systems, electricity and communications systems, water and sanitation.
- Australia's varying climates affect health status. Aspects such as extreme temperatures, rainfall patterns, and natural disasters such as bushfires, floods, droughts and high winds all affect Australian communities.
- Like all countries, Australia is experiencing a change in climate. The resulting greater extremes in climate and increased frequency of natural disasters can affect health status in numerous ways.

Differences between Indigenous and non-Indigenous population groups

- Even though health status is generally good in Australia, there are certain population groups who do not share the same level of health as the rest of the population.
- Indigenous Australians, males, people from lower socioeconomic status groups and those living outside of Australia's major cities suffer worse health status in relation to almost all health indicators.
- Indigenous people have higher death rates at every age compared with non-Indigenous people.
- The life expectancy of Indigenous people is about ten years less than that of the non-Indigenous population.
- Indigenous people suffer from cardiovascular disease, cancer, type 2 diabetes, kidney disease and asthma at significantly higher rates than the rest of the population.
- The factors that contribute to Indigenous people's lower health status are complex, but include higher rates of low birth weight babies, overweight/obesity, poor housing conditions, low socioeconomic status and social exclusion.

Differences between male and female population groups

- Men are more likely to die at every stage of the lifespan when compared with women.
- Males experience higher mortality rates due to cardiovascular disease, cancer, injuries and diabetes.
- Males experience lower rates of osteoporosis, arthritis and mental health disorders.
- The factors that contribute to the poor health status of males include overweight, hypertension, impaired glucose regulation, genetics, cultural stereotypes, peer pressure and work environments.

Differences between high and low socioeconomic status population groups

- Generally, the higher the socioeconomic status, the better the health status.
- People with low socioeconomic status have lower life expectancy and higher mortality rates than those with a higher socioeconomic status.
- People with low socioeconomic status also experience higher rates of many conditions such as cardiovascular disease, cancer and diabetes.
- Some of the factors contributing to the lower health status of those with low socioeconomic status include obesity, a higher rate of low birth weight babies, lower levels of education, poorer housing including greater exposure to environmental tobacco smoke, and less access to and use of healthcare services.

Differences between those living within and outside of Australia's major cities

- People living outside of major cities experience higher mortality rates and higher rates of conditions such as cancers, cardiovascular disease and diabetes.
- People living outside of major cities face a number of challenges to their health and wellbeing such as the natural environment, the nature of work in these areas and geographical barriers.
- Other factors contributing to the lower health status experienced by people living outside of major cities include higher levels of obesity, dangerous occupations, social isolation, food insecurity and lack of access to healthcare services.
- People living outside of major cities consist of relatively high numbers of Indigenous Australians and people from low socioeconomic status groups, which contributes to the poorer health status of people in rural and remote areas.

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4.9 Exercise 1 Exam preparation

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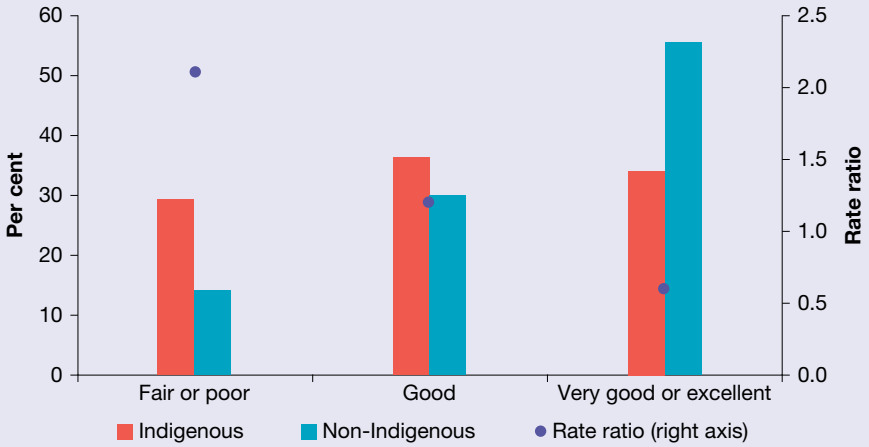
Question 1

Refer to figure 4.62.

a. Outline the difference in the proportion of indigenous and non-Indigenous Australians who assess their health status as fair or poor. **(1 mark)**

b. Identify two factors and explain how each contributes to the difference outlined in part (a) **(4 marks)**

FIGURE 4.62 Self-assessed health status among people aged 15 and over, by Indigenous status, 2012–13



Source: AIHW 2015, *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2015*, p. 83.

Question 2

Those from low socioeconomic groups experience a significantly higher U5MR than those in high socioeconomic groups.

Identify two factors and explain how each contributes to a higher U5MR among low socioeconomic groups when compared to high socioeconomic groups. **(4 marks)**

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Interactivities Crossword (int-6885)
Definitions (int-6886)

School-Assessed Coursework Unit 3 AOS 1 Outcome 1

Area of Study 1 Understanding health and wellbeing

Outcome 1

Explain the complex, dynamic and global nature of health and wellbeing, interpret and apply Australia's health status data and analyse variations in health status.

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Digital document School-Assessed Coursework 1 (doc-31793)



5 Changes in Australia's health status

5.1 Overview

Key knowledge

- Improvements in Australia's health status since 1900 and reasons for these improvements, focusing on policy and practice relating to:
  - 'old' public health
  - the biomedical approach to health and improvements in medical technology
  - development of 'new' public health including the social model of health and Ottawa Charter for Health Promotion
  - the relationship between biomedical and social models of health

Key skills

- Analyse data that show improvements in health over time and draw conclusions about reasons for improvements
- Analyse the strengths and limitations of biomedical and social models of health in bringing about improvements in health status

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 5.1 Since 1900 there has been a shift in Australia, from a biomedical approach to health to a focus on health promotion.



KEY TERMS

Antenatal relates to the medical care given to pregnant women before their babies are born

Biomedical approach to health focuses on the physical or biological aspects of disease and illness. It is a medical model practised by doctors and health professionals and is associated with the diagnosis, treatment and cure of disease.

Bubonic plague an infectious disease that is caused by bacteria transmitted to humans by fleas from infected rats

Cardiovascular diseases diseases that affect the heart and blood vessels in the body and interfere with the circulation of blood throughout the body

CT scans computed tomography scan, which is a specialised x-ray taken from many different angles to build a three-dimensional picture of the body

Fertility rates the number of live births per 1000 women aged 15–49 in one year

Health promotion the process of enabling people to increase control over, and to improve, their health

Infectious diseases diseases caused by micro-organisms, such as bacteria, viruses, parasites or fungi, that can be spread, directly or indirectly, from one person to another

Intersectoral collaboration having groups from many sectors, such as government, health and the private sector, working together to achieve a common goal

Life expectancy the number of years of life, on average, remaining to an individual at a particular age if death rates do not change. The most commonly used measure is life expectancy at birth (AIHW, 2018).

New public health an approach to health that expands the traditional focus on individual behaviour change to one that considers the ways in which physical, sociocultural and political environments impact on health. Also referred to as the social model of health.

Old public health government actions that focused on changing the physical environment to prevent the spread of disease, such as providing safe water, sanitation and sewage disposal, improved nutrition, improved housing conditions and better work conditions

Ottawa Charter for Health Promotion an approach to health developed by the World Health Organization that aims to reduce inequalities in health. It reflects the social model of health and provides five action areas that can be used as a basis for improving health status, all of which are centred around three strategies for health promotion which are enabling, mediating and advocacy.

Palliative care an approach designed to improve the quality of life of patients with a life-threatening illness with little or no prospect of a cure. This is achieved through the prevention and relief of suffering and the treatment of pain.

Pandemic the spread of infectious disease through human populations across a large region such as multiple continents or worldwide

PET scan involves having an injection of a small amount of radioactive material, which enables a scanner to build up a picture of the body

Public health the ways in which governments monitor, regulate and promote health and wellbeing and prevent illness

Quarantine laws that require a person, animal, plant or any type of material that might be carrying an infectious agent to be kept isolated to prevent the spread of disease

Sanitation the process of eliminating contact between humans and hazardous wastes, including human and animal faeces and urine, solid wastes, domestic wastewater (sewage and grey water), industrial wastes and agricultural wastes

Social model of health an approach that recognises improvements in health and wellbeing can only be achieved by directing effort towards addressing the physical, sociocultural and political environments of health that have an impact on individuals and population groups

Syphilis a bacterial infection usually spread by sexual contact. Without treatment, it can damage the heart, brain or other organs, and can be life threatening. It can be passed from mother to an unborn child.

Venereal disease a disease contracted by sexual intercourse with a person already infected; a sexually transmitted infection

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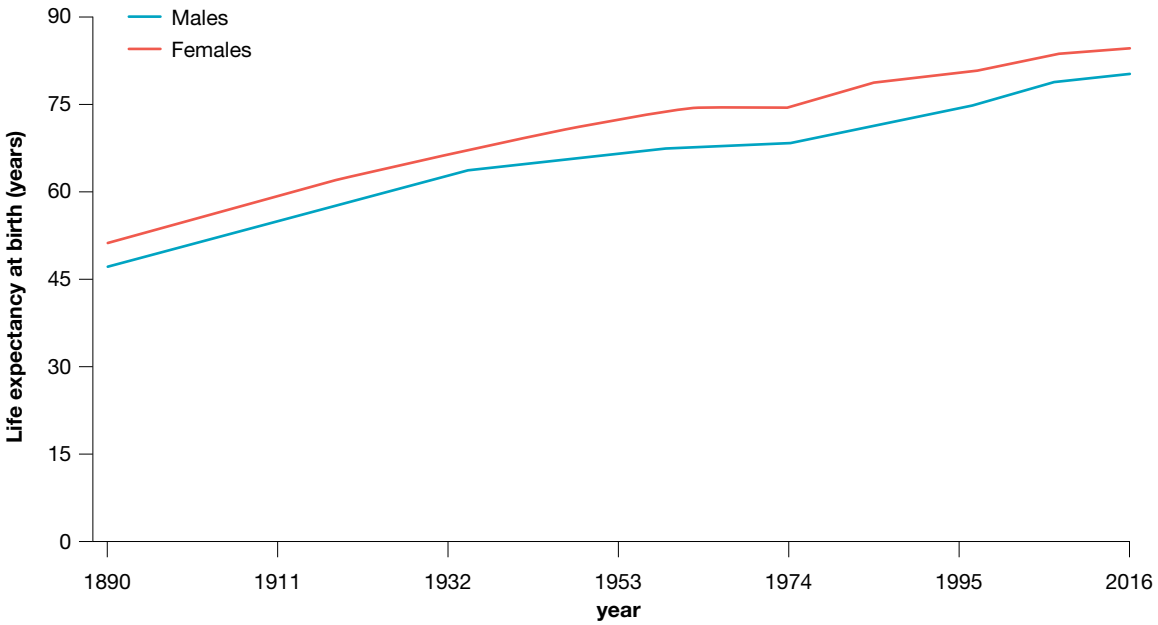
5.2 Changes in Australia's health status over time

KEY CONCEPT Understanding the changes in Australia's patterns of disease

5.2.1 Life expectancy

Since the beginning of the 1900s, the patterns of disease and illness that affect the Australian population have changed considerably. **Life expectancy** is a common health indicator used to measure health status within countries and population groups. Life expectancy data over time shows that significant improvements in health status have been made, with males expected to live 80.5 years in 2017 compared to 53.8 years in 1900. Similarly, females in 2017 had a life expectancy of 84.6 years compared to 57.5 years in 1900 (see figure 5.2). This represents an increase in life expectancy at birth over this time of around 40 per cent. A major reason for this trend has been the massive decline in mortality among children aged 0–4 years, particularly for infants aged under one year (see table 5.1)

FIGURE 5.2 Life expectancy at birth, by sex, in Australia, 1890–2016



Source: AIHW, *Australia's health 2018*, https://www.aihw.gov.au/reports/life-expectancy-death/deaths-in-australia/contents/life-expectancy.

Despite the increase in life expectancy since 1900, the gains have not been consistent. An examination of the data on which figure 5.2 is based reveals that there was a steady increase in the years leading up to 1961, with life expectancy at birth increasing by 14 years for males and 17 years for females. However, between 1961 and 1972, life expectancy at birth tended to even out or plateau. Male life expectancy fell slightly (67.9 to 67.8 years), while for females there was only a small improvement (74.2 to 74.5 years). It was during this time that

TABLE 5.1 Infant mortality rates per 1000 live births, 1912 and 2016

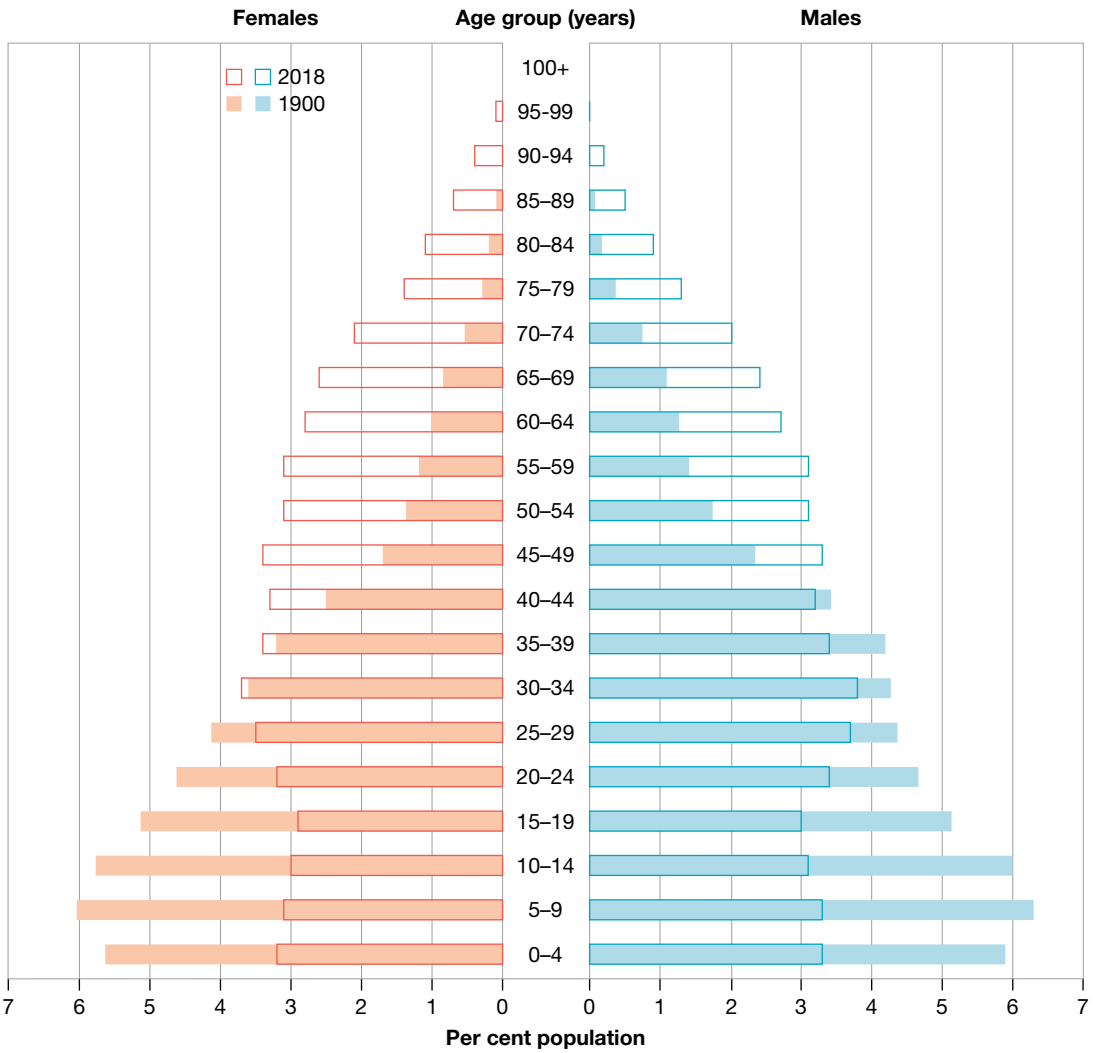
	Males	Females
1912	80	63
2016	3.4	2.8

Source: AIHW and ABS data.

deaths from **cardiovascular diseases** reached their highest level, and other lifestyle diseases such as cancer were much more prevalent.

Since 1972, life expectancy at birth has continued to increase. There have also been considerable gains in life expectancy for those aged 65 or more, increasing by 5.2 years for males and 4.9 years for females. For those aged 85, gains of 1.5 years and 1.8 years respectively have been achieved. Accompanied by lower **fertility rates** over this time, the age profile of the population has also changed since 1900 (see figure 5.3).

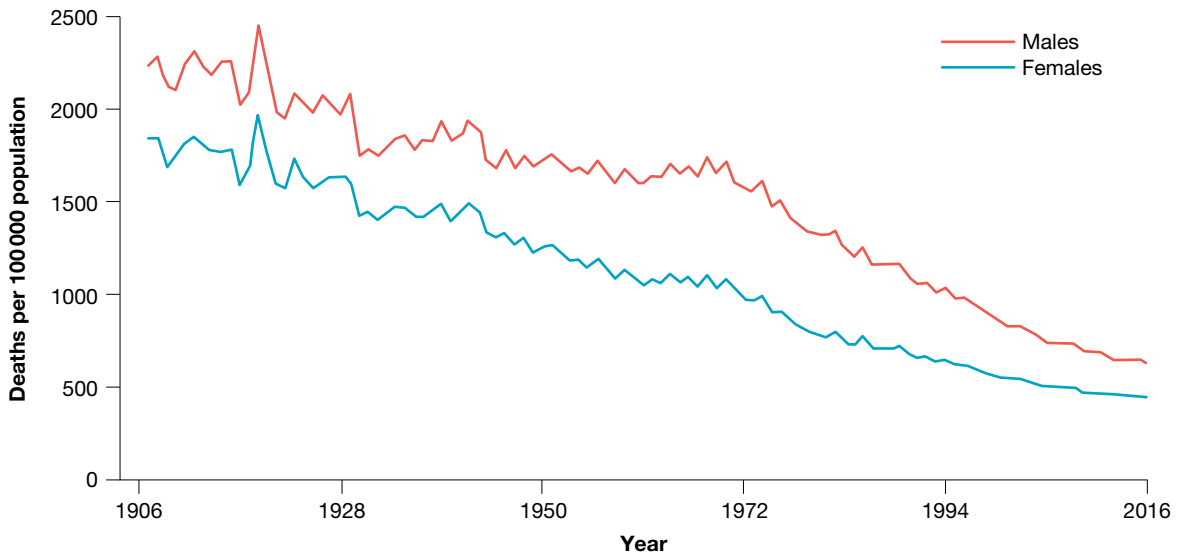
FIGURE 5.3 Age profile of Australia's population, 1900 and 2018



Source: AIHW 2005, *Mortality over the twentieth century in Australia: trends and patterns in major causes of death*, p. 14.

Corresponding to increases in life expectancy, death rates have also decreased. They fell by 71 per cent for males between 1907 and 2016, and by 76 per cent for females over the same time (see figure 5.4).

FIGURE 5.4 Age-standardised death rates for all causes, by sex and year, 1907–2016



Source: AIHW, 2018, *Deaths in Australia*.

5.2.2 Patterns of mortality

While there have been changes in death rates and life expectancy since 1900, there have also been changes in the patterns of mortality (the types of diseases that kill us). Diseases that were common in Australia during the first half of the twentieth century are in many ways different from those that Australians face now. They can, however, be grouped into five broad categories. Together these diseases accounted for around 60 per cent of all deaths at the start of the century and 83 per cent at the end. These broad categories are infectious and parasitic diseases, cancers (neoplasms), cardiovascular diseases, injury and poisoning, and respiratory diseases. However, their contribution to the overall death rates since 1900 have changed.

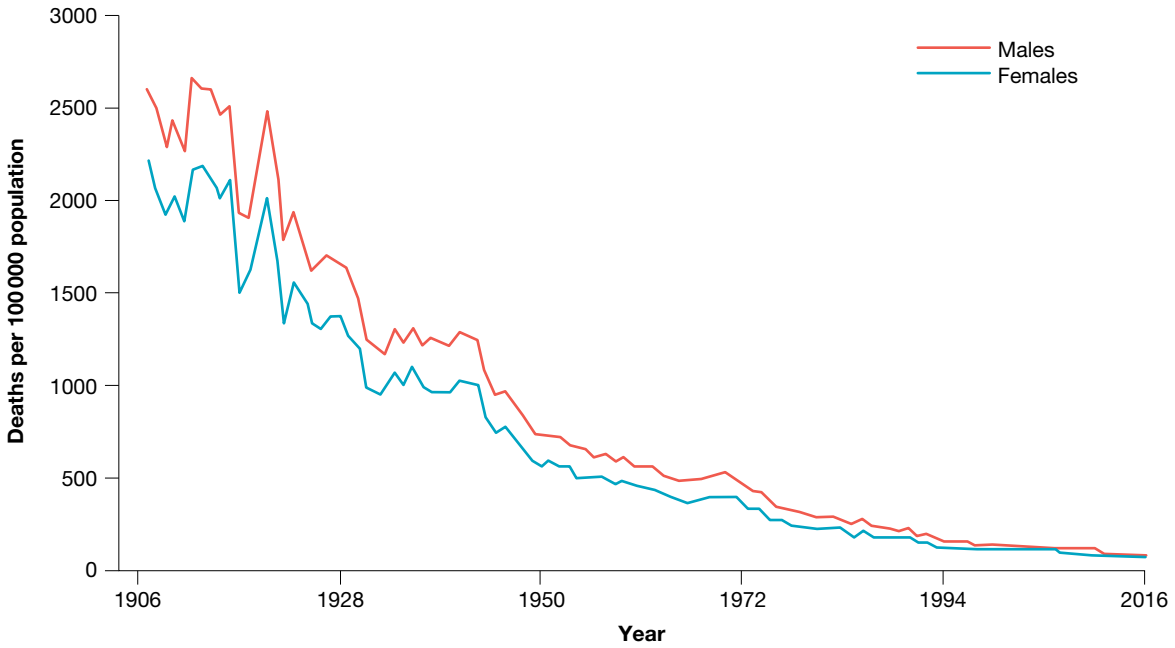
Infectious and parasitic diseases

Infectious diseases can be transmitted from one person to another. They include diseases such as tuberculosis, polio, smallpox, hepatitis, and sexually transmitted infections such as **syphilis** and other **venereal diseases**. Parasitic diseases occur when parasites — such as worms, skin mites, body lice and protozoa — enter the body through contaminated food or water, or from contact with others who have parasites on their skin or hair. Once in the body, the parasites can cause sickness and in some cases death. Infectious and parasitic diseases were the most common causes of death in Australia in the first part of the twentieth century, contributing to 13 per cent of all deaths. Living conditions at that time were quite different; water and food supplies were often contaminated and rubbish littered the streets, and public facilities such as sewage disposal, safe water and controls over food supplies were not well established.

These conditions led to outbreaks of diarrhoea and diseases including cholera, smallpox, polio, tuberculosis, measles, whooping cough and diphtheria, all of which had the greatest impact on children. In 1911, gastroenteritis, diphtheria, scarlet fever, whooping cough and measles were responsible for the death of one in every 30 live-born children. This led to high rates of infant mortality (see figure 5.5). Deaths of children aged 0–4 years accounted for more than 25 per cent of all deaths at that time.

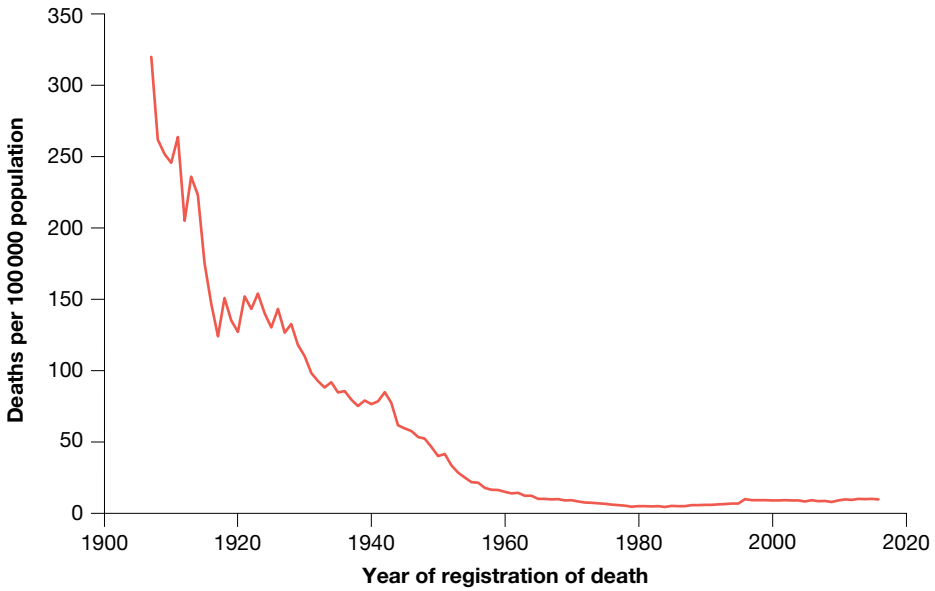
Death rates for both diarrhoea and tuberculosis fell dramatically over the twentieth century. Corresponding with this was a reduction in death rates from infectious diseases since 1900. However, in the last part of the twentieth century, diseases such as HIV/AIDS and hepatitis C were responsible for an increase in death rates from infectious and parasitic diseases (see figure 5.6).

FIGURE 5.5 Deaths of children aged 0–4, 1907–2016



Source: AIHW 2016, *Deaths in Australia.*

FIGURE 5.6 Age-standardised rate from infectious and parasitic diseases, by year, 1907–2016



Source: AIHW, Grim books.

Cancer (neoplasms)

Cancer death rates increased throughout the twentieth century, reaching a peak in the mid-1980s before falling gradually between 2000 and 2016. This rise was due to an increase in lung cancer for which the uptake in cigarette smoking in the 1920s was responsible. For males, cancer death rates peaked during the 1980s at nearly 290 deaths per 100 000 population, then fell to 247 deaths per 100 000 in 2000. This decline reflected the reduction in male smoking rates that started to occur in the mid-1970s.

Stomach cancer was the largest cause of cancer deaths in the 1920s and this decreased for both males and females in subsequent years.

Cardiovascular disease

Cardiovascular diseases (also known as circulatory disease), involve the heart and blood vessels, and interfere with how the blood is circulated throughout the body. Two of the most significant forms of cardiovascular diseases are ischaemic heart disease (coronary heart disease, notably heart attack) and cerebrovascular disease (mainly stroke). Since 1900, these diseases have been one of the major causes of death. Death rates from cardiovascular diseases increased and reached their peak in the mid-1960s. Although there has been a decline in death rates from cardiovascular diseases since then, they continue to be one of the major causes of death in Australia (see figure 5.7).

FIGURE 5.7 Age-standardised death rates for cardiovascular diseases, by year, 1907–2016



Source: AIHW, Grim books.

Respiratory diseases

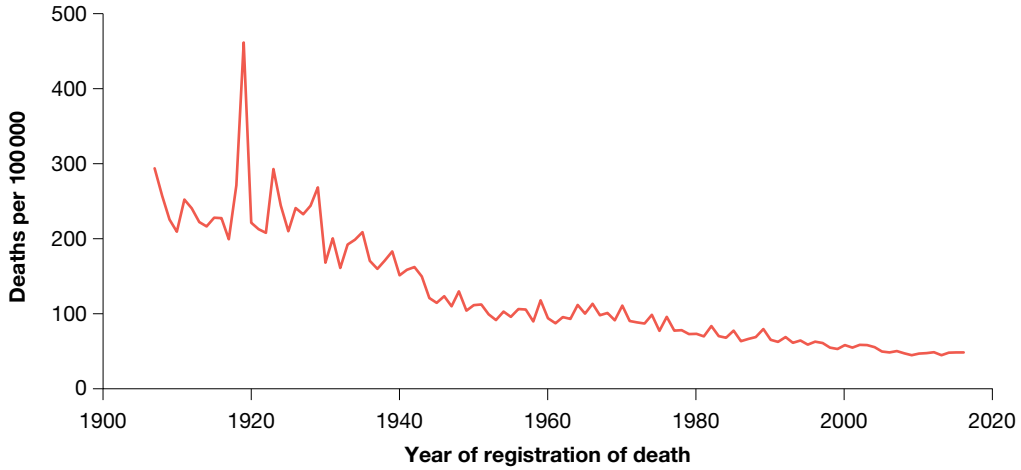
Respiratory diseases are diseases affecting the lungs and other parts of the body that are involved in breathing. They include pneumonia, influenza, asthma and chronic obstructive pulmonary disease (COPD). Pneumonia and influenza were the major causes of death from respiratory diseases in 1907 but were replaced by deaths from chronic obstructive pulmonary disease by 2000. Apart from the 1919 Spanish influenza **pandemic** (represented by the spike in figure 5.9), death rates from respiratory diseases fell dramatically across the century, and by 2000 were less than 10 per cent of 1907 levels. Pneumonia deaths also fell considerably since 1900.

FIGURE 5.8 A flu ward during the Spanish Flu epidemic of 1918–19



In the early part of the twentieth century, deaths from respiratory infections were common among those who worked in the mining industry, where few occupational health and safety regulations were in place to protect workers from the effects of inhaling the mining dust.

FIGURE 5.9 Age-standardised death rates for diseases of the respiratory system, by year, 1907–2016

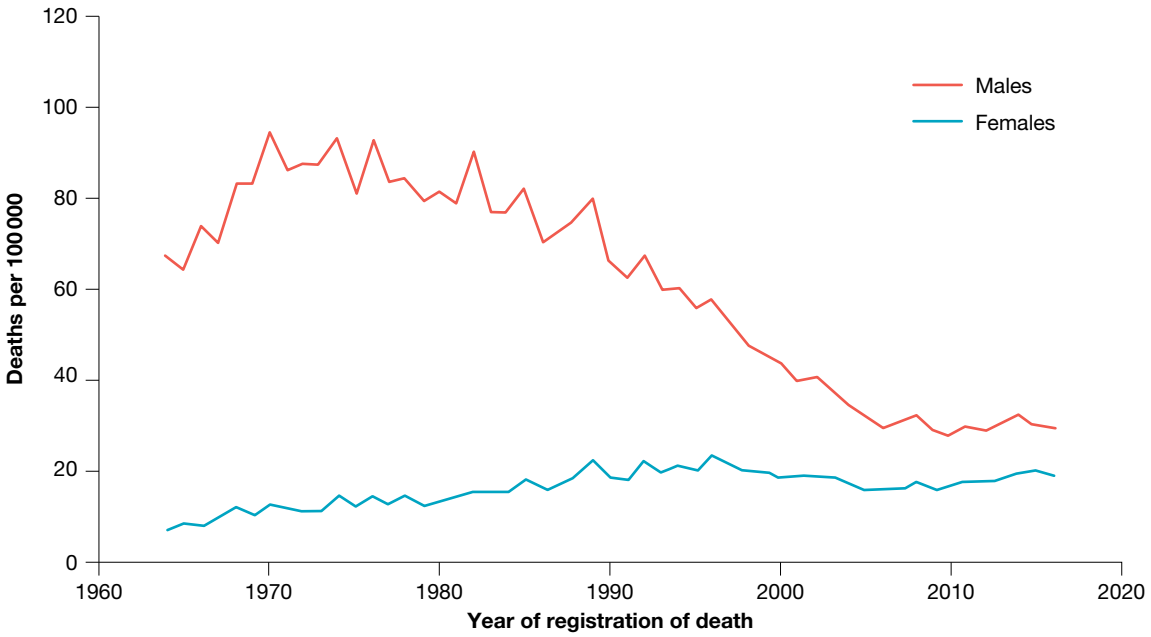


Source: AIHW, Grim books.

Deaths due to asthma decreased in the first half of the twentieth century, before three peaks in asthma mortality occurred in the 1950s, 1960s and late 1980s. Since the 1980s, deaths due to asthma have reduced by 70 per cent.

Deaths due to chronic obstructive pulmonary disease increased among males in the late 1960s and then decreased significantly between 1970 and 2016. However, among females, death rates due to chronic obstructive pulmonary disease increased slightly between 1964 and 1996. Since 1996, death rates for females have reduced although rates in 2016 were still higher than in 1964 (see figure 5.10).

FIGURE 5.10 Age-standardized death rates Chronic Obstructive Pulmonary Disease 1964–2016

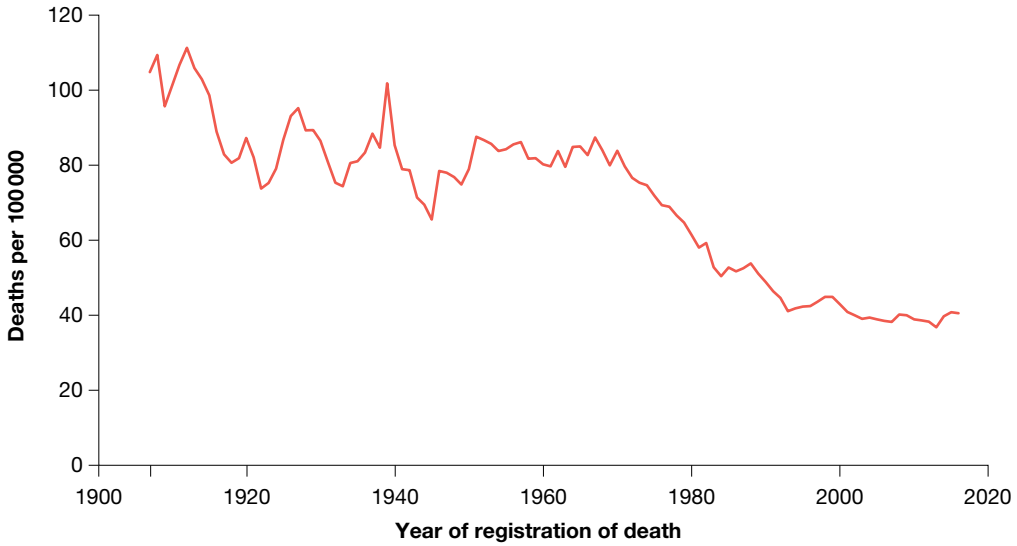


Source: GRIM Books, https://www.aihw.gov.au/reports/life-expectancy-death/grim-books/contents/general-record-of-incidence-of-mortality-grim-books#page 2.

Injury and poisoning

Deaths from injury and poisoning include those from motor vehicle and other accidents, suicide, assault, poisoning, drowning, burns and falls, and complications from medical and surgical care. Since 1900, death rates for injury and poisoning more than halved for both males and females, with the most rapid decline occurring from the 1970s. Deaths from motor vehicle crashes were at their highest in 1970 at 49 deaths for males per 100 000 population and 18 per 100 000 for females. Death rates fell to 14 and 6 per 100 000 for males and females respectively by 2000. This decline reflected the range of public health actions that were introduced by the government, commencing with the introduction of the compulsory wearing of seatbelts in 1970.

FIGURE 5.11 Age-standardised death rates for injury and poisoning, by year, 1907–2016



Source: GRIM Books.

Male death rates from injury and poisoning were affected by war deaths. During World War I and World War II many Australian men served overseas, but deaths that occurred overseas were not counted as part of Australian official mortality statistics (AIHW, 2006).

Work-related accidents have contributed to a significant proportion of accidental deaths since 1900. Working conditions in the early part of the twentieth century were dangerous, involving exposure to toxic substances or physical injury due to limited occupational health and safety regulations. Workers were often paid an additional allowance, called ‘danger money’, for agreeing to work in risky or hazardous environments.

FIGURE 5.12 Since 1900, death rates for injury and poisoning more than halved for both males and females.



5.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain one common health indicator used to measure health status within a country.
2. Outline the changes in life expectancy that occurred between 1900 and 2016.
3. What has been the main reason for the change in life expectancy over time?
4. Why did life expectancy in Australia level out or plateau between 1960 and 1970?
5. List the five broad categories of diseases that contribute to mortality patterns overtime. What are five examples of infectious diseases?
6. What percentage of deaths did infectious diseases contribute in the first part of the twentieth century?
7. Which infectious diseases were responsible for the increase in death rates in the early part of the twentieth century?
8. When did cancer death rates reach their peak and what was the reason for this peak?
9. List the two most significant types of cardiovascular diseases.
10. What are respiratory diseases?
11. Explain changes in death rates for injury and poisonings since 1970 and provide one reason for the change.
12. Why are many deaths due to war not represented in the data for injury and poisoning?
13. What is meant by 'danger money'?

5.2 Exercise 2 APPLY your knowledge

1. Use the information in figure 5.3 to explain how the age profile of the population has changed and explain the reasons for the change.
2. Use the data in figure 5.9 to describe the trends in death rates for respiratory diseases and explain the reasons for the trends.
3. Since 1900, the patterns of disease and illness have changed. Discuss, using specific examples.
4. Create a timeline from 1900 to present day to illustrate changes in mortality patterns overtime.

studyON

5.2 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

5.3 Policy and practice relating to the 'old public health' and Australia's health status

KEY CONCEPT Understanding policies and practices relating to the 'old public health' and how they have contributed to improving Australia's health status over time

Changes in Australia's health status since 1900 have occurred mainly due to changes in approaches to public health and developments in science and technologies. **Public health** is concerned with the organisation and collective effort to improve the health status of the entire population. It refers particularly to the ways in which governments monitor, regulate and promote health status and prevent disease.

on Resources

Teacher-led video Concepts of the 'old' public health and 'new' public health (tlvd-0261)

5.3.1 Old public health

As you saw in the previous section, the major causes of morbidity and mortality early in the twentieth century were infectious diseases, including sexually transmitted infections and respiratory diseases which resulted in high under-five mortality rates, high death rates and low **life expectancy**. This was mainly caused by the living conditions at the time.

At the beginning of the twentieth century, the living conditions for many people in Australia were very poor. Access to clean water and sanitation facilities were minimal and little was known about good hygiene practices. Waste littered the streets attracting huge numbers of rats and mice which carried disease. Overcrowded and poor-quality housing was common; the quality and safety of food was poor and working conditions were dangerous. Consequently, infectious diseases such as diarrhoea, cholera, measles, smallpox diphtheria, tuberculosis and whooping cough were prevalent and accounted for much of the death and disability at this time. Children were particularly at risk and infectious diseases were responsible for high rates of infant and child mortality.

Pressure was placed on governments to take action to improve people's health. As a result, a range of policies and practices were introduced by governments that became known as the **old public health**. These policies and practices played a significant role in reducing the prevalence of infectious and parasitic diseases, respiratory diseases and injuries that were prevalent during the first half of the twentieth century. As a result, significant improvements occurred in life expectancy, maternal and child mortality and overall death rates.

FIGURE 5.13 Destroyed rats during the bubonic plague in Brisbane, 1900–02



During the bubonic plague of 1900-1902, rats, the worst carriers of the dread disease, were destroyed by the thousands.

5.3.2 Policies and practices associated with the old public health

Policies and practices that were implemented as part of the old public health included:

- *The establishment of government funded water and sewage systems and better* **sanitation**. This provided people with clean water to drink and removed garbage and waste from the streets, contributing to a reduction in deaths from infectious diseases such as diarrhoea, typhoid and cholera.
- *Quarantine laws* — An outbreak of the **bubonic plague** in 1900 triggered the introduction of strict **quarantine** laws. The Commonwealth Quarantine Act, which is still in place in Australia prevented the arrival and transmission of infectious diseases from other countries.
- *Elimination of housing slums and introduction of better-quality housing* — Regulations to improve housing conditions were introduced which required all houses to be built with drains and where possible, be connected to a sewerage system or cesspit (a hole in ground to separate human excrement). The application of housing standards required houses to have ventilation and building codes and land use planning resulted in less overcrowding. Attempts were also made to clean up the slums in major cities. This reduced deaths from respiratory diseases such as pneumonia and infectious diseases such as typhoid, cholera and diarrhoea.
- *Improved food and nutrition* — At the beginning of the twentieth century, food was a common transmitter of diseases from bacteria, parasites, toxins and viruses. Foodborne diseases were most likely to originate in the home due to poor hygiene and storage of food. The Pure Foods Act in 1905 brought about improvements in the safety and standards of food. Penalties were introduced to protect

the safety of food and public health campaigns raised awareness of food safety hygiene. The nutritional advantages of eating foods such as fruit and vegetables were marketed by public health workers which improved nutrition. Widespread refrigeration became available after World War II which reduced the need to use harmful preservatives in meat-curing. This brought about a reduction in stomach cancer. The School Milk Program was introduced after World War I, which saw milk being provided to school children to reduce protein and calcium deficiencies. Improved nutrition resulted in better physical health and wellbeing as children and adults had better resistance to infectious and respiratory diseases and were able to more quickly recover from them.

- *Improved working conditions* — early public health action to improve working conditions focused on providing better ventilation and toilets in workplaces. Legislation required factories of more than 20 people to provide a sufficient number of 'water closets' (toilets) and other basic public health amenities that were not usually provided to workers. Laws prohibited the employment of children aged less than 13 years and regulated the employment of minors, aged between13 and 16 years. This led to a reduction in industrial-related child deaths. The Harvester Judgement in 1907 saw the introduction of a minimum wage, where employers were required to pay their workers a wage that guaranteed a reasonable standard of living. This had a significant impact on reducing poverty-related illness. The Victorian Health Act of 1919 saw regulations put in place to govern dangerous occupations. These actions contributed to a reduction in injuries.
- *Establishment of public health campaigns* — During World War I, the Commonwealth Government provided funding to the states for the introduction of tuberculosis and venereal disease public health campaigns to address the high level of mortality and morbidity from these diseases.
- *More hygienic birthing practices* — Early in the twentieth century, there was an emphasis on providing safe and hygienic birthing conditions with trained and registered midwives and doctors. This contributed to a reduction in maternal and infant mortality rates.
- *Provision of antenatal and infant welfare services* — Following World War II, State and Commonwealth governments became responsible for the provision of **antenatal** and infant welfare services. By 1937, there were over 200 infant welfare centres operating in Victoria. These measures, along with regulations that resulted in better quality milk, an increase in breast feeding rates and reduced fertility rates contributed further to improvements in infant mortality rates.

FIGURE 5.14 Antenatal and infant welfare services helped improve infant mortality rates.



Many policies and practices associated with the old public health were introduced in response to advancements in medical technology in relation to the diagnosis, treatment and monitoring of diseases. This is often referred to as a biomedical approach and will be discussed further in this topic. The discovery of vaccines is one example which enabled a public health response to be implemented.

5.3.3 The discovery of vaccines

Great gains were made with the discovery of vaccines, which helped to treat a range of infectious diseases. Vaccines helped bring huge reductions in morbidity and mortality from diseases such as smallpox, polio, diphtheria, pertussis (whooping cough), tuberculosis, tetanus, polio, measles, mumps, rubella and hepatitis B. The Australian government introduced public health policies that resulted in mass vaccinations in the 1930s for diphtheria; 1939 for tuberculosis, the 1950s for pertussis, tetanus and poliomyelitis; and in the 1960s for measles.

The success of vaccinations as a public health measure has resulted in the global elimination of smallpox, with polio eradicated from most parts of the world (see figure 5.16).

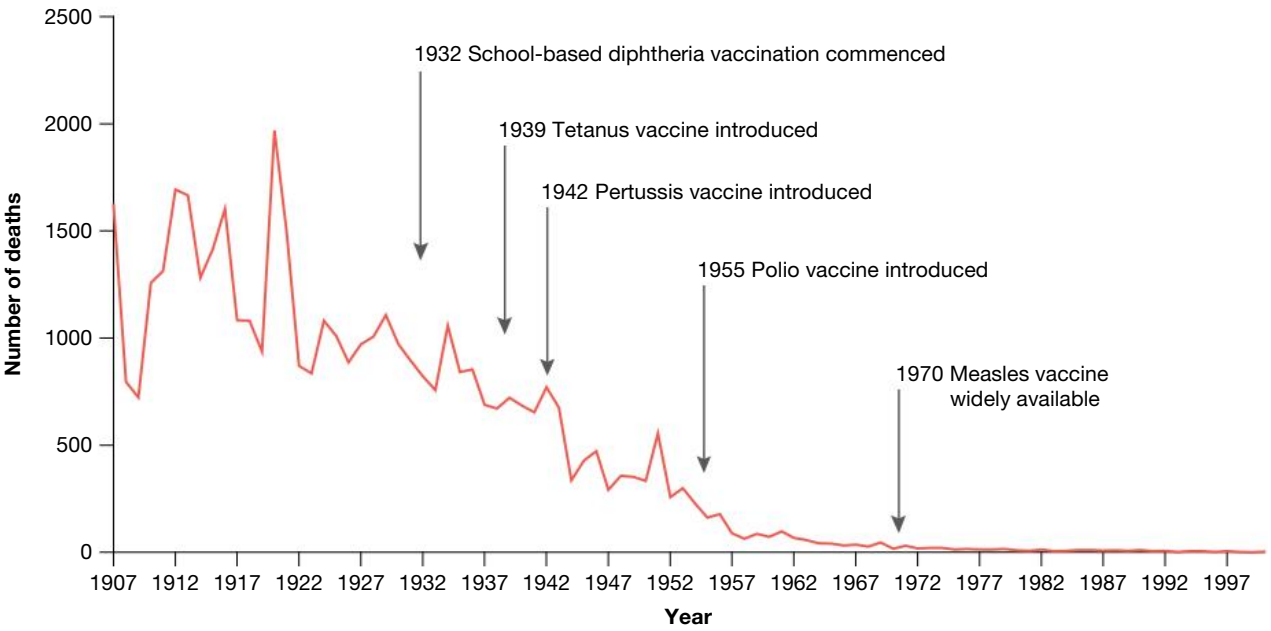
FIGURE 5.15 Vaccines for diseases, such as pertussis (whooping cough), helps reduce infant mortality.



EXAM TIP

If you are using immunisation as an example of a policy and practice associated with the old public health, it is important to focus your discussion on the mass vaccinations that were made possible with this discovery, not the discovery of vaccines themselves.

FIGURE 5.16 The discovery of vaccines saw the introduction of mass vaccination programs as a public health measure. These were very successful in reducing morbidity and mortality rates from infectious diseases.



Source: Gruszin, S., Hetzel, D. and Glover, J. *Advocacy and action in public health: lessons from Australia over the twentieth century Commonwealth of Australia 2012*, p. 28, http://phidu.torrens.edu.au/pdf/2010-2014/public-health-successes-2013/advocacy_action_public_health_full.pdf.

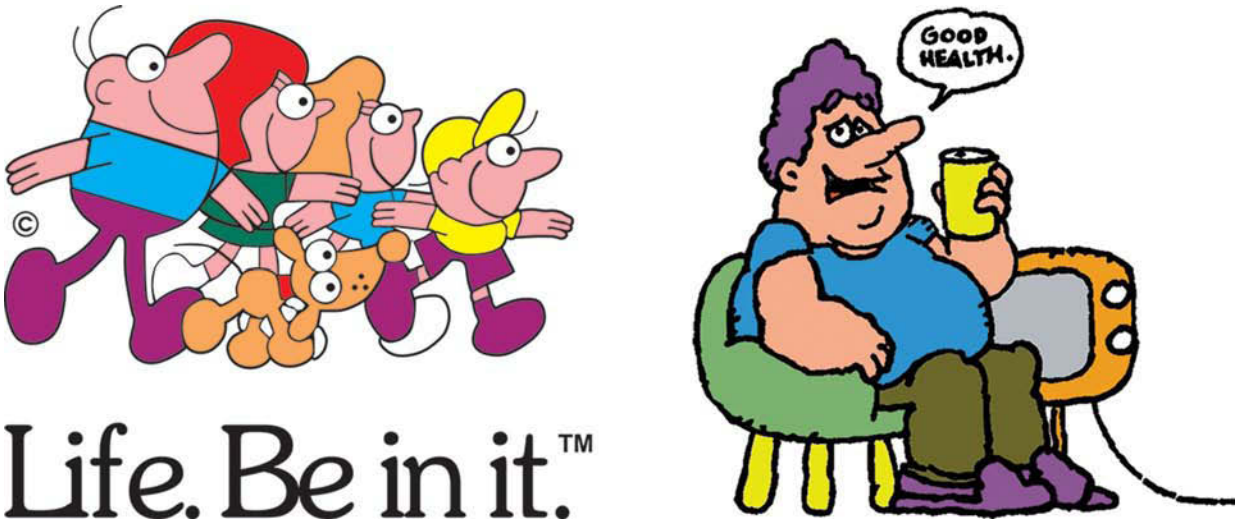
FIGURE 5.17 A range of policies and practices were introduced as part of the old public health and were effective in addressing the major causes of morbidity and mortality that existed in the first half of the twentieth century.



5.3.4 The shift to health promotion

As life expectancy increased and people were living longer, the patterns of disease and illness started to change. The emergence of lifestyle diseases during the 1950s and 60s required a different approach to public health. It was during this time that a shift towards the implementation of publicly funded **health promotion** campaigns occurred. These were designed to bring about individual behaviour change by making people aware of the causes of ill health such as tobacco smoking, physical inactivity, poor diet and excessive alcohol consumption.

FIGURE 5.18 'Life. Be in it.' was one of the first health promotion campaigns designed to bring about behaviour change.



5.3 Activity

Access the **Life. Be in it**. weblink and worksheet in the Resources tab then complete the worksheet.

5.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is public health?
2. Describe the 'old public health'.
3. What factors led to the introduction of policies and practices associated with the old public health?
4. What public health measure was introduced by the Commonwealth Government in response to the outbreak of the bubonic plague in 1900?
5. How did the discovery of vaccines influence public health policy and practice?
6. When were publicly funded health promotion campaigns introduced and why?

5.3 Exercise 2 APPLY your knowledge

1. Select three policies or practices that were introduced as part of the old public health and discuss how they contributed to improvements in Australia's health status.
2. Develop a timeline of public health actions that were introduced between 1900 and 1970. Identify those actions that would be associated with the old public health.

studyON

5.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Life. Be in it. Worksheet (doc-32200)
Weblink Life. Be in it.

5.4 The biomedical approach to health

KEY CONCEPT Understanding the biomedical approach to health and how this approach has contributed to improving Australia's health status

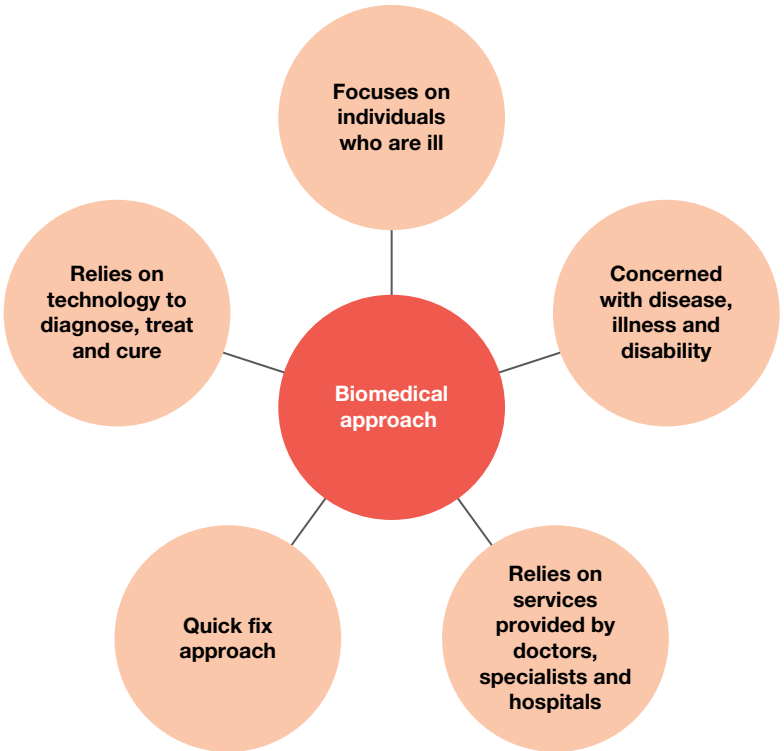
The biomedical approach to health and developments in medical technology have contributed to improvements in the health status of Australians since 1900. Along with public health actions, the biomedical approach has assisted in bringing about increased life expectancy, reduced death rates and improved infant mortality.

5.4.1 The biomedical approach to health

The term 'biomedical' comes from the Greek work *bios* (meaning 'life') and the Latin word *medicus* (meaning 'healing'). The **biomedical approach to health**, sometimes referred to as the 'band aid' or 'quick-fix' approach, focuses on the physical or biological aspects of disease and illness. It involves diagnosing and treating illnesses and conditions once symptoms are present. It focuses mainly on the use of technology to diagnose and cure disease, and on the services provided by doctors, specialists and hospitals. Individuals are the focus of the biomedical approach, in contrast to the population-based focus of public health actions.

The biomedical approach concentrates on disease, illness or disability, and works to return a person to a pre-illness state of health and wellbeing. Addressing the reasons for illness are not at the centre of the biomedical approach; the condition itself is the focus, and treatments are considered the solution to the disease. As a result, education on the behavioural and sociocultural factors that can improve health status are generally excluded.

FIGURE 5.19 The biomedical approach to health focuses on individuals and seeks to return them to their pre-illness state of health and wellbeing.



Dominance of medical science

The biomedical approach to health became dominant throughout the twentieth century as people sought to understand the causes and treatments of the diseases that were present at the time. The saw a shift in health policy to one that focused on curative and restorative medicine and led to an increased demand for hospital and medical care. Treatment involved skilled diagnosis and the use of increasingly complex and expensive medical technology which places financial pressure on the healthcare system and accounts for a significant proportion of the healthcare budget.

FIGURE 5.20 The biomedical approach focuses on treating the condition rather than the cause.



Advances in medical technology

Advancements in medical technology allow us to better diagnose, treat and cure many diseases and has therefore contributed to increases in life expectancy over time. As seen in the previous section, the discovery of vaccines saw significant improvements in health status throughout the twentieth century and new vaccines continue to be developed to address the causes of disease and illness. One of the advances in medical technology following World War II was the discovery of antibiotics. Along with vaccines, this contributed to further reductions in death rates from infectious diseases such as pneumonia, venereal disease and syphilis. The discovery of penicillin as a form of antibiotic was also important in reducing the morbidity and mortality associated with infections. It also contributed to a decline in maternal mortality as many women had previously died due to infection during childbirth.

FIGURE 5.21 Advances in technology, such as MRI scans, help save the lives of many people.



The desire to better understand the causes and treatment of disease and the corresponding advancement in technology can be seen clearly when looking at cardiovascular disease.

Diseases of the cardiovascular system

Diseases of the cardiovascular system were a major cause of death early in the twentieth century, and little was known about the causes of the diseases or how the heart and cardiovascular system functioned. The introduction of the sphygmomanometer and stethoscope in 1910 enabled doctors to measure blood pressure for the first time, and in 1941 new x-ray techniques enabled doctors to view the action of the heart using dye inserted into a blood vessel.

Doctors were better able to diagnose cardiovascular problems but were still unable to treat them. In the mid-1950s the heart–lung bypass machine allowed surgeons more time to undertake complicated heart procedures. From 1967, surgery was being used to bypass obstructions in the coronary arteries. This helped to relieve pain, improve an individual's quality of life and decrease mortality. The development of antihypertensive drugs also helped reduce mortality from cardiovascular disease through the management of hypertension. There continues to be ongoing advancements in technology and a focus on reducing mortality rates from cardiovascular disease.

5.4.2 Advantages and disadvantages of the biomedical approach to health

The biomedical approach to health has many advantages and has contributed to improvements in Australia's health status over time. It is an important component of the healthcare system. However, this approach to health also has a number of disadvantages or limitations.

TABLE 5.2 Advantages of the biomedical approach to health

Advantages of biomedical approach	Explanation
The funding provided for the approach brings about improvements in technology and research	Without the biomedical approach to health, there would be no x-rays, antibiotics or anesthetics. There would also be relatively little knowledge about how to diagnose and treat illness.
It enables many common problems to be effectively treated	Most people have had a range of medicines over the course of their lives. These are often taken for granted as they stop diseases that would otherwise develop and cause considerable ill health or death.
It extends life expectancy	Many causes of death that were common in the past, such as some infectious diseases, can now be treated and cured.
It improves quality of life	Many chronic conditions can be managed with medication, therapy or surgery, reducing pain and suffering.

Although the biomedical approach is a vital part of the health system and has contributed to the high level of health status experienced in this country, it has some limitations and disadvantages.

TABLE 5.3 Disadvantages of the biomedical approach to health

Disadvantages of biomedical approach	Explanation
It relies on professional health workers and technology and is therefore costly	Because individuals are the focus of this approach, people with specialist knowledge about disease and treatment are required to adequately treat the patient. As knowledge and technology have developed, the cost of training and equipment has also increased. Some machines required for diagnosis (such as MRI machines) and treatment (such as robotic surgery systems) can cost millions of dollars and only treat a small number of patients each day.
It doesn't always promote good health and wellbeing	The biomedical approach can encourage a reliance on quick-fix solutions to health issues. As the focus is on the condition itself rather than the factors that caused it, the biomedical approach does not encourage people to be responsible for their own health and wellbeing.
Not every condition can be treated	Those relying on the biomedical approach to restore optimal health and wellbeing may experience conditions that cannot be cured or treated effectively. These conditions may be preventable through behaviour change; however, this is not a focus of the biomedical approach. Cancer is an example of a condition that has treatments available but, in many cases, no cure.
Affordability	Not all individuals can afford the medical technologies and resources that are a part of the biomedical approach to health. This is an important factor contributing to the differences experienced in health status between population groups.

EXAM TIP

When asked to discuss the advantages and /or disadvantages of the biomedical approach to healthcare you need to do more than list the advantage or disadvantage. For example, if you stated that an advantage of the biomedical approach was that it improves quality of life, you would not be awarded full marks as you have not discussed how the biomedical approach improves quality of life. A better response would be:

> An advantage of the biomedical approach is that it improves quality of life. The biomedical approach can diagnose and treat disease and illness reducing pain and suffering allowing individuals to enjoy an improved quality of life.

5.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain the biomedical approach to health.
2. Why is the biomedical approach sometimes called the 'band aid' or 'quick-fix' approach?
3. Explain why the biomedical approach places pressure on the healthcare system.
4. How did the discovery of antibiotics impact the changing patterns of disease and illness?
5. Outline three advantages and three disadvantages of the biomedical approach to health.

5.4 Exercise 2 APPLY your knowledge

1. Use the example of cardiovascular diseases to explain how the biomedical approach and medical technology has contributed to improvements in health status since 1900.
2. What factors led to dominance of the biomedical approach and what were the disadvantages associated with this?
3. 'Improvements in technology have brought about changes in the numbers of very pre-term babies surviving after birth. In the 1980s it was rare to resuscitate a baby of 26 weeks; today doctors are likely to refuse a parent's request not to resuscitate a baby of this age. By 2012, 70 per cent of children born at 24 weeks survived to go home, rising to 80 per cent of those born at 25 weeks and 92 per cent at 26 weeks. The first time we put a baby on a ventilator was 1969 and at that time we were looking at ventilating babies of 34 weeks. By the 1980s, a baby of 28 weeks would be routinely resuscitated but it was less likely under that age. Now at 26 weeks, resuscitation is routine.' (Adapted from Barrowclough, A. 2015, 'Premature babies, medical miracles and the hardest decision a parent will ever face', *The Australian*, 2 February.)

Discuss the advantages and disadvantages of the improvements in technology outlined above.

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5.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

5.5 Development of new public health and the social model of health

KEY CONCEPT Understanding new public health and the social model of health

5.5.1 New public health

As medical technologies and knowledge of disease and illness developed, there was an expectation and belief that these would solve the health and wellbeing problems faced at that time. Towards the 1970s there was concern that, while the control of infectious diseases had been achieved, the leading causes of

morbidity and mortality had changed. Lifestyle diseases, especially cardiovascular diseases, had become the leading cause of death and disability. Whilst the biomedical approach could achieve improvements in health status, many of the causes of these diseases were lifestyle related. This brought about a belief that if individuals were made aware of the consequences of their health behaviours, they would take action to change their behaviour. This led to the introduction of a range of health promotion strategies that sat alongside the biomedical approaches.

It soon became apparent that while people were aware that behaviours such as smoking, poor diet and lack of exercise could impact health and wellbeing, knowledge on its own was not successful in bringing about behaviour change. Inequalities in health status were also increasing. Those who were wealthier were more likely to have better health and wellbeing. It became evident that there are many factors, often beyond the control of an individual, which can affect health status. This brought about an increased understanding of the significant influence that physical, sociocultural and political environments have on health and wellbeing and health behaviours. With this understanding came a new approach to health promotion called **new public health** or the **social model of health**.

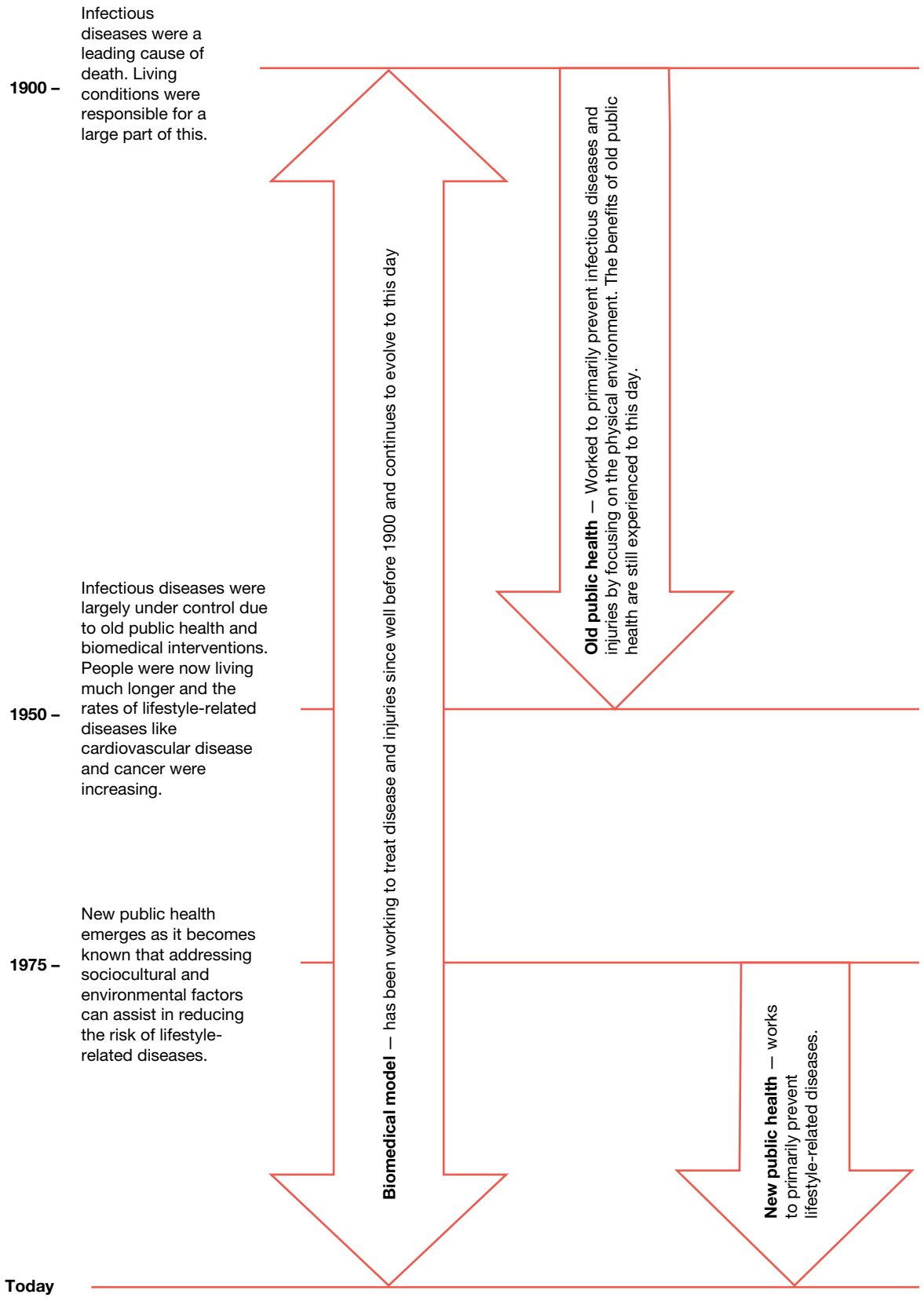
FIGURE 5.22 While people were aware that behaviours such as smoking could affect their health and wellbeing, many did not change their behaviour.



The social model of health takes into account the significant role that factors such as socioeconomic status, access to healthcare and social connectedness play in bringing about improved health status. These are examples of sociocultural factors. If these factors can be addressed, many diseases and illnesses can be prevented altogether. The most efficient way of achieving this is to take a community-development approach (as opposed to the individual focus of the biomedical approach). Policies, education and health promotion activities are key aspects of the social model of health.

The changes in approaches introduced to address the different patterns of diseases can be seen in figure 5.23.

FIGURE 5.23 The role of the biomedical approach in diagnosing, treating and curing illness and disease has a long history and continues to evolve. As the patterns of disease and illness changed over time, we have seen the introduction of a range of public health approaches.



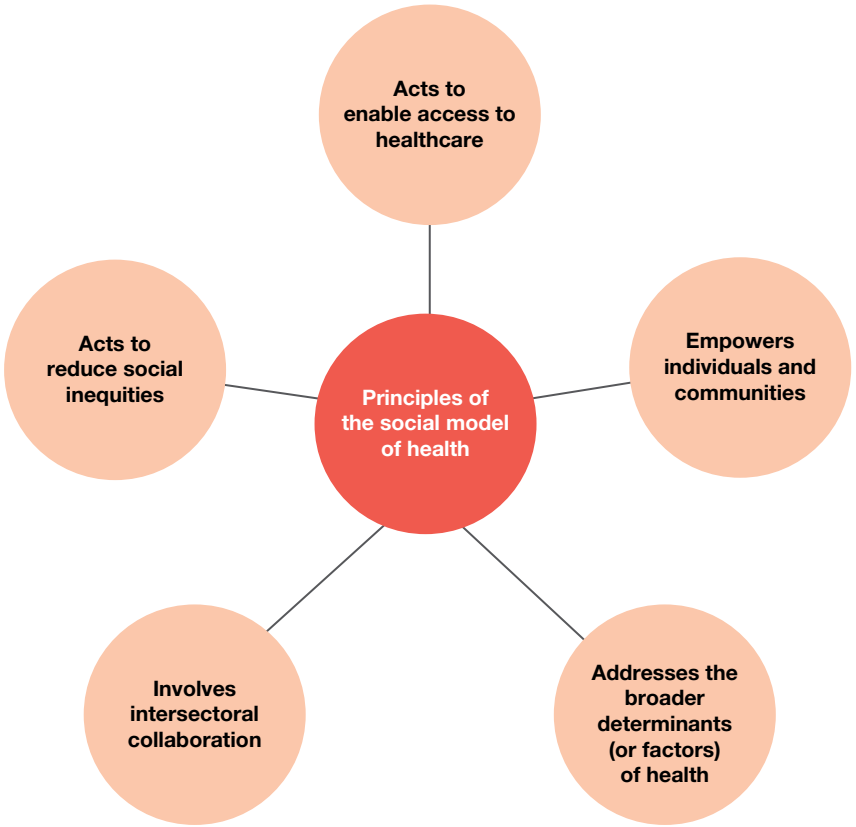
on Resources

Teacher-led video The social model of health (tlvd-0259)

5.5.2 Principles of the social model of health

The social model of health encompasses five key principles (see figure 5.24).

FIGURE 5.24 The social model of health encompasses five key principles.



Addresses the broader determinants (or factors) of health

Behavioural factors (also referred to as behavioural determinants), such as reducing tobacco smoking and eating a healthy diet, are an important part of improving health and wellbeing, but these factors are often themselves influenced by other, broader determinants such as gender, culture, race or ethnicity, socioeconomic status, geographical location and the physical environment. These broader factors or determinants of health and wellbeing have been shown to have strong relationships with health status and are increasingly becoming the focus of health promotion strategies. Addressing these determinants is a key aspect of the social model of health.

Involves intersectoral collaboration

There are many government and non-government organisations and stakeholders who have an influence over the sociocultural and environmental factors that influence health status. Some of these groups include government departments responsible for employment, education and finance, as well as the private sector, including service providers and manufacturers who sit outside the health system. The health system, while contributing significantly to health status, does not have as much influence over the sociocultural and physical environments. Therefore by encouraging all interested and concerned groups both inside and outside the health sector to work together in **intersectoral collaboration** the sociocultural and physical environment factors can be more effectively addressed.

Acts to reduce social inequities

To achieve this, the sociocultural factors that contribute to inequities in health status must be addressed. Many individuals and population groups are heavily influenced by sociocultural and environmental factors such as gender, culture, race, socioeconomic status, access to healthcare, social exclusion and the physical environment.

Acts to enable access to healthcare

Healthcare has a significant influence on health and wellbeing and is a contributing factor in the health status experienced by most people. There are many sociocultural and environmental factors that can impact access to healthcare. Some of these include cultural and language barriers, economic and geographical factors, and education levels.

Empowers individuals and communities

Empowering individuals and communities means people can participate in decision making about their health and wellbeing. Individuals are more likely to participate in healthy behaviours if they feel they have a sense of power and control over their situation. Empowering individuals and communities with health knowledge and skills means they are more able to make positive changes to their health and wellbeing.

FIGURE 5.25 The risk factors associated with chronic disease are known, yet some people still choose to engage in risky behaviours. The social model of health takes a step back to see why people don't change their behaviours.



5.5.3 Advantages and disadvantages of the social model of health

The social model of health sits alongside the biomedical approach and has become a key part of Australia's health system. This approach has many advantages which are outlined below.

TABLE 5.4 Advantages of the social model of health

Advantages of social model of health	Explanation
It promotes good health and wellbeing and assists in preventing diseases	As the social model focuses on the broader determinants of health and wellbeing, it can prevent conditions from developing in the first place, therefore improving health status.
It promotes overall health and wellbeing	As the social model doesn't just focus on diseases that are present, it has the potential to promote the overall health and wellbeing of individuals.
It is less expensive than the biomedical approach	Although health promotion programs can cost millions of dollars to implement, the investment is often significantly cheaper than treating conditions once symptoms arise.

Advantages of social model of health	Explanation
It focuses on vulnerable population groups	As it focuses on promoting equity, many disadvantaged groups are the target of health promotion programs, including Indigenous Australians, those from low socioeconomic backgrounds and those living outside of Australia's major cities.
Education can be passed on from generation to generation	The social model of health often uses education to enhance health and wellbeing. This knowledge can be passed on to future generations, promoting sustainable improvements in health status.
The responsibility for health and wellbeing is shared	The social model of health makes health and wellbeing the responsibility of more than just the health sector so that the reasons behind poor health and wellbeing are more likely to be addressed.

Although the social model of health can be effective in promoting health and wellbeing, it still has a number of disadvantages.

TABLE 5.5 Disadvantages of the social model of health

Disadvantages of social model of health	Explanation
Not every condition can be prevented	The causes of some conditions, including many genetic conditions, can be very difficult to prevent.
It does not promote the development of technology and medical knowledge	As it focuses on the broader determinants of health and wellbeing, it does not promote medical advancements.
It does not address the health and wellbeing concerns of individuals	Those who are sick, for example, are not a specific focus of the social model of health, which can impact negatively on their health and wellbeing and health status of the population.
Health promotion messages may be ignored	The social model of health relies on public cooperation. If people choose to ignore the health messages provided, health and wellbeing may not improve.

5.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is meant by new public health or the social model of health?
2. What led to the development of new public health?
3. List the five principles of the social model of health and briefly describe each one.
4. Outline three advantages and three disadvantages of the social model of health.

5. For each of the examples of interventions for measles in the table below, decide whether it is an example of a biomedical approach or social model of health approach. Place a tick in the relevant column.

	Biomedical (B) or Social (S)	
Example of intervention for measles	**B**	**S**
All children enrolling in primary school must be immunised.		
Free measles vaccinations are provided for all children.		
Antibiotics are used to treat complications arising from measles.		
A GP is consulted to diagnose measles.		
Children with measles must be kept away from pre-school and school.		
Vaccination information is provided in many different languages.		

5.5 Exercise 2 APPLY your knowledge

1. Outline factors that may exist outside the control of individuals that could impact on health and wellbeing.
2. 'The biomedical and social models of health view health and wellbeing and illness from different perspectives.' What is meant by this?
3. Use the headings from the table below to summarise the role of the biomedical and social models of health in bringing about improvements in health and wellbeing in each of the five broad categories of diseases.

Category of disease	Contribution of the biomedical model of health	Contribution of the social model of health
Infectious and parasitic		
Cancers		
Cardiovascular diseases		
Respiratory diseases		
Injury and poisoning		

studyON

5.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

5.6 The Ottawa Charter for Health Promotion

KEY CONCEPT Understanding the Ottawa Charter for Health Promotion

One of the responses to the social model of health came at the World Health Organization's first International Conference on Health Promotion held in 1986 in Ottawa, Canada (see figure 5.26). At this meeting, the delegates had the task of coming up with some guidelines that would help organisations and key stakeholders incorporate **health promotion** ideas into their strategies, policies and campaigns. Until then, there was no framework to guide them in the development of health promotion strategies. The resulting framework was known as the **Ottawa Charter for Health Promotion**, often referred to as the Ottawa Charter.

FIGURE 5.26 Ottawa, Canada, the host city of the First International Conference on Health Promotion in 1986



Health promotion, as defined by the World Health Organization, is the process of enabling people to increase control over, and to improve, their health. Health promotion therefore focuses on prevention rather than cure and uses the causes of disease as the starting point rather than diseases themselves.

5.6.1 Strategies for health promotion

The three strategies for health promotion as outlined in the Ottawa Charter are *advocate, enable* and *mediate*.

Advocate

Good health and wellbeing is a major resource individually, nationally and globally. Factors that influence health and wellbeing can either support or harm the level of health and wellbeing experienced. Health promotion aims to make these factors supportive through advocacy. Advocacy for health and wellbeing refers to actions designed to gain support from governments and societies that are necessary to improve health and wellbeing for everyone. These actions can include media campaigns (including social media), public speaking, conducting and publishing of research and public opinion, and lobbying governments, in which individuals or groups try to change the opinions of those responsible for making public policies and laws.

Enable

Health promotion focuses on achieving equity in health and wellbeing by working with those who experience poorer health status. Health promotion aims to reduce differences in health status between population groups by ensuring equal opportunities and resources are available to enable all people to achieve optimal health and wellbeing. This includes access to education, employment, adequate housing, nutritious food and healthcare by empowering people, not by merely providing handouts. People cannot

achieve optimal health and wellbeing unless they can take control of factors that influence their lives. This applies equally to women and men, Indigenous and non-Indigenous people, those in low and high socioeconomic groups, and those living within or outside of Australia's major cities.

Mediate

The changes required to promote health and wellbeing include changes to funding, legislation and policies, and to the physical and sociocultural environment. Such changes will inevitably cause conflict between different individuals, groups, businesses and political parties. Mediating relates to helping these groups resolve such conflict and produce outcomes that promote health and wellbeing. Reducing speed limits is an example of a policy change that is not always supported by all members of the community. Working with groups who oppose such changes to ensure that lives are saved on the roads is an important role of social groups and health professionals.

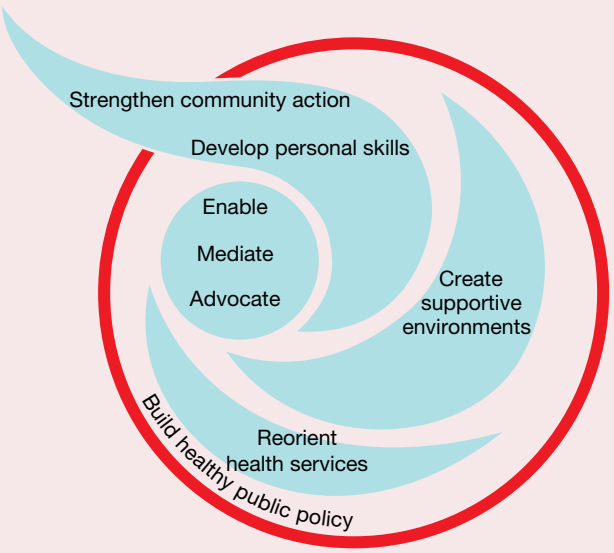
CASE STUDY

The WHO's health promotion logo

This logo was created for the First International Conference on Health Promotion, held in Ottawa, Canada, in 1986. At that conference, the Ottawa Charter for Health Promotion was launched. Since then, the WHO has kept this symbol as the Health Promotion logo (HP logo), as it stands for the approach to health promotion outlined in the Ottawa Charter.

The logo represents a circle with three wings. It incorporates five key action areas in Health Promotion (build healthy public policy, create supportive environments for health, strengthen community action for health, develop personal skills, and re-orient health services) and three basic health promotion strategies (enable, mediate and advocate).

FIGURE 5.27 The Health Promotion logo was designed for use at the first Health Promotion Conference in Ottawa, Canada, in 1986.



a. The outside circle, [in red], is representing the goal of 'Building Healthy Public Policy', therefore symbolising the need for policies to 'hold things together'. This circle encompasses the three wings, symbolising the need to address all five key action areas of health promotion identified in the Ottawa Charter

b. The round spot within the circle stands for the three basic strategies for health promotion, 'enabling, mediating, and advocacy', which are needed and applied to all health promotion action areas.

c. The three wings represent (and contain the words of) the five key action areas for health promotion that were identified in the Ottawa Charter for Health Promotion. More specifically:

- The upper wing that is breaking the circle represents that action is needed to 'strengthen community action' and to 'develop personal skills'. This wing is breaking the circle to symbolise that society and communities as well as individuals are constantly changing and, therefore, the

policy sphere has to constantly react and develop to reflect these changes: a 'Healthy Public Policy' is needed.
- The middle wing on the right side represents that action is needed to 'create supportive environments for health'.
- The bottom wing represents that action is needed to 'reorient health services' towards preventing diseases and promoting health.

Overall, the logo visualises the idea that Health Promotion relies on a number of different strategies and actions being used together to improve health for all.

Source: http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index4.html.

Case study review

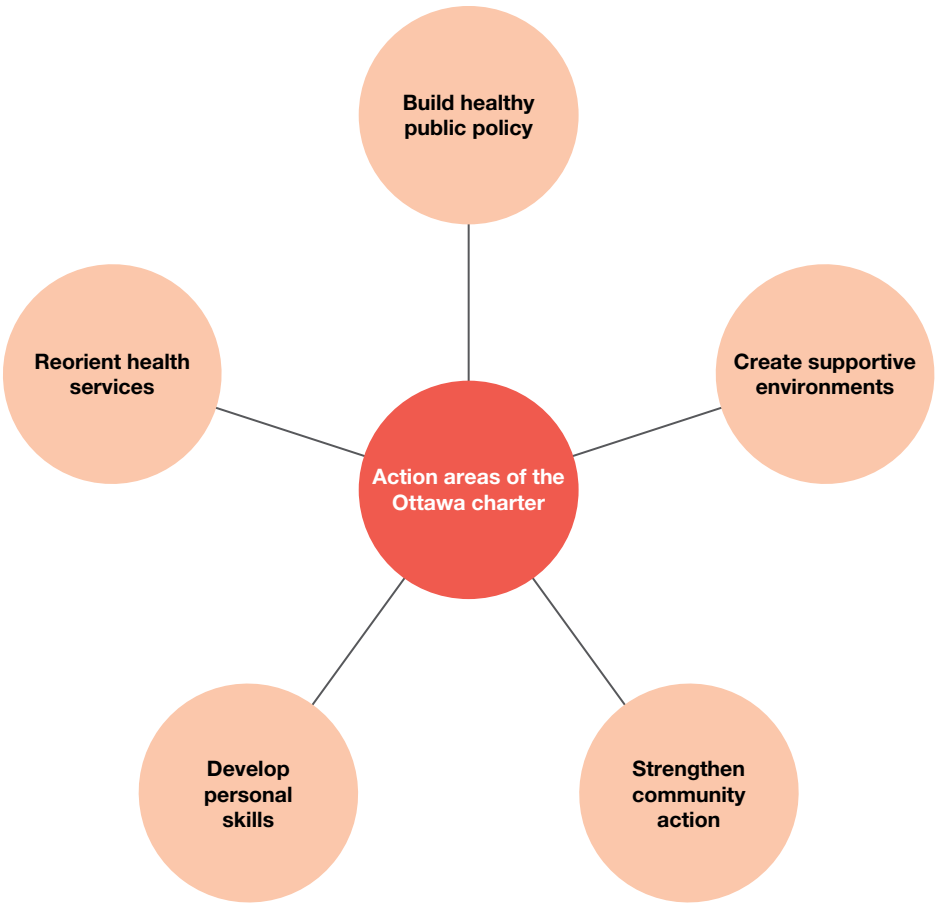
1. Briefly explain the key features of the health promotion logo.
2. (a) Explain why one of the wings is breaking the circle.
   (b) Brainstorm examples of healthy public policies that have been developed (at a school, community, state or national level) due to changing societies, communities or individuals.

5.6.2 Action areas of the Ottawa Charter

The five action areas of the Ottawa Charter are:

- build healthy public policy
- create supportive environments
- strengthen community action
- develop personal skills
- reorient health services.

FIGURE 5.28 The five action areas of the Ottawa charter of health promotion



The following table describes each of the action areas and provides an example to illustrate.

TABLE 5.6 The five action areas of the Ottawa charter for health promotion, meanings and examples

Action area	Meaning	Examples
Build healthy public policy	This action area relates directly to the decisions made by government and organisations regarding laws and policies that make it more difficult for people to undertake unhealthy behaviours and seek to make healthier choices the easier choices.	• Removing the goods and services tax (GST) on unprocessed foods (which are healthier options than processed foods) • Increasing the tax on tobacco and alcoholic drinks which aims to discourage unhealthy behaviour • Banning smoking in public places which makes the environment healthy for everyone • Compulsory of wearing of seat belts which aims to directly influence behaviour
Create supportive environments	This action area recognises the impact that the broader determinants have on health status and aims to promote a healthy physical and sociocultural environment for all members of the community. A supportive environment is one that promotes health and wellbeing by being safe, stimulating, satisfying and enjoyable.	• The establishment of Quitline (a support service for smokers wanting to quit) • Providing a safe working environment • Providing shaded areas in school playgrounds and outdoor areas (reducing the rate of UV exposure) • Having a supportive family in which health promoting behaviours are practiced. • Investing in sustainable energy production (ensuring that future generations have access to a healthy environment) • Ensuring a smoke free environment
Strengthen community action	This action area focuses on building links between individuals and the community, and centres around the community working together to achieve a common goal. Giving the community a sense of ownership of a health and wellbeing strategy increases the likelihood of its effectiveness.	• The Central Australian Aboriginal Congress (CAAC) in Alice Springs is a health service provider run by Aboriginal people for Aboriginal people. The rates of participation in the program are high because people feel a connection. A range of Aboriginal people in central Australia work together to promote the health and wellbeing of their community. The service provides healthcare, education and advocacy • Immunisation strategy — this involves media, doctors, schools and parents working together to achieve higher immunisation rates for children
Develop personal skills	Education is the key aspect of this action area. Education refers to gaining health-related knowledge and skills that allow people to make informed decisions that may indirectly affect health and wellbeing (such as talking to people to resolve conflict rather than using violence).	• A community health centre running cooking classes for the community • Quit campaign educating people about the harmful effects of smoking • Educating parents about the importance of putting sunscreen on their children when they are out in the sun

Action area	Meaning	Examples
	Many parts of society have a role in achieving adequate education for citizens, including school and work settings, families, and government and non-government organisations.	
Reorient health services	This action area refers to changing the health system so that it promotes health and wellbeing rather than just focusing on diagnosing and treating illness, as is the case with the biomedical model. Reorienting health services means addressing all factors that influence health and wellbeing, not just diseases. This requires a shift towards health promotion, which includes doctors taking on the role of educator.	• Doctors focusing a discussion around healthy eating rather than medication and surgery to reduce the impact of cardiovascular disease • Medical professionals recommending physical activity to prevent the development of damaging conditions such as type 2 diabetes • Providing funding for a community group to introduce a walking group

FIGURE 5.29 Schools play an important part in developing personal skills.



CASE STUDY

The Ottawa Charter in action — LiveLighter program

LiveLighter is a program targeted at Australian adults which aims to encourage them to lead healthier lifestyles by making changes to what they eat and drink, be more physically active and maintain a healthy weight.

LiveLighter works to create supportive environments by advocating for less promotion of junk food, improving access to healthy food and ensuring that the environments in which people live encourage them to be more active. On their website they provide personal accounts from individuals who have made changes to their food intake and physical activity levels in order to lose weight and improve their health and wellbeing. These stories provide support to others who are wanting to make lifestyle changes. A graphic advertising campaign raises awareness of the link between overweight and chronic disease such as cardiovascular disease and type 2 diabetes and creates a supportive environment where people understand why it's important to make lifestyle changes.

LiveLighter develops personal skills by creating meal and activity plans for individuals based on their specific needs. It includes recipes that can assist adults in preparing healthy meals and reduce their body weight. The website also provides access to a range of resources and fact sheets to assist those wanting to lose weight and improve their health and wellbeing.

LiveLighter strengthens community action by encouraging public debate about obesity. They engage with the community through social media and with retailers. LiveLighter is a joint initiative between the Heart Foundation, Cancer Council and Department of Health and also partners with a wide range of community groups and organisations.

LiveLighter advocates for changes in policy around the promotion of junk food and improved food labelling and are therefore helping build healthy public policy.

The focus of the program is to prevent and reverse the impacts of obesity. Obesity is a growing problem in Australia and is responsible for much of our burden of disease. This program helps reorient health services as individuals learn skills to reduce the risk of obesity and its associated conditions and funding has been provided for prevention rather than a curative approach.

Source: Adapted from livelighter.com.au.

Case study review

1. What are the aims of the LiveLighter program?
2. Why is it important for Australians to maintain a healthy weight?
3. Provide a summary of dot points that show how the LiveLighter program reflects each of the action areas of the Ottawa Charter for Health Promotion.

Resources

Teacher-led video Ottawa charter (tlvd-0262)

5.6 Exercise 1 TEST your knowledge

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1. Define health promotion according to the Ottawa Charter.
2. Give reasons for the development of the Ottawa Charter.
3. Identify the three strategies for health promotion outlined in the Ottawa Charter and discuss why they are important for improving health and wellbeing.
4. What are the five action areas of the Ottawa Charter? Briefly explain each one.

5.6 Exercise 2 APPLY your knowledge

1. Discuss how the Ottawa Charter reflects the principles of the social model of health.
2. Explain how two or more action areas of the Ottawa Charter could be used to reduce the incidence of:
   (a) skin cancer
   (b) respiratory diseases.

5.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

5.7 Improving health status using the social and biomedical approaches to health

KEY CONCEPT Understanding the relationship between the social and biomedical approaches to health in bringing about improvements in health status

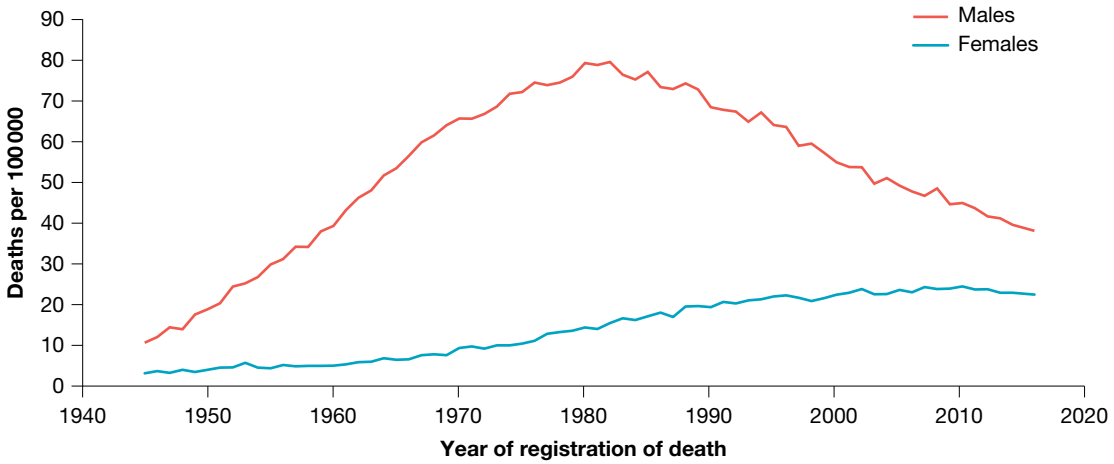
As we have seen, significant advances have been made in Australia's health status over the last century, and the patterns of death and disease have also changed. As disease patterns change, so do appropriate strategies for intervention. Understanding the history of disease and illness, and the interventions put in place, helps develop an understanding of the health and wellbeing problems of communities in the twenty-first century and how to manage them. The biomedical and social models of health view health and wellbeing and illness from different perspectives. As you saw in the previous sections, there are advantages and disadvantages with each of these approaches to health. However, there is now an understanding of the importance of both approaches in bringing about improvements in health and wellbeing.

Understanding the strengths and limitations of these approaches can be applied by looking at changes over time in the mortality associated with lung cancer.

5.7.1 Lung cancer

Early in the twentieth century, lung cancer was thought to be rare, and deaths from lung cancer as a specific type of cancer were not measured until 1945. Figure 5.30 shows the death rates for lung cancer since 1945. For males there was a rapid increase in deaths, peaking in 1980. Tobacco smoking accounted for most lung cancer deaths for males and females, and the decline in deaths reflects changes in smoking rates brought about by a range of health promotion strategies and public health policies (the social model of health), and improved technology in terms of better diagnosis and more effective treatments (the biomedical approach to health).

FIGURE 5.30 Age-standardised death rates for lung cancer, by sex and year, 1945–2016



Source: AIHW, Grim books.

Health promotion and the social model of health

Anti-smoking health promotion campaigns were first introduced in the early 1970s when there was a growing understanding of the relationship between smoking and many forms of cancer, particularly lung cancer. It followed the release in 1964 of the US Surgeon General's report on smoking, which linked the habit to disease and death and urged the government to take action.

In line with the understanding that sociocultural and environmental factors can impact health and wellbeing, state and Commonwealth governments introduced a range of population-based approaches designed to promote health and wellbeing, reduce the impact of passive smoking on others, and encourage people to quit or not take up smoking at all. These approaches reflect the social model of health and included comprehensive anti-smoking media campaigns and policies that made tobacco products expensive — they became highly regulated, not advertised, sold in plain packaging, and kept out of consumers' sight in retail outlets. The introduction of health warnings on cigarette packets reflects the principles of the social model of health as it is empowering individuals and communities by providing them with the knowledge of the dangers of smoking. Banning smoking in pubs and clubs is an example of intersectoral collaboration. These population-wide strategies helped reduce the uptake of smoking and encouraged smokers to quit (see figure 5.31).

FIGURE 5.31 Examples of public health approaches designed to reduce smoking behaviour

1973 — The first health warnings on cigarette packets are introduced in Australia.
1976 — Tobacco advertising is banned on radio and television in Australia.
1985 — Quit is established and anti-smoking commercials appear on Australian television.
1987 — The Commonwealth Government bans smoking on domestic air flights.
1990 — The Commonwealth Government bans tobacco advertising in newspapers and magazines.
1995 — Most tobacco sponsorship is phased out.
1996 — Billboards, outdoor and illuminated signs advertising cigarettes are banned.
2006 — Graphic anti-smoking advertisements go to air.
2010 — Smoking in pubs and clubs is banned and tobacco taxes are increased by 25 per cent.
— All states and territories (except NT) ban smoking in cars carrying children, ban point-of-sale displays in retail outlets selling tobacco, and plain packaging becomes mandatory for all tobacco products and it is an offence for any person to publish tobacco advertising on the internet or other electronic media.
2013 — first 12.5 per cent tobacco excise increase on 1 December.
2017 — additional four annual 12.5 per cent tobacco excise (tax) increases implemented on 1 September each year from 2017 to 2020 inclusive.

Source: Adapted from 'Key events in anti-tobacco campaign in Australia', ABC News online, 11 January 2014 and Department of Health: Tobacco control timeline http://www.health.gov.au/internet/publications/publishing.nsf/Content/tobacco-control-toc~timeline.

Decline in smoking rates

The social model of health has been very effective in reducing the prevalence of smoking and reducing the harm associated with passive smoking. The daily smoking rate has almost halved since 1991, from 24.3 per cent to 12.8 per cent in 2013. While it is predicted that the prevalence of smoking will continue to decline, there are still many Australians who continue to smoke and put themselves at risk of lung cancer and other smoking-related diseases.

Biomedical approach to lung cancer

Lung cancer is still a major cause of death and disability in Australia, despite a long history of health promotion initiatives. It is therefore important that those who develop lung cancer are given access to medical care to ensure early diagnosis of the disease, and then provided with medical treatment if necessary. The biomedical approach to health is also important if we are to improve individuals' health and wellbeing.

Improvements in our understanding of the disease and in medical technology have increased the chance of an individual surviving for five years after their cancer diagnosis. In 1983–87, the five-year survival rate was 8 per cent. This more than doubled to 17 per cent in 2012–14.

These improvements are largely due to developments in medical technology and the biomedical approach to health. More effective and earlier diagnosis of lung cancer is now possible along with a range of treatments that increase an individual's likelihood of surviving the disease.

Diagnosis and treatment of lung cancer

Lung cancer is diagnosed using a range of tests and procedures which include:

- chest x-rays
- sputum cytology (examining phlegm under a microscope)
- bronchoscopy (insertion of a flexible tube through the mouth or nose and into the lungs)
- fine needle aspiration, which removes a small sample of tissue from the lungs through the chest wall
- **CT scans**
- **PET scans**
- bone scans.

Once diagnosed, a range of treatments can take place. These include surgery to remove the affected parts of the lung, radiotherapy and chemotherapy.

Until recently, there was little evidence to suggest that those with terminal lung cancer could be cured, but new technology is being trialled that may give those with advanced cancer the chance to be cured. Improvements in technology have also enabled sufferers of terminal lung cancer to have more effective **palliative care** to manage the symptoms of the disease and better manage the pain.

It is evident that both the biomedical and social models of health, with a focus on bringing about behaviour change and improving diagnosis and treatment services, have contributed to reductions in death rates from lung cancer.

5.7 Activities

1. Access the **Personal consequence ads** and **Breakthrough in lung cancer treatment** weblinks in the Resources tab then complete the **Smoking** worksheet.
2. Select one other example of a disease and research examples of how the biomedical and social models of health have contributed to improvements in health status over time.

5.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Why is it important to understand the strengths and limitations of the biomedical and social models of health?
2. When did deaths from lung cancer as a specific type of cancer start being recorded?
3. What was responsible for the increase in lung cancer deaths for males between 1945 and 1980?
4. What factors contributed to the decrease in lung cancer deaths for males from 1980 to the present?
5. When were anti-smoking campaigns first introduced in Australia and why?
6. To what extent was the social model of health effective in reducing the prevalence of smoking?
7. Why is the biomedical model of health important if we are to further reduce death and disability from lung cancer?
8. Briefly outline how the biomedical model of health can help reduce the level of death and disability from lung cancer.

5.7 Exercise 2 APPLY your knowledge

1. Use the data in figure 5.30 to identify two trends in death rates for lung cancer over time and explain one reason for each of the trends identified.
2. Select two of the public health approaches listed in figure 5.31 and discuss how they reflect the social model of health.
3. Draw a diagram that shows examples of how the biomedical and social models of health have brought about improvements in lung cancer deaths over time.

studyON

5.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Smoking worksheet (doc-32201)

Weblinks Personal consequence ads

Breakthrough in lung cancer treatment

5.8 Topic 5 review

5.8.1 Key skills

KEY SKILLS Analyse data that show improvements in health over time and draw conclusions about reasons for improvements

Interpreting information from tables and graphs is the focus of this skill. When given information in a table or graph, it is important to be able to interpret what the data is showing in relation to changes in health status over time and then think about the possible reasons that might have resulted in these changes.

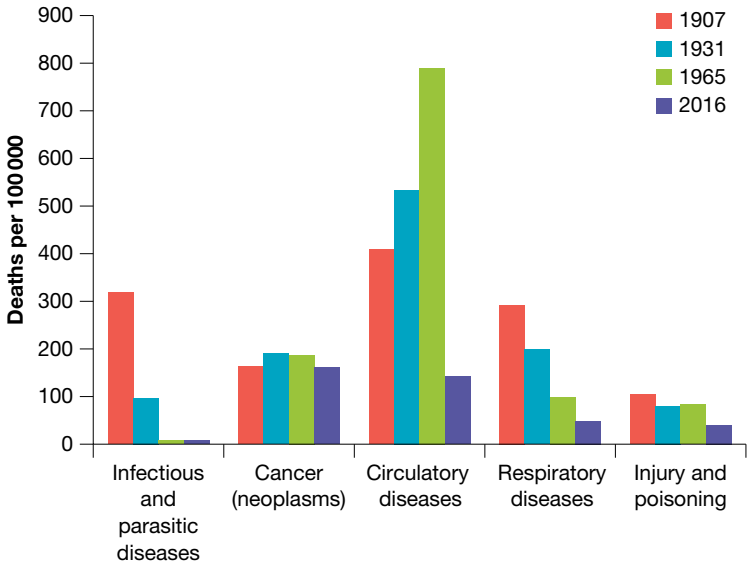
To do this, you will need to understand the major reasons for the improvements in health and wellbeing over time and relate these to the data provided.

The reasons that have been discussed throughout this topic are:

- policies and actions as part of the old public health that took place early in the twentieth century which focused on improving aspects of the physical environment such as providing safe water to drink, sewage facilities and better sanitation, improved nutrition, better housing conditions and safer work conditions
- the discovery of vaccines and the mass immunisation programs that were put in place after 1930
- government actions such as quarantine to protect Australia from outbreaks of diseases in other countries
- improved medical technology which led to better diagnosis, treatment and cure of diseases
- the introduction of health promotion campaigns
- the development of new public health or the social model of health.

Figure 5.32 shows changes in the patterns of diseases by the five broad categories from 1907 to 2016. By using this data, you can identify improvements in health status over time and then apply the relevant reasons that would explain these changes.

FIGURE 5.32 Age-standardised death rates across time



Source: Adapted from AIHW, GRIM books. http://www.aihw.gov.au/deaths/grim-books/.

A suggested approach to this could be:

The patterns of death and illness in Australia have changed since 1900. Age-standardised death rates in all five broad categories of diseases are lower in 2016 than they were in 1907. The four categories where significant improvements have been made are infectious and parasitic diseases, cardiovascular diseases, respiratory diseases, and injury and poisonings.[1]

Infectious and parasitic diseases and respiratory diseases have shown the greatest reduction across this time.[2] This is due to policies and actions taken during the first part of the twentieth century that were known as the 'old public health'. The focus of these actions was to bring about changes in the environment. With a new understanding of the relationship between bacteria and disease, the government set about improving living conditions and making sure that people had safe water to drink; better sanitation and sewage systems were put in place. This brought about huge reductions in mortality from parasitic diseases, such as diarrhoea and cholera, particularly in children. Policies were introduced that brought about improved housing conditions that led to a reduction in infectious diseases such as pneumonia and influenza,[3] despite a spike in deaths in 1919 from the Spanish influenza epidemic. Infectious and parasitic diseases were further reduced with the introduction of vaccines that occurred in the early 1930s. Mass immunisation campaigns across the next 30 years brought about reductions in diseases such as diphtheria, pertussis, poliomyelitis, tetanus, measles and tuberculosis.[4] The discovery of antibiotics after World War II contributed further to a reduction in deaths from diseases such pneumonia and complications due to infection.[5]

1 This shows an understanding that the patterns of disease over time have changed and relates the changes to the five broad categories shown on the graph.

2 Selecting two of the categories of disease that have shown the greatest reduction demonstrates an understanding of the data.

3 An understanding of the actions taken as part of the 'old public health' are outlined and the specific link to infectious and parasitic diseases and respiratory diseases is provided.

4 The discovery of vaccines as a reason for the changes is identified and linked clearly to the types of diseases that were reduced.

5 The discovery of antibiotics and the impact on diseases is clearly made.

Cardiovascular diseases steadily increased from 1907 to 1931 and reached their peak in 1965. Since then they have steadily declined.[6] In 1965 there was an understanding that most deaths due to cardiovascular diseases were lifestyle related and, if people were educated on the causes of these diseases, particularly cigarette smoking, physical inactivity and a poor diet, they would take the necessary action to change their behaviour. This belief led to the introduction of a range of health promotion campaigns focused on changing individual behaviours.[7] This also corresponded with improved medical technology that enabled medical professionals to better diagnose cardiovascular diseases, prescribe medication to manage these diseases, and carry out more advanced medical treatment and curative surgery.[8] While this contributed to a decline in these diseases, there was a growing awareness that changing behaviour is difficult, and there are many factors that lie outside the control of individuals that make these changes difficult to achieve. This led to the introduction of new public health or the social model of health. This shifted the focus from individual behaviour change to one that focused more on the physical, sociocultural and political environments that influence health and wellbeing. In response to this, the Ottawa Charter provided a framework that set out how the social model of health could be implemented.[9] Along with ever improving medical technology, these approaches have resulted in reductions in deaths from cardiovascular diseases since 1965.

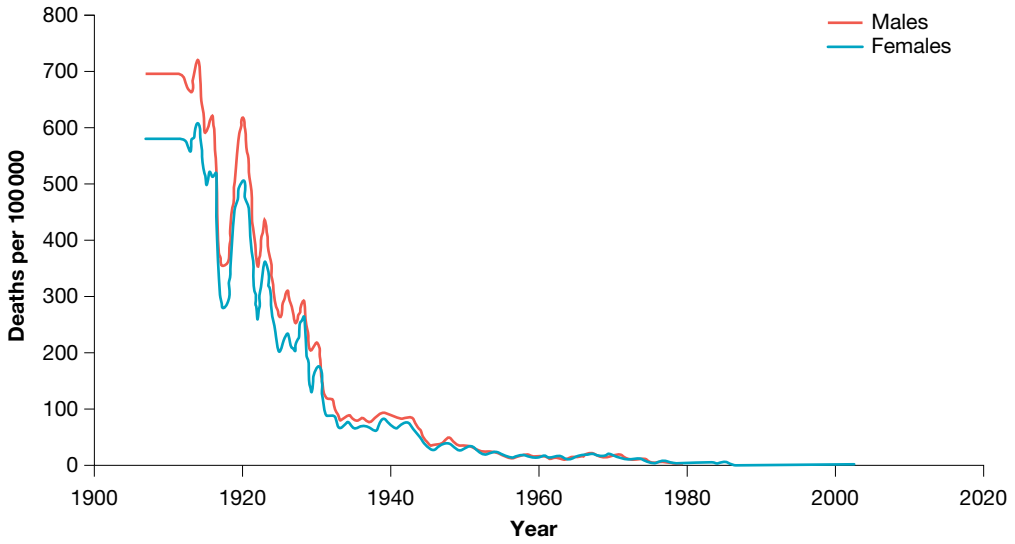
6 Another category of disease (cardiovascular diseases) is identified along with an outline of how the pattern of death has changed over time.

7 The role of health promotion is outlined, along with the link to the changes in the pattern of death and illness.

8 The role of medical technology and its link to the reduction in cardiovascular diseases is outlined clearly.

9 The role of the social model of health and the Ottawa Charter is identified as another reason for the decline in cardiovascular diseases.

FIGURE 5.33 Death rates for diarrhoea, males and females, 0–4 years, 1907–2003



Source: AIHW 2005, *Mortality over the twentieth century in Australia: trends and patterns in major causes of death*, p. 48.

Practise the key skill

Refer to figure 5.33, which shows deaths per 100 000 for diarrhoea in children aged 0–4 years, from 1907 to 2003.

1. Using data from the graph, outline the changes in deaths from diarrhoea from 1907 to 2003.
2. Outline two actions implemented by the government as part of the old public health and explain how these might have contributed to the reduction in deaths from diarrhoea.
3. What reasons could account for the spike in diarrhoea deaths in 1919 to 1920?

KEY SKILLS Analyse the strengths and limitations of biomedical and social models of health in bringing about improvements in health status

To analyse the strengths and limitations of the biomedical and social models of health in bringing about improvements in health status, it is important you understand both of these models. To do this, you should be able to:

- describe each model in terms of what it focuses on and its key features
- explain the advantages of each model
- explain the disadvantages of each model
- give examples of how each model has contributed to improvements in specific health and wellbeing concerns over time.

Using the five broad categories of diseases or conditions identified in this topic is an effective way to analyse the strengths and weaknesses of each model in bringing about improvements in health status.

One example could be injury and poisoning:

Deaths from injury and poisoning include those from motor vehicle and other accidents, suicide, assault, poisoning, drowning, burns and falls, and complications from medical and surgical care.[10]

Over the last 100 years, death rates for injury and poisoning more than halved, with the most rapid decline occurring since the 1970s.[11] Both the biomedical and social models of health have contributed to a reduction in deaths over time.[12]

The biomedical model of health has many advantages. The discovery of antibiotics following World War II meant that infection that frequently occurred following an accident or injury was able to be cured, reducing deaths from accidents. The development of x-rays and scans resulted in better diagnosis of injuries and therefore more effective treatment. Improved anaesthetics have also enabled more complex surgery to take place, increasing the likelihood of survival from accidents and injuries, all of which has helped increase life expectancy and improved people's quality of life.[13] However, while there are many advantages associated with the biomedical approach to health, there are also many disadvantages. The dependence upon technology contributes to the high costs to the healthcare system. Specialist medical personnel are required to address the individual needs of patients who attend hospitals with potentially life-threatening injuries. In some cases, the nature of the injury, especially spinal cord injuries, cannot be cured. In the case of drownings, the biomedical approach has limited impact unless resuscitation is possible.[14]

10 This shows an understanding of what is included under the category of injury and poisoning.

11 The trend — death rates over time — is clearly stated.

12 Identifies that both the biomedical and social models of health have contributed to reductions in death rates from injury and poisoning.

13 Identifies the advantages of the biomedical approach to health by applying it to injury and poisoning.

14 Outlines the corresponding disadvantages of the biomedical model in relation to injury and poisoning.

The social model of health has played an important role in reducing death rates from injury and poisoning over time. Deaths from motor vehicle crashes were at their highest in 1970 and then declined steadily. This decline reflected the range of public health actions that were introduced by the government, commencing with the introduction of the compulsory wearing of seatbelts in 1970, drink-driving restrictions, lowering of the speed limits, better roads, and improved car design and safety. There were also a series of mass media campaigns raising awareness of the dangers associated with speeding or driving while under the influence of drugs or alcohol, and the importance of being alert by having adequate sleep and rest breaks.

15 Outlines the advantages of the social model of health and applies them to injury and poisoning

Improved workplace safety resulting from the introduction of occupational health and safety laws has contributed to fewer workplace accidents and deaths. Poisonings have declined due to better labelling of toxic substances, child-proof lids and increased health awareness. Deaths due to drownings have also been decreased through the introduction of compulsory pool fences and health promotion campaigns. The social model of health also has many other advantages. It is targeted towards the whole population and aims to bring about equity in health and wellbeing by bringing about changes in the physical, sociocultural and political environments so that healthy choices become the easy choices. The social model of health tends to be comparatively less expensive than the biomedical approach[15] although its success is dependent upon careful planning and research to ensure that the health promotion messages are not ignored. In addition, not all injuries and poisonings can be prevented, and the needs of those who are injured are not addressed through the social model of health.[16]

16 Outlines the relevant disadvantages of the social model of health.

Practise the key skill

Read the paragraph about heart disease below.

> Medicine can only do so much. A heart is permanently damaged by heart disease — you can't take away the damage inflicted. Taking medication and receiving treatment can reduce the impact of heart disease on a woman's life, but they don't get rid of it. That is why it's important for women to be proactive. 'By taking steps to prevent heart disease you're not only improving your heart but you're also improving your general health.'
>
> ***Source:*** Adapted from King, R. 2016, 'Female heart disease: the most serious health threat facing Australian women', *The Daily Telegraph*, 28 May.

4. Discuss the relationship between the biomedical and social models of health described in this paragraph.
5. Outline two ways in which the biomedical approach can minimise the impact of heart disease and two ways in which heart disease can be prevented through the social model of health

5.8.2 Topic summary

Changes in Australia's health status over time

- There have been considerable changes in life expectancy over time, with improvements in the mortality rates of children being a major contributor to this.
- Between 1961 and 1972, death rates from cardiovascular diseases reached their peak and other lifestyle diseases were becoming more prevalent, and this affected gains in life expectancy.
- The age profile of the population has changed over time due to increased life expectancy and lower fertility rates, meaning fewer children are being born and the population is getting older.
- Overall death rates have also decreased, with a 71 per cent reduction for males and 76 per cent reduction for females between 1907 and 2016.
- Over the last 100 years the patterns of mortality have also changed.
- Diseases that accounted for 60 per cent of all deaths at the start of the twentieth century and 83 per cent of all deaths at the end of the century can be grouped into five main categories: cardiovascular diseases, cancers or neoplasms, respiratory diseases, infectious and parasitic diseases, and injury and poisoning.
- Infectious and parasitic diseases contributed to 13 per cent of all deaths in the first part of the twentieth century, largely due to the living conditions at the time. Water and food supplies were often contaminated, rubbish littered the streets, sanitation was poor and there were no sewage facilities.
- Cancer death rates increased throughout the twentieth century, reaching a peak in the mid-1980s due to the uptake in cigarette smoking in the earlier part of the century. Declining rates of smoking during the 1970s saw a reduction in deaths from cancer between 2000 and 2016.
- Cardiovascular diseases have been a major cause of death over the last 100 years. Death rates from cardiovascular diseases increased throughout the twentieth century until reaching their peak in the mid-1960s, after which time there has been a steady decline. These diseases are still a major cause of death in Australia.
- Death rates from respiratory diseases fell dramatically over the last 100 years, and by 2000 were less than 10 per cent of 1907 levels.
- Deaths from injury and poisoning include those from motor vehicle and other accidents, suicide, assault, poisoning, drowning, burns and falls, and complications from medical and surgical care.
- Death rates from injury and poisoning have more than halved over the last 100 years, mainly due to reductions in motor vehicle deaths.
- Work-related accidents due to poor working conditions were a major cause of death from injury during the first half of the twentieth century.

Policy and practice relating to the 'old public health' and Australia's health status

- Public health refers to the ways in which governments monitor, regulate and promote health and wellbeing and prevent illness.
- The old public health was concerned with the effect of the physical environment on health and wellbeing. It focused on measures such as providing safe water to drink, sewage facilities and better sanitation, improved nutrition, better housing conditions and safer work conditions. This led to a decrease in infectious and respiratory diseases.
- With the discovery of vaccines, many infectious diseases, such as polio, diphtheria, measles, tuberculosis, tetanus and smallpox, could be prevented. This contributed to significant reductions in infectious diseases.
- Following an outbreak of the bubonic plague, quarantine laws were introduced to protect Australians from diseases that could be transmitted from other countries.
- In 1921 the establishment of the Commonwealth Department of Health enabled health research and data collection to take place
- Infant welfare centres became the responsibility of the Commonwealth and State Governments and contributed to improvements in infant mortality.

- As the patterns of disease and illness started to change with the emergence of lifestyle diseases, the first health promotion activities were introduced. Their aim was to educate people to adopt health promoting behaviours.

The biomedical approach to health and its contribution to improving Australia's health status

- The biomedical model of health focuses on diseases and ways of diagnosing, treating and curing disease.
- It has many advantages such as improving technology and research, effectively treating common problems, extending life expectancy and improving quality of life.
- It has contributed to improvements in Australia's health status over time and is an important component of the healthcare system.
- The biomedical approach to health also has a number of disadvantages or limitations such as its high costs, encouraging a 'quick-fix approach' rather than looking at causes, being unable to treat all conditions although they may have been preventable and finally a lack of affordability for all individuals.

Development of new public health and the social model of health

- New public health or the social model of health emerged in the 1980s when it became clear that educating people about health promoting behaviours did not always lead to behaviour change. It recognised that there are many factors affecting health and wellbeing that lie outside the control of individuals.
- The social model of health focuses on the physical, sociocultural and political environments that impact on health and wellbeing.
- The principles of the social model of health are to:
  - address the broader determinants of health
  - involve intersectoral collaboration
  - act to reduce inequities
  - act to enable access to healthcare
  - empower individuals and communities.

The Ottawa Charter for Health Promotion

- The Ottawa Charter provides a framework for the application of the social model of health and includes five action areas
  - build healthy public policy
  - create supportive environments
  - strengthen community action
  - develop personal skills
  - reorient health services.
- The three strategies for health promotion are advocate, enable and mediate.

Improving health status using the social and biomedical approaches to health

- There are many advantages and disadvantages of both the social and biomedical models of health but both approaches are important in bringing about improvements in health and wellbeing.

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5.8 Exercise 1 Exam preparation

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Question 1

Table 5.7 shows the top 10 causes of death for males in 1907 and 2016.

TABLE 5.7 Top 10 causes of death for males, 1907 and 2016

Condition	% of total deaths 1907	Condition	% of total deaths 2016
Heart disease	8.3	Coronary heart disease	13.3
Tuberculosis	8.2	Transport accidents	8.5
Diarrhoea	7.1	Lung cancer	6.1
Senility	6.6	Cerebrovascular disease	5.2
Congenital issues	6.1	Chronic obstructive pulmonary disease	4.8
Bronchitis	4.8	Prostate cancer	4.0
Pneumonia	4.3	Diabetes	3.1
Nephritis	4.1	Colorectal cancer	3.0
Cerebrovascular disease	3.8	Suicide	2.6
Unspecified and ill defined	3.1	Other heart diseases	1.8

Source: AIHW 2005, *Mortality over the twentieth century in Australia: trends and patterns in major causes of death*, p. 44, and GRIM books S3.1.

a. Identify one similarity and one difference in the causes of death for males in 1907 compared to 2016. **(2 marks)**

b. Explain how the policies and practices undertaken as part of the old public health might have had an impact on the top 10 causes of death between 1907 and 2016. **(4 marks)**

c. (i) Identify three action areas of the Ottawa Charter. **(3 marks)**

(ii) Select two of the action areas identified in part (i) and discuss how each of these could contribute to reducing the death rates associated with any one of the top 10 causes of disease for males in 2016. **(4 marks)**

d. Discuss how the biomedical and social models could contribute to reducing the death rates associated with coronary heart disease. **(6 marks)**

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Interactivities Crossword (int-6887)
Definitions (int-6888)

6 Australia's health system

6.1 Overview

Key knowledge

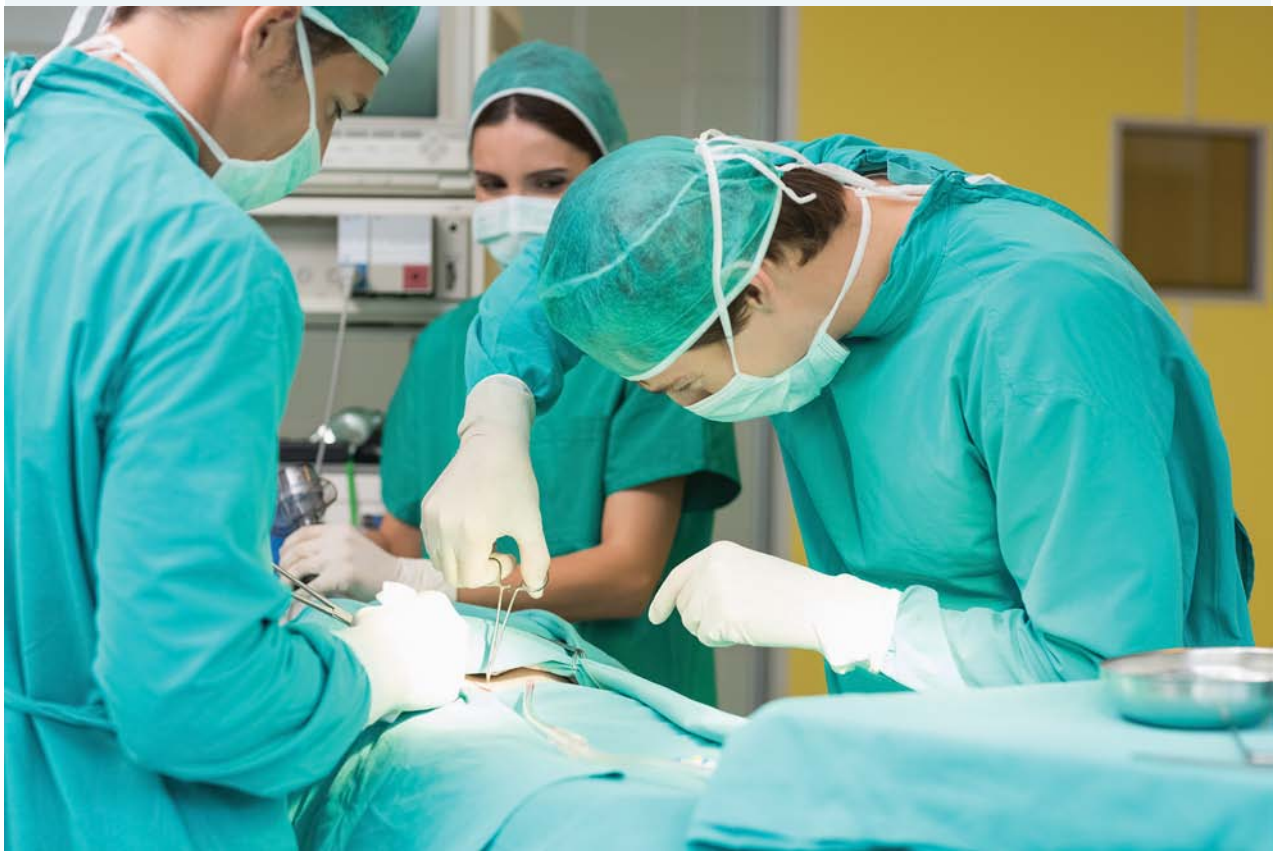
- Australia's health system, including Medicare, private health insurance, the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme, and its role in promoting health in relation to funding, sustainability, access and equity

Key skills

- Analyse the role of Medicare, private health insurance, the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme in promoting Australia's health

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 6.1 Doctors and hospitals form an important part of Australia's health system, but there are many other aspects that make it a comprehensive system.



KEY TERMS

Allied health services health services provided by trained health professionals who are not doctors, dentists or nurses. Examples include services provided by physiotherapists, psychologists and occupational therapists.
Assistive technology a device, system or design, that allows an individual to perform a task that they would otherwise be unable to do, or increase the ease and safety with which a task can be performed
Bulk billing when the doctor or specialist charges only the schedule fee. The payment is claimed directly from Medicare so there are no out-of-pocket expenses for the patient.
Income test a determination of whether an individual or family is eligible for government assistance based on their level of income
Patient co-payments the payment made by the consumer for health products or services in addition to the amount paid by the government
Premium the amount paid for insurance
Protected Special Category visa these visas are held by some people who arrived in Australia on a New Zealand passport and meet other specific criteria
Schedule fee the amount that Medicare contributes towards certain consultations and treatments. The government decides what each item is worth and that's what Medicare pays. Doctors and private hospitals may choose to charge more than the schedule fee.

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6.2 Medicare

KEY CONCEPT Understanding Australia's health system: Medicare

According to the World Health Organization, a health system is 'all the activities whose primary purpose is to promote, restore and/or maintain health'.

Common elements of health systems include funding models, a professional and well-trained workforce, reliable information on which to base decisions and policies, up-to-date facilities, and logistics to deliver quality medicines and technologies.

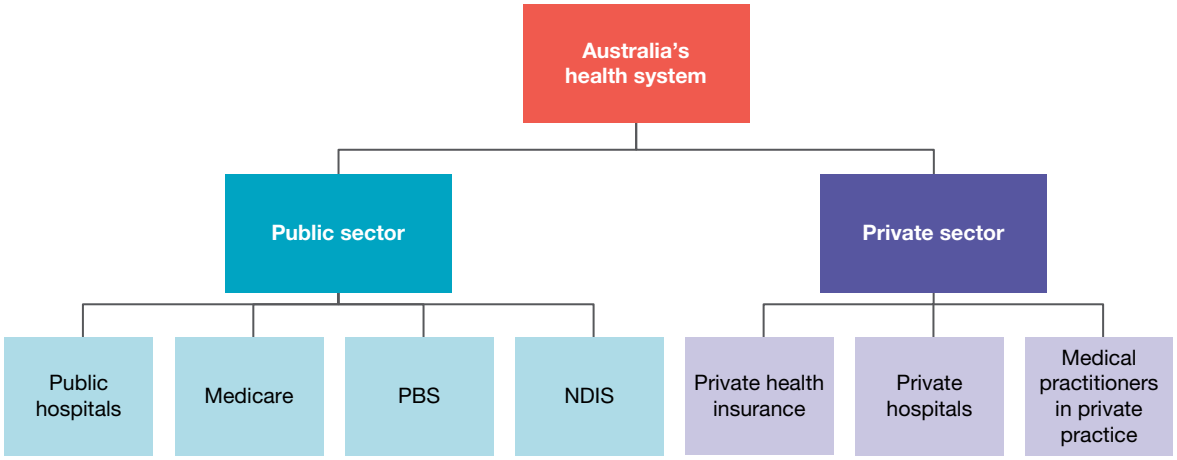
Australia's health system is made up of two main components — public and private healthcare. The public component includes public-sector health services and schemes that are provided by the Australian, state/territory and local governments, and include public hospitals, Medicare, the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme. The private sector includes private health insurance, private hospitals and medical practitioners in private practices (figure 6.2).

The Australian government and state/territory governments also fund and deliver a range of other services, including population health programs, health and medical research, and Aboriginal and Torres Strait Islander health services.

6.2.1 Medicare

Medicare is Australia's universal health insurance scheme. Established in 1984 and administered by the Federal Government, Medicare gives all Australians, permanent residents and people from countries with a reciprocal agreement (New Zealand, the United Kingdom, the Republic of Ireland, Belgium, Sweden, the Netherlands, Finland, Italy, Malta, Slovenia and Norway) access to subsidised healthcare.

FIGURE 6.2 Australia's health system is made up of the public and private sectors and the respective components.



6.2.2 What does Medicare cover?

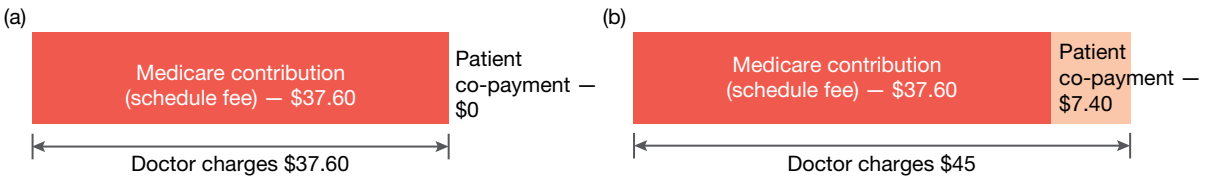
Out-of-hospital expenses

Medicare will pay all or some of the fees relating to many essential healthcare services. This includes consultation fees for doctors (general practitioners or GPs) and specialists, tests and examinations needed to treat illnesses, such as x-rays (see figure 6.5) and pathology, for example blood tests, and eye tests performed by optometrists. Most surgical and other therapeutic procedures performed by general practitioners are also covered.

FIGURE 6.3 Medicare is administered by the federal government and is available to all Australians.



FIGURE 6.4 (a) A bulk-billed GP consultation and (b) a GP consultation requiring patient co-payment



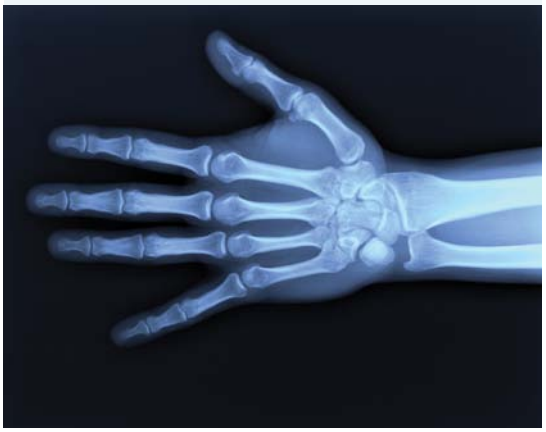
Source: www.health.gov.au.

The Medicare Benefits Schedule is a document that lists the range of services covered and the amount that Medicare will contribute to each known as the **schedule fee**. The schedule fees are based on the amount that is thought to be 'reasonable' on average, for that particular service. For example, the schedule fee for a GP's visit in January 2019 was $37.60. Based on this contribution, every time an individual goes to the doctor for a standard consultation, Medicare will contribute $37.60. This does not necessarily mean that the doctor will only charge that amount. Depending on the individual doctor's policy, the fee may be more than the schedule. If this is the case, the patient is responsible for paying the difference (known as the **patient co-payment**). If the doctor charges only the schedule fee, the patient does not have any out of pocket expenses and is said to have been **bulk-billed**. Examples of the contributions of both Medicare and the individual are outlined in the hypothetical situations in figure 6.4.

Although most basic dental services are usually not covered by Medicare, some dental procedures can be covered, including:

- some surgical procedures performed by approved dentists
- services for some children aged 2–17. Under the Child Dental Benefits Scheme, some children are eligible for Medicare-funded dental procedures. Medicare will provide $1000 worth of dental treatment over two years for those who qualify. In order to qualify, the individual must be eligible for Medicare and receive (or their family, guardian or carer must receive) certain government benefits, such as Family Tax Benefit Part A or Youth Allowance (forms of social security), for at least part of the calendar year.

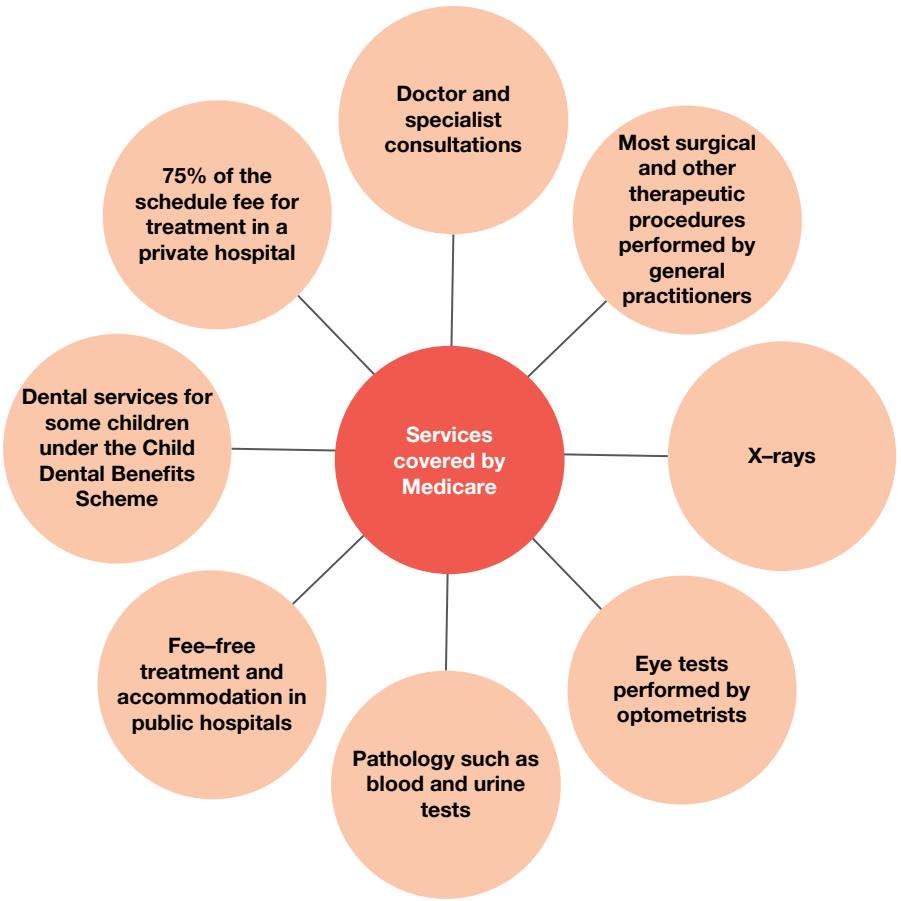
FIGURE 6.5 X-ray is one of the many services Medicare covers.



In-hospital expenses

As a public patient in a public hospital, accommodation and treatment by doctors and specialists is covered by Medicare, including initial treatment and aftercare. If an individual chooses to be admitted to a private hospital or as a private patient in a public hospital, Medicare will pay 75 per cent of the schedule fee for treatment by doctors and specialists, but will not contribute to accommodation or other costs such as theatre fees and medication. A summary of the in- and out-of-hospital services covered by Medicare is shown in figure 6.6.

FIGURE 6.6 Summary of services covered by Medicare



Medicare Safety Net

The Medicare Safety Net provides extra financial assistance for those that incur significant out of pocket costs for Medicare services. Once an individual or family has contributed a certain amount out of their own pocket to Medicare services in a calendar year ($470 in 2019), further financial support is provided by the government, making Medicare services cheaper for the remainder of that year.

6.2.3 What is not covered by Medicare?

Medicare covers most 'clinically necessary' hospital and doctors' services. Any cosmetic or unnecessary procedures are generally not covered. Other services not covered by Medicare include:

- most costs associated with private hospital care. Medicare will pay 75 per cent of the schedule fee for *treatment* in private hospitals but will not contribute to accommodation and other costs.
- most dental examinations and treatment. Although some children aged 2–17 can qualify for Medicare-funded dental care, most individuals are responsible for meeting their own costs associated with dental healthcare.
- home nursing care or treatment
- ambulance services
- most **allied health services** (unless referred by a GP or carried out in a public hospital).

FIGURE 6.7 Alternative therapies, such as acupuncture, are not usually covered by Medicare, but can be if carried out or referred by a GP.



A number of treatments that exist in addition to traditional medicine are generally not covered by Medicare. Often these are seen as 'alternative medicines' and include chiropractic services, acupuncture, remedial massage, naturopathy and aromatherapy. Medicare may contribute if these services are carried out or referred by a GP.

Health-related aids, such as glasses and contact lenses, hearing aids and the cost of artificial limbs (prostheses), are also exempt from the Medicare rebate. Pharmaceuticals are not covered under Medicare but may be subsidised under the Pharmaceutical Benefits Scheme.

Medical costs for which someone else is responsible (for example, a compensation insurer, an employer, or a government or non-government authority) do not qualify for a Medicare contribution as the person or organisation responsible is expected to pay the medical fees.

Individuals and/or families can choose to purchase private health insurance to cover many of the services not covered by Medicare if they wish.

6.2.4 The advantages and disadvantages of Medicare

The advantages and disadvantages of Medicare are summarised in table 6.1.

6.2.5 How is Medicare funded?

Medicare is funded through three sources of income:

- the Medicare levy
- the Medicare levy surcharge
- general taxation.

The Medicare levy is an additional 2 per cent tax placed on the taxable income of most taxpayers. Those with low incomes or with specific circumstances may be exempt from paying the levy.

TABLE 6.1 The advantages and disadvantages associated with Medicare

Advantages	Disadvantages
• Choice of doctor for out-of-hospital services • Available to all Australian citizens • Reciprocal agreement between Australia and other countries allows Australian citizens to access free healthcare in selected countries • Covers tests and examinations, doctors' and specialists' fees (schedule fee only), and some procedures such as x-rays and eye tests • The Medicare Safety Net provides extra financial contributions for medical services once an individual's or family's co-payments reach a certain level	• No choice of doctor for in-hospital treatments • Waiting lists for many treatments • Does not cover alternative therapies • Often does not cover the full amount of a doctor's visit

People without private health insurance earning more than a certain amount ($90 000 a year for individuals and $180 000 for families in 2020–21) have to pay an extra tax called the Medicare levy surcharge. The Medicare levy surcharge increases as income increases; for example, an individual without private health insurance earning more than $90 000 will pay an extra 1 per cent of their income to Medicare, and an individual without private health insurance earning more than $140 001 will pay an extra 1.5 per cent of their income to Medicare. This is an incentive for those on higher incomes to take out private health insurance, which takes some of the financial pressure off Medicare.

The Medicare levy surcharge aims to encourage individuals to take out private hospital cover and, where possible, to use the private system to reduce the demand on the Medicare-funded public system.

The revenue collected from the Medicare levy and the Medicare levy surcharge does not meet the full operating costs of Medicare. Therefore, income collected through general taxation is also used to help fund the cost of Medicare.

TABLE 6.2 Medicare services provided and benefits paid, 2007–18

	Total services provided (million)	Average number of services per person	Total cost of services ($ million)	Average cost per person ($)
2007–08	278.7	13.4	13 006.5	624.5
2008–09	293.5	13.8	14 255.2	670.7
2009–10	308.0	14.2	15 413.7	710.6
2010–11	318.8	14.5	16 317.6	740.6
2011–12	332.2	14.9	17 639.2	789.6
2012–13	343.6	15.1	18 565.6	816.7
2013–14	356.1	15.4	19 122.6	826.8
2014–15	368.5	15.7	20 188.9	860.0
2015–16	384.0	16.1	21 107.8	866.3
2016–17	394.3	16.3	22 002.6	909.5
2017–18	414.3	16.8	23 196.3	943.0

Source: www.health.gov.au.

EXAM TIP

This study design dot point relates to Australia's health system and how it promotes 'health', which can relate to either health and wellbeing or health status. If asked how the health system (or an aspect of it) can promote health or improve health outcomes, links to either health and wellbeing or health status are acceptable.

6.2 Activity

Access the **Medicare** weblink and worksheet in the Resources tab then complete the worksheet.

6.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) Briefly describe Medicare.
   (b) What does Medicare cover?
   (c) What does Medicare not cover?
2. (a) What is meant by the term 'schedule fee'?
   (b) What is bulk billing?
3. What percentage of the schedule fee does Medicare pay if individuals are treated as private patients?
4. What is the Medicare Safety Net?
5. Outline how Medicare is funded.

6.2 Exercise 2 APPLY your knowledge

1. Does Medicare represent the biomedical or social model of health? Explain. (You may need to refer to subtopics 5.4 and 5.5.)
2. Does Medicare cover dental healthcare? Discuss.
3. Explain how the Medicare Safety Net may promote health status in Australia.
4. Explain how Medicare improves health outcomes in Australia.
5. (a) According to table 6.2, how has the average number of Medicare services per person changed from 2007–08 to 2017–18?
   (b) Suggest two possible reasons for this change.

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6.2 Exercise 3 studyON: Past VCAA exam questions online only

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on Resources

Digital document Medicare worksheet (doc-32205)
Weblink Medicare

6.3 The Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme

KEY CONCEPT Understanding Australia's health system: the Pharmaceutical Benefits Scheme and National Disability Insurance Scheme

In addition to Medicare, the federal government is responsible for the Pharmaceutical Benefits Scheme (PBS) and plays a key role in administering the National Disability Insurance Scheme (NDIS). The PBS and NDIS are two key components of Australia's health system and work to promote health and wellbeing in Australia.

6.3.1 Pharmaceutical Benefits Scheme (PBS)

The PBS is a key component of the federal government's contribution to Australia's health system.

The PBS has been evolving since 1948, when the government provided lifesaving and disease-preventing medication to the community free of charge. The aim was to provide essential medicines to people who needed them, regardless of their ability to pay. The purpose of the PBS remains the same today, but instead of being free, medicines are now subsidised and consumers must make a patient co-payment. As at 1 January 2019, the patient co-payment for most PBS-subsidised medication was $40.30 or $6.50 for concession cardholders. The government pays the remaining cost. These costs are adjusted each year on 1 January to stay in line with inflation.

In addition to the initial subsidy, individuals and families are further protected from large overall expenses for PBS-listed medicines through the PBS Safety Net. Once they (or their immediate family) have spent $1550.70 within a calendar year on PBS-listed medicine, the patient pays only a concessional co-payment rate of $6.50 rather than the normal $40.30.

Currently, over 5000 brands of prescription medicine are covered by the PBS. This includes different brands of the same medicine.

FIGURE 6.8 Over 5000 essential medications are subsidised under the PBS.



There are also a number of drugs not covered by the PBS. These drugs require the patient to pay the full amount. Available medications are reviewed three times a year by the Pharmaceutical Benefits Advisory Committee (PBAC). The PBAC is an independent committee made up of health professionals who review and consider new medications for inclusion in the PBS. No new medicine can be listed on the PBS unless the committee makes a positive recommendation. Before recommending a medicine for listing, the PBAC takes into account the medical conditions for which the medicine is used, its clinical effectiveness, safety and cost-effectiveness ('value for money') compared with other treatments.

In 2017–18, more than $12 billion was paid through the PBS. On average, there were around nine prescriptions subsidised for every person in Australia (Department of Health and Ageing 2018).

CASE STUDY

Big rise in number of subsidised high-priced drugs

By Dan Harrison

The number of high-priced drugs being subsidised by the federal government has dramatically increased in recent years as pharmaceutical companies produce more targeted therapies for smaller groups of patients.

The federal health department said there are 61 drugs listed on the Pharmaceutical Benefits Scheme that cost more than $5000 each time they are dispensed.

In 1991, $2800 would have had the same buying power as $5000 today. Yet the most expensive drug listed on the scheme in 1991 cost $843 — less than one-third of this amount.

In response to a question from Liberal senator Linda Reynolds, the department said while there were a similar number of drugs costing $20 or less in 1991 and 2014, 'the number of higher-cost listings has grown significantly'. More than 500 drugs are listed on the PBS at between $1001 and $5000.

The Pharmaceutical Benefits Advisory Committee, the expert body that recommends medicines for subsidy, is preparing to consider a second application for the listing of Hepatitis C drug Sovaldi.

The committee rejected the drug for listing last July on value-for-money grounds. The Health Department has since revealed the estimated cost of the drug was more than $1 billion over five years.

In the United States, the cost of a 12-week course of Sovaldi is about $US84 000 ($102 000).

Last year, the total cost of the Pharmaceutical Benefits Scheme, which includes more than 3000 drugs, was just over $9 billion.

The most expensive drug on the PBS is Soliris, a treatment for a rare kidney condition, listed on the PBS last December. The average cost of the treatment is more than $500 000 a year per patient for life.

Stephen Duckett, a former head of the federal health department who now heads the health program at the Grattan Institute, said the end of the era of new 'blockbuster' drugs — those which provide a benefit to large groups of people, such as cholesterol-lowering medications — had led to the emergence of 'highly targeted drugs for a very small segment of the population'.

'You still have quite large drug development costs, and they have to be amortised over much smaller populations which end up as much more expensive drugs per dose.'

Medicines Australia chief Tim James said all drugs listed on the PBS had been rigorously assessed by the Pharmaceutical Benefits Advisory Committee. 'No other spending in the health portfolio is subject to such stringent assessment of cost effectiveness,' he said.

Mr James said research and development costs had risen as treatments become more complex and targeted, but reforms that had driven down the price of off-patent drugs by up to 97 per cent ensured the overall cost of the PBS was sustainable. Professor Duckett said 'the very purpose of the PBS' was to make expensive drugs accessible by spreading their cost across all taxpayers.

Source: *The Age*, 14 January 2015.

Case study review

1. How many drugs on the PBS cost more than $5000 each time they are dispensed?
2. (a) What is the patient co-payment for a drug that costs $5000 to dispense if it is included in the PBS?
   (b) Explain how this could impact the health and wellbeing of individuals.
3. How many drugs that cost between $1001 and $5000 are included in the PBS?
4. (a) Why was the Hepatitis C drug Sovaldi rejected for inclusion on the PBS when it could save lives?
   (b) What was the estimated cost of including Sovaldi on the PBS?
5. What is the most expensive drug on the PBS? How much does it cost?
6. Why have research and development costs risen? What impact would that have on the cost of pharmaceuticals once they are available for sale?

6.3.2 National Disability Insurance Scheme (NDIS)

The NDIS is a national insurance scheme that provides services and support for people with permanent, significant disabilities, and their families and carers. Funded by the federal and state/territory governments, the NDIS works to assist individuals with disabilities to live an ordinary life.

To be eligible for the NDIS, a person must meet the age, residency and disability requirements.

The age requirement states that an individual must be aged under 65 when applying for the NDIS.

To meet the residency requirement, the individual must live in Australia and be an Australian citizen or hold a permanent visa or a **Protected Special Category visa**.

The disability requirements are fourfold:

- you have an impairment or condition that is likely to be permanent (i.e. it is likely to be lifelong)
- your impairment substantially reduces your ability to participate effectively in activities, or perform tasks or actions unless you have:
  - assistance from other people or
  - you have **assistive technology** or equipment (other than common items such as glasses) or
  - you can't participate effectively even with assistance or aides and equipment
- your impairment affects your capacity for social and economic participation
- you are likely to require support under the NDIS for your lifetime.

FIGURE 6.9 The NDIS provides services and support for people with disabilities.



If the age, residency and disability requirements are met, the first step in accessing the NDIS is developing an individualised plan. The plan is based on the individual's goals and aspirations, both now and in the future. This may include greater independence, community involvement, employment and improved health and wellbeing. The plan also identifies the functional support needed for daily living and participation, the support needed to pursue goals, and how the individual wants to manage their plan over time. For example, the individual may choose to manage the plan themselves, nominate someone to help manage their plan, or ask NDIS staff to manage all or part of their plan on their behalf. The NDIS provides information to help participants make these choices and design an individualised plan that is right for each person.

Through the individualised plan, the NDIS assists participants to:

- Access mainstream services and supports. These are the services available for all Australians from people like doctors or teachers through the health and education systems. It also covers areas like public housing and the justice and aged care systems. The NDIS provides information about appropriate support options and assists participants in accessing such services.
- Access community services and supports. These are activities and services available to everyone in a community, such as sports clubs, community groups, libraries or charities. Many individuals wish to be socially connected by accessing services and supports within the community.
- Maintain informal support arrangements. This is the help that people get from their family and friends. It is support people don't pay for and is generally part of most people's lives.
- Receive reasonable and necessary funded supports. The NDIS can pay for supports that are reasonable and necessary. This means they are related to a person's disability and are required for them to live an ordinary life and achieve their goals. Funding is provided for assistive technology such as a mobility cane, nonslip bathmat, talking watch, shower stool/chair, over-toilet frame, bed rails and wheelchairs. Funding is also provided to pay for carers if the individual requires assistance with daily tasks.

FIGURE 6.10 The NDIS assists people with permanent disabilities to lead an ordinary life.



As an insurance scheme, the NDIS takes a lifetime approach, investing in people with disability early to improve their health and wellbeing later in life. By 2019, the NDIS was supporting about 460 000 Australians with disability.

FIGURE 6.11 An individual plan through the NDIS provides a range of resources and support.

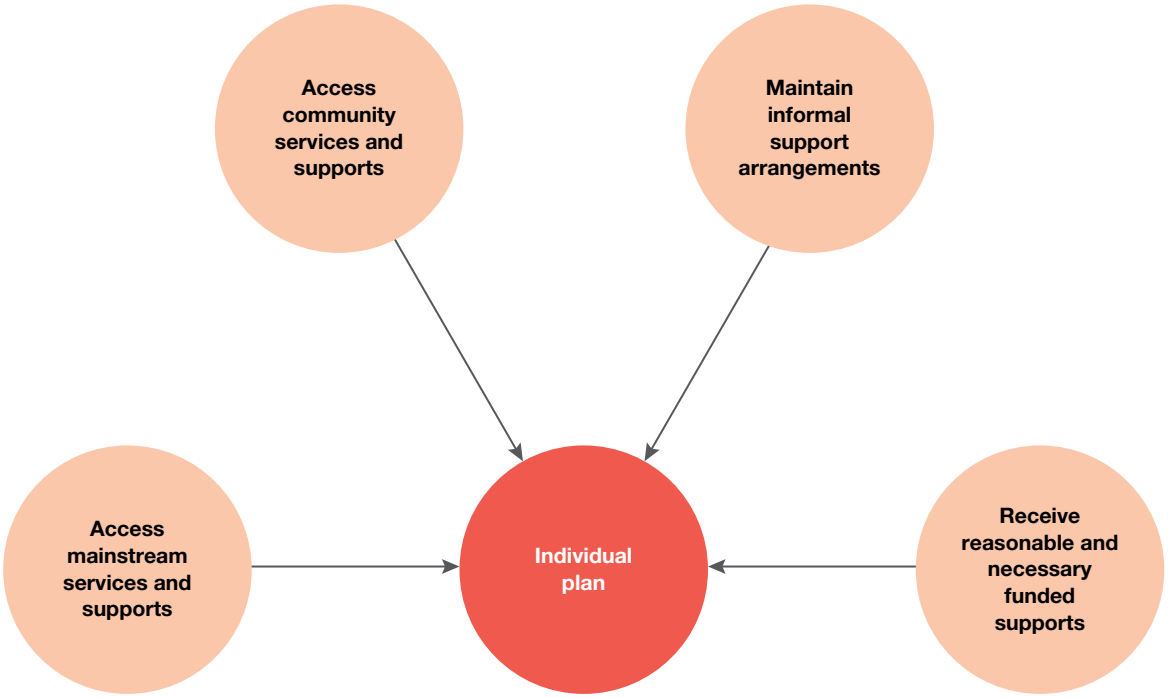


FIGURE 6.12 Assistive technology includes devices like wheelchairs that assist people in carrying out everyday tasks such as attending school.



CASE STUDY

Sarah's story — How we might provide a personal plan and supports over a lifetime

Sarah is 24, and was born with cerebral palsy. Prior to her contact with the National Disability Insurance Agency, she had no job or friends. Sarah has limited mobility and uses an electric wheelchair. Her parents provide her with most of her support. She had outgrown her wheelchair, which she had had for over eight years.

After her initial contact, Sarah worked with us to develop an individual plan. She was asked to think about her goals and aspirations, not just her physical needs. Sarah said she wanted to socialise more, and she was really interested in film.

Sarah's plan identified that she would benefit from physiotherapy and she could have daily in-home assistance with some tasks and help improve her independence. She was provided with funding for a new wheelchair.

The biggest change in Sarah's life came when we helped her locate a film club and worked with the club to support her involvement. Sarah's plan also included transport to and from these events.

Source: www.ndis.gov.au.

Case study review

1. Explain how the NDIS assisted Sarah.
2. Discuss how the NDIS may have promoted Sarah's health and wellbeing.

6.3 Activity

Access the **NDIS** weblink and worksheet in the Resources tab then complete the worksheet.

6.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the Pharmaceutical Benefits Scheme (PBS)?
2. (a) What is the Pharmaceutical Benefits Advisory Committee (PBAC)?
   (b) What role does the PBAC play in the PBS?
   (c) What factors does the PBAC take into account?
3. What does the co-payment mean in the PBS?
4. What is the National Disability Insurance Scheme (NDIS)?
5. What are the eligibility criteria for the NDIS?
6. Once the eligibility criteria are met, what is the first step in accessing the NDIS?
7. What does the NDIS assist participants in doing?
8. What is meant by 'assistive technology'?

6.3 Exercise 2 APPLY your knowledge

1. Outline one similarity and one difference between Medicare and the PBS.
2. Explain how the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme improve the health status of Australians.
3. Explain how assistive technology could promote the health and wellbeing of individuals in Australia.

studyON

6.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document NDIS worksheet (doc-32202)
Weblink NDIS

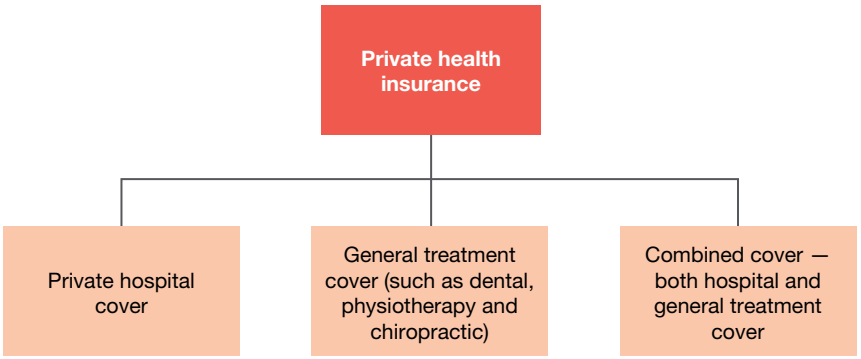
6.4 Private health insurance

KEY CONCEPT Understanding Australia's health system: private health insurance

Private health insurance is a type of insurance under which members pay a **premium** (or fee) in return for payment towards health-related costs not covered by Medicare. It is an optional form of health insurance that can be purchased in addition to Medicare.

Private health insurance is an important part of Australia's health system. As well as contributing much of the necessary healthcare funding, it gives Australians more choice in the sort of care they wish to access. Private hospitals (which are largely funded by private health insurance companies) provide about one-third of all hospital beds and 40 per cent of hospital separations. As well as private hospital cover, people can receive cover for general treatment (also known as 'extras' cover) to pay for services provided by dentists, physiotherapists and chiropractors, which are generally not covered by Medicare. The individual can choose which extras are covered, but the premium increases with each addition. The options available in private health insurance are shown in figure 6.13.

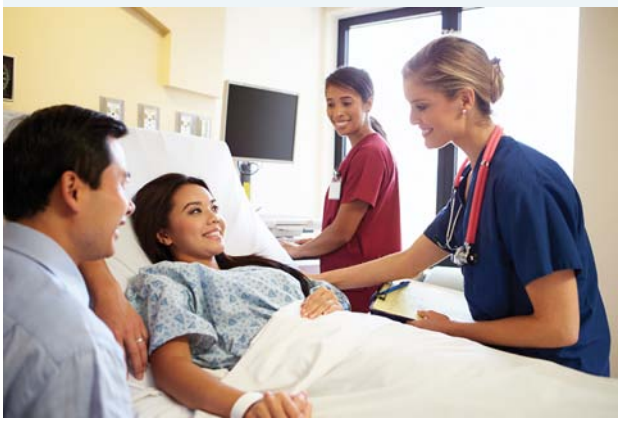
FIGURE 6.13 Private health insurance options



Like all insurance policies, private health insurance works by participants paying a premium, which can vary depending on how many people are covered by the policy and the options included in the policy. The basic benefit of most policies is the right to be admitted as a private patient in a public or private hospital, with many of the expenses met by the insurance company. Medicare will still pay 75 per cent of the doctor's schedule fee for treatment in private hospitals.

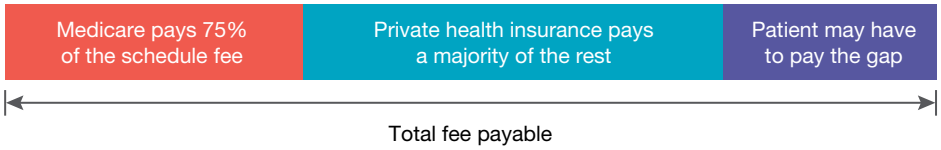
People with private health insurance generally have greater choice in terms of hospitals and doctors. As private hospitals charge much more than public hospitals, generally only people with insurance tend to use them. In private hospitals, patients get their choice of doctor, can have their own room and generally don't have to wait for extended periods for elective (non-emergency) surgery, which can happen in the public system.

FIGURE 6.14 People with private health insurance often have more choice in their healthcare such as choosing their own doctor for hospital treatment and having their own room.



Private hospitals usually charge more than the schedule fee for services. Generally, private health insurance companies pay the additional costs, but sometimes the total bill may exceed the amount contributed by the insurance company. In these cases, the patient has to pay the rest, known as 'the gap' (see figure 6.15). Many health insurance companies have partnership arrangements with hospitals to ensure that gap payments are kept to a minimum.

FIGURE 6.15 Breakdown of fees paid for using private hospitals

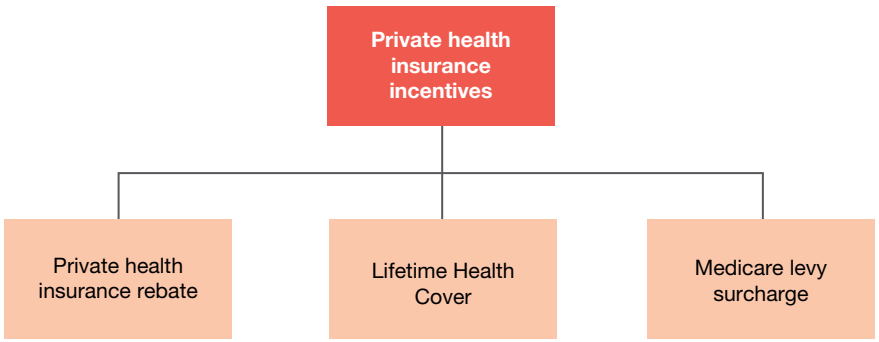


6.4.1 Private health insurance incentives

The proportion of people who have private health insurance has fluctuated over the years. When Medicare was introduced, many people opted out of private health insurance because they could access essential treatments without having to pay expensive private health insurance premiums. This put a strain on the public health system as fewer people were using private hospitals.

In order to encourage people back into private health insurance, the government introduced three main incentives (see figure 6.16).

FIGURE 6.16 The three incentives put in place to encourage people to take out private health insurance



Private health insurance rebate

In 1999, the government introduced the 30 per cent rebate incentive. Under this scheme, policyholders received a 30 per cent rebate (or refund) on their premiums for private health insurance. In 2012, this rebate became **income tested**. In 2019, under this arrangement, individual policyholders under the age of 65 received the following rebates:

- Individuals with an income under $90 000 received a 26 per cent rebate.
- Individuals with an income between $90 001 and $105 000 received a 17 per cent rebate.
- Individuals with an income between $105 001 and $140 000 received a 9 per cent rebate.
- Individuals with an income of more than $140 000 received no rebate.

The threshold amounts are higher for families to reflect the extra expenses families incur compared to individuals. In 2019:

- Families earning under $180 000 received a 26 per cent rebate.
- Families earning between $180 001 and $210 000 received a 17 per cent rebate.
- Families earning between $210 001 and $280 000 received a 9 per cent rebate.
- Families earning more than $280 000 received no rebate.

Eligible policyholders aged between 65 and 70 received approximately an extra 5 per cent rebate, and those aged over 70 received approximately an extra 10 per cent rebate.

Eligible policyholders can opt to pay a reduced premium (with the government contributing the remainder) or pay the total and reclaim the rebate in their tax return. Although the government is paying a substantial amount to fund this incentive, it increases the affordability of private health insurance and generates much-needed funds for the health system. It also increases the proportion of people using the private system which takes pressure off public hospitals, especially for elective surgery.

Lifetime Health Cover

A second incentive is referred to as 'Lifetime Health Cover'. People who take up private insurance after the age of 31 pay an extra 2 per cent on their premiums for every year they are over the age of 30. For example, a person who takes out private health insurance at age 40 will pay 20 per cent more for their private health insurance than someone who first takes out hospital cover at age 30. This encourages younger people to take up private health insurance and keep it for life. Having more young people with private health insurance helps offset the cost of providing healthcare for older Australians, who are more likely to need it.

The maximum Lifetime Health Cover loading payable is 70 per cent, which would apply to a person who takes out private health insurance for the first time at age 65.

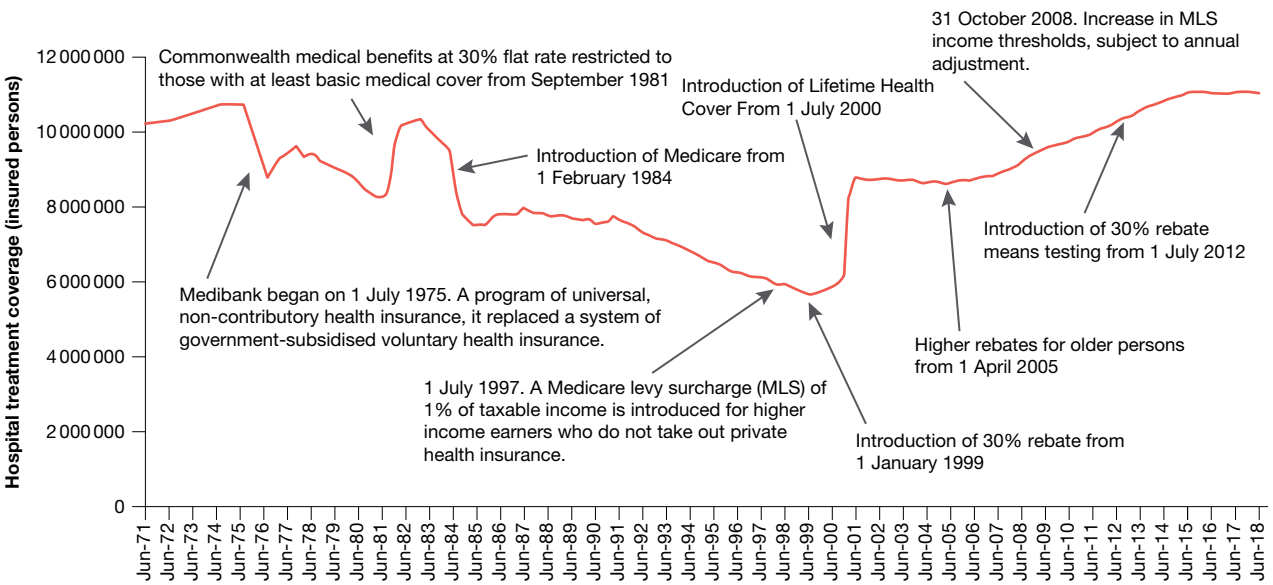
Once taken out, if an individual holds private health insurance for 10 continuous years, the loading is removed and the individual will pay the same amount as someone who took out insurance at the age of 30.

Medicare levy surcharge

A third incentive is the Medicare levy surcharge. People earning more than $90 000 a year ($180 000 for families) pay an extra tax as a Medicare levy surcharge if they do not purchase private health insurance. The Medicare levy surcharge is calculated according to income and ranges from 1 per cent to 1.5 per cent. This encourages high income earners to take out private health insurance.

The number of people with private health insurance between 1971 and 2015, along with significant interventions, are shown in figure 6.17.

FIGURE 6.17 Changes in private health insurance membership over time



Source: www.apra.gov.au.

6.4.2 The advantages and disadvantages of private health insurance

The advantages and disadvantages of private health insurance are summarised in table 6.3.

TABLE 6.3 The advantages and disadvantages of private health insurance

Advantages	Disadvantages
• Enables access to private hospital care • Choice of doctor while in public or private hospital • Shorter waiting times for some medical procedures such as elective surgery • Depending on the level of cover purchased, services such as dental, chiropractic, physiotherapy, optometry and dietetics could be paid for • Helps to keep the costs of operating Medicare under control • High income earners with private health insurance do not have to pay the additional tax, called the Medicare levy surcharge • Government rebate for eligible policy holders • 'Lifetime Health Cover' incentive	• Costly in terms of the premiums that have to be paid • Sometimes have a 'gap', which means the insurance doesn't cover the whole fee and the individual must pay the difference • Qualifying periods apply for some conditions (such as pregnancy) • Policies can be complex to understand and so create confusion for the average person

6.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain private health insurance.
2. Describe the three incentives used to encourage people to take up private health insurance.
3. What is a premium?
4. What is 'the gap'?
5. Identify three advantages and three disadvantages of private health insurance.

6.4 Exercise 2 APPLY your knowledge

1. Explain how private health insurance can promote:
   (a) the health and wellbeing of individuals
   (b) health status in Australia.
2. Why do you think the government provides incentives for people to take out private health insurance?
3. Why is private health insurance an essential part of Australia's health system?
4. Can people without private health insurance use private hospitals? Explain.
5. Outline two differences between Medicare and private health insurance.

studyON

6.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

6.5 Funding and sustainability and the role of Australia's health system

KEY CONCEPT Understanding the role of Australia's health system in promoting health: funding and sustainability

Australia's health system plays a significant role in promoting health status. Four key areas of focus guide the implementation of the health system and can be used to explore the way in which health status is targeted:

- funding
- sustainability
- access
- equity.

Each of the four areas will be explored in the coming sections and it is important to note that these areas are interrelated and impact on each other. As a result, there is some overlap in how each of the areas impact on the health system.

6.5.1 Funding

Funding of the health system relates to the financial resources that are provided to keep the health system adequately staffed and resourced so a high level of care is available for those who need it.

Funding the health system means more people can receive treatment by reducing the costs the individual must contribute. As a result, more people can access healthcare and receive treatment for a range of conditions, reducing morbidity and mortality rates.

Funding related to Medicare, the PBS, the NDIS and private health insurance contributes to improved health outcomes in Australia as shown in table 6.4.

TABLE 6.4 Funding across Australia's health system provides better access to healthcare and improved services

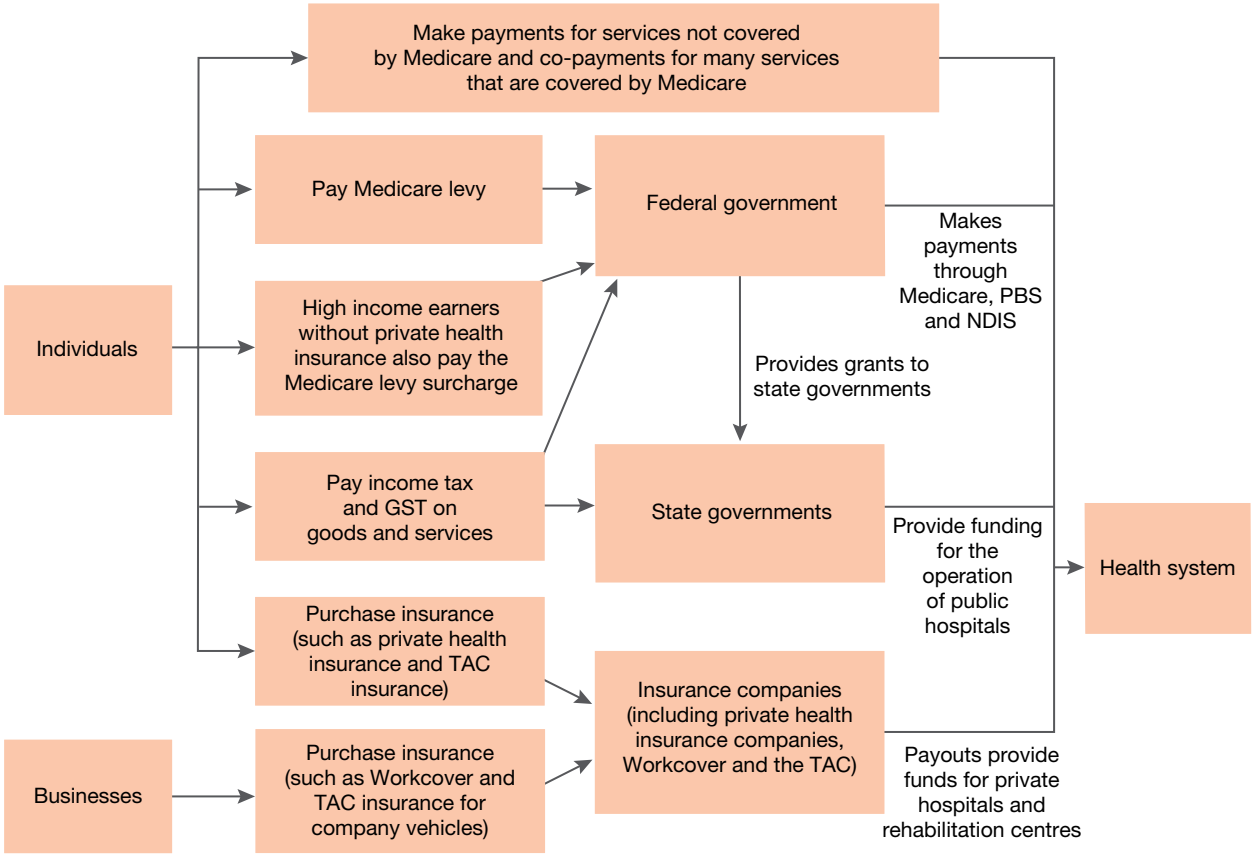
Medicare	The PBS	The NDIS	Private Health Insurance
• Medicare funds part or all of the fees associated with health services — including doctor and specialist consultations, pathology tests and fee-free treatment in public hospitals	• Essential medicines are subsidised through the PBS, providing treatment for many conditions, promoting health outcomes	• The NDIS can provide funding for a range of resources that promote health status, including carers who can provide support with daily living and staying socially connected • Assistive technology such as wheelchairs and bed rails	• Private health insurance provides much of the funding for private hospitals which are responsible for around 40 per cent of hospital treatments. • The federal government funds the private health insurance rebate which means private health insurance is more affordable for more people

Funding Australia's health system also assists in promoting health outcomes by providing:

- healthcare infrastructure — such as hospitals, consulting rooms and medical technology
- highly trained health professionals — adequate funding assists in maintaining professional standards through ongoing training and education
- personnel — administrative and support staff in public hospitals are largely funded through Medicare and government grants
- medical supplies — including those used to administer treatments such as surgical tools, tapes and bandages
- public health programs — programs that work to promote health and wellbeing and prevent disease such as Quit and LiveLighter are funded through the health system
- advances in knowledge and technology through research — such as developments in preventing, diagnosing and treating common conditions.

Australia's health system operates with the combined funding from the federal and state/territory governments, private health insurance, other forms of insurance funds and individuals (see figure 6.18).

FIGURE 6.18 Funds reach the healthcare system through numerous avenues.



Total expenditure on health in 2016–17 was $180.7 billion compared with an expenditure of $170.4 billion the previous year, an increase of around 4 per cent. This represented an average rate of health expenditure in 2016–17 of about $7411 per person.

In 2016–17 total health expenditure as a proportion of gross domestic product was around 10 per cent; in 1995–96 the proportion was 7.5 per cent. When costs are kept constant to 2016–17 prices, increases in expenditure over time can be analysed as shown in figure 6.20. Increasing health costs have occurred over time, largely due to:

- an ageing population — the average age is increasing in Australia. This results in a higher proportion of chronic conditions requiring care.
- increasing incomes, a growing economy and rising expectations — rising incomes and a growing economy mean that there is more money available to spend on healthcare. As more money becomes available, the population expects that more can be done to improve their health and wellbeing when required.

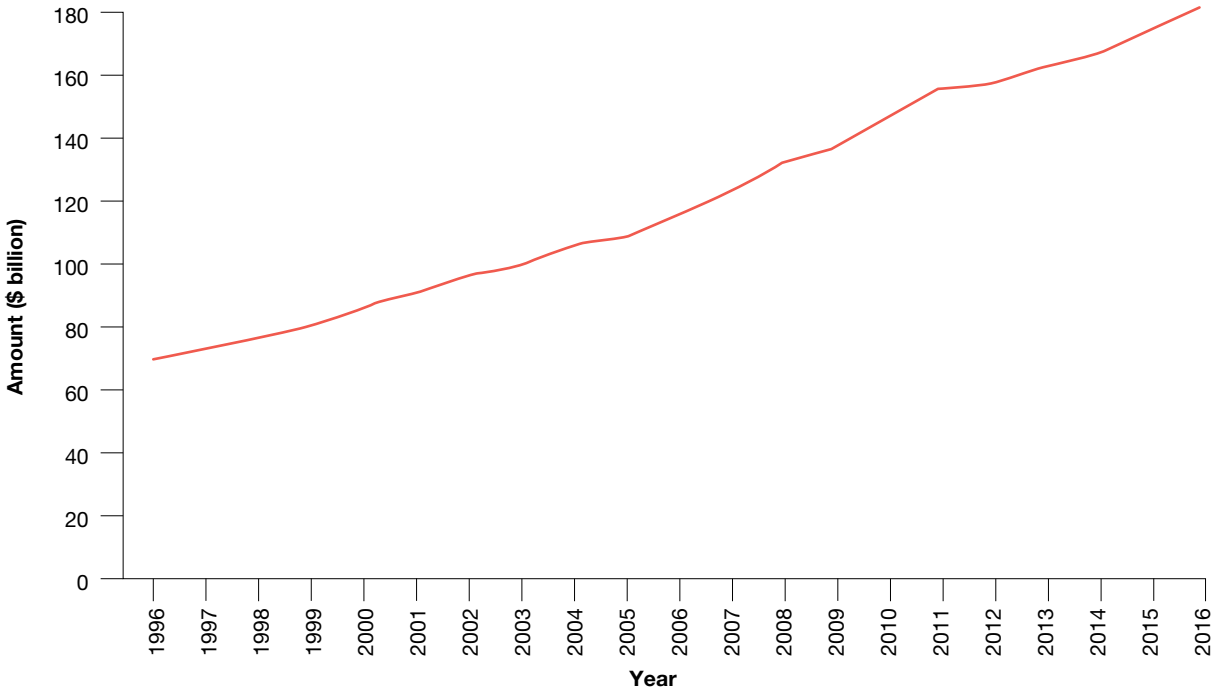
FIGURE 6.19 Some healthcare funding is used to promote skills among health professionals such as hygiene practices, which can reduce the risk of infection in the healthcare setting.



- more expensive technologies and services — as research and development progress, there are more medical technologies and services available and these contribute to increased expenditure.
- increased cost of medicines — many medicines included on the PBS have increased in price over time, contributing to higher health-related expenditure.

A great challenge for governments and non-government groups is to devise systems to continue to fund the health system into the future so it can continue to provide the quality of care that people expect.

FIGURE 6.20 Expenditure on healthcare over time (figures constant to 2016–17 prices)



Source: Adapted from AIHW 2016, *Health expenditure Australia 2016–17.*

Funding for most goods and services is shared between federal and state/territory governments and the private sector, including private health insurance and contributions made by individuals.

In 2016–17, around 69 per cent of the health system's funding came from the government (see figure 6.21). Of this, almost two–thirds came from the federal government and one–third from state/territory and local governments. The federal government's main contribution is through schemes such as Medicare, the PBS and the NDIS. The Medicare levy and the additional surcharge raised about $14.05 billion in 2014–15, while Medicare paid out $20.3 billion. As the Medicare levy and surcharge do not generate enough money to fully fund the Medicare scheme, some general taxation revenue is also contributed to Medicare. The PBS is funded through general taxation revenue and contributed almost $11 billion in funding in 2015–16. In 2014, the Medicare levy was increased by 0.5 per cent to help fund the NDIS, the remainder of which is funded by taxation revenue collected by the federal and state/territory governments.

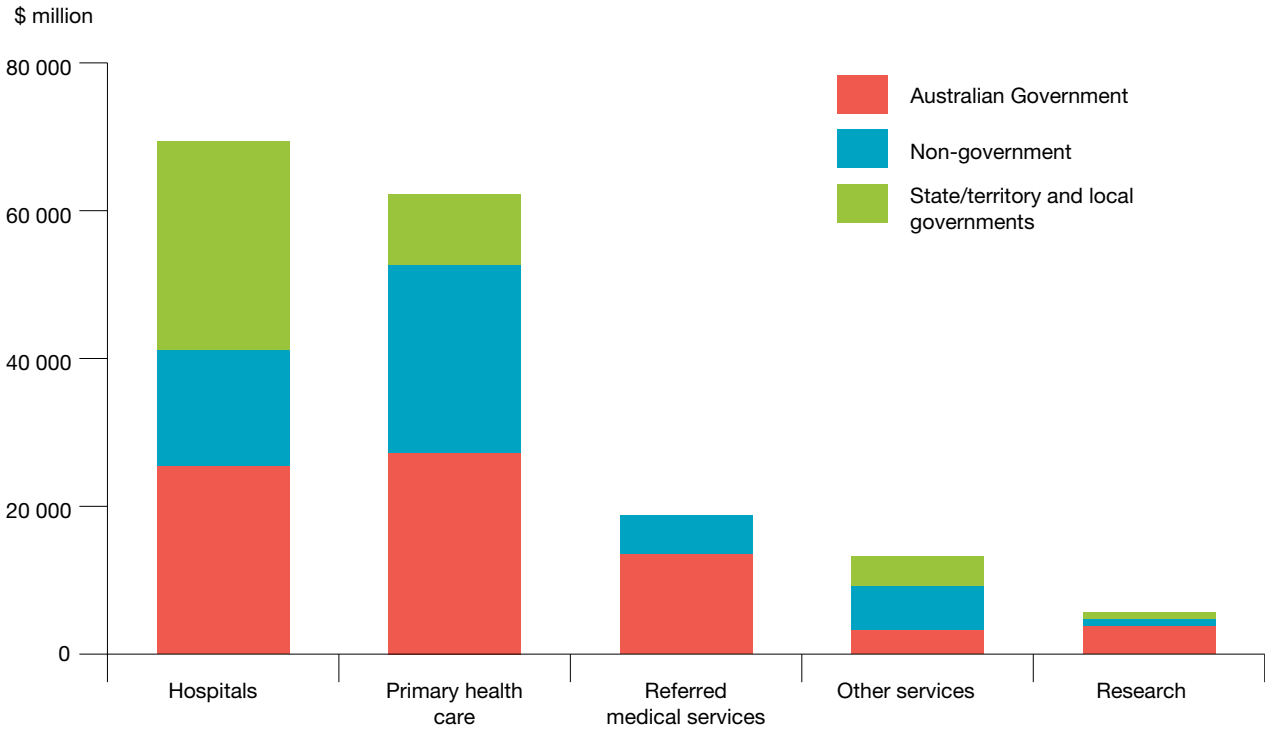
The private (non-government) sector contributed around $55 billion or 35 per cent of total health system funding in 2014–15.

The main categories of health expenditure in 2016–17 were:

- hospitals — this group was the greatest recipient of funding and includes both private and public hospitals.
- primary healthcare — primary healthcare relates to general health-related goods and services delivered outside of the hospital environment. It includes general practitioner's consultations, dental services, medications and public health initiatives.
- referred medical services — these services relate to specialist's consultations that have been referred by a general practitioner.

- other services — these include patient transport, aids and appliances (including hearing aids, glasses and wheelchairs), and administration of healthcare facilities.
- research — this relates to health-related research that aims to discover new ways to prevent, diagnose and treat illness.

FIGURE 6.21 Recurrent health expenditure by area of expenditure and source of funds, 2016–17



Source: AIHW 2016, Health expenditure Australia 2016–17, p. 28.

6.5.2 Sustainability

The sustainability of the Australian health system relates to its capacity to provide a workforce and infrastructure such as facilities and equipment into the future, and to be innovative and responsive to emerging needs through interventions such as research and monitoring.

As the population grows and ages, and different needs emerge within the Australian population, the health system is experiencing increasing pressure. The system must be equipped so it can evolve to ensure that a high quality of care is continually available for anyone in need. Promoting a sustainable health system involves a range of considerations as shown in figure 6.22.

Funding and regulation

Funding is crucial to the sustainability of the health system. Adequate funds must be available to ensure that the health system can continue to cater to the needs of the population into the future. As explored in the previous section, healthcare funding in Australia has increased over time and currently sustains the health system in Australia.

Regulating the health system helps it remain sustainable by promoting the efficient use of funds and other resources. The federal and state/territory governments are responsible for most of the regulations applied to the health system.

State and territory governments are responsible for managing public hospitals and play a key role in ensuring that funds are used in a sustainable manner.

FIGURE 6.22 Key considerations of a sustainable health system

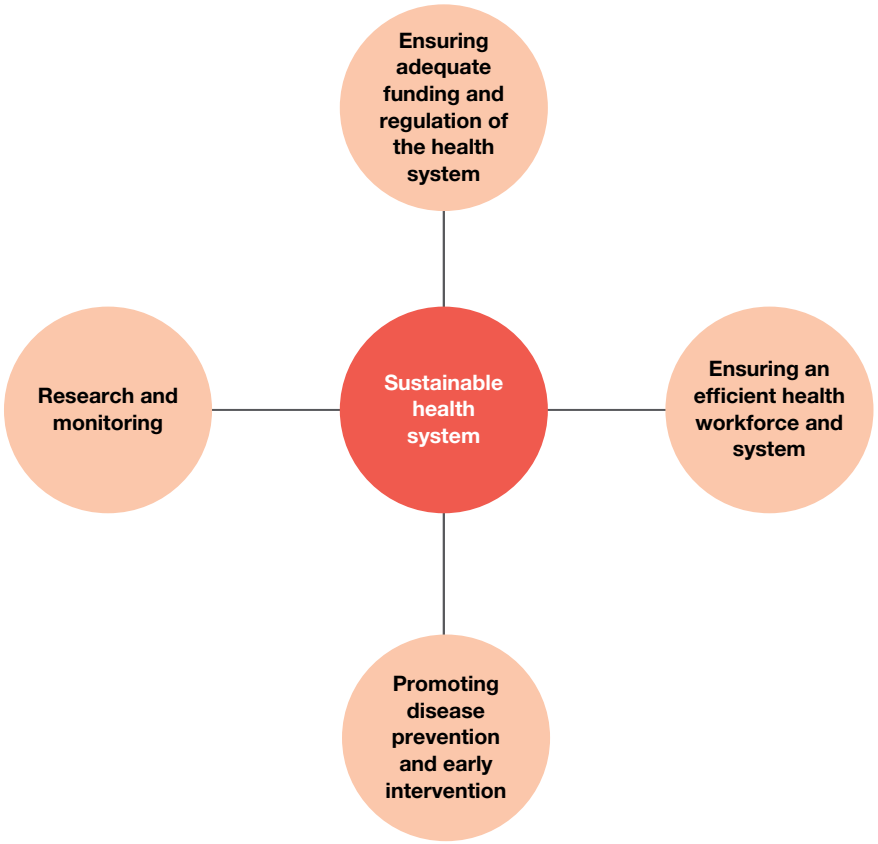


TABLE 6.5 Sustainability within the health system

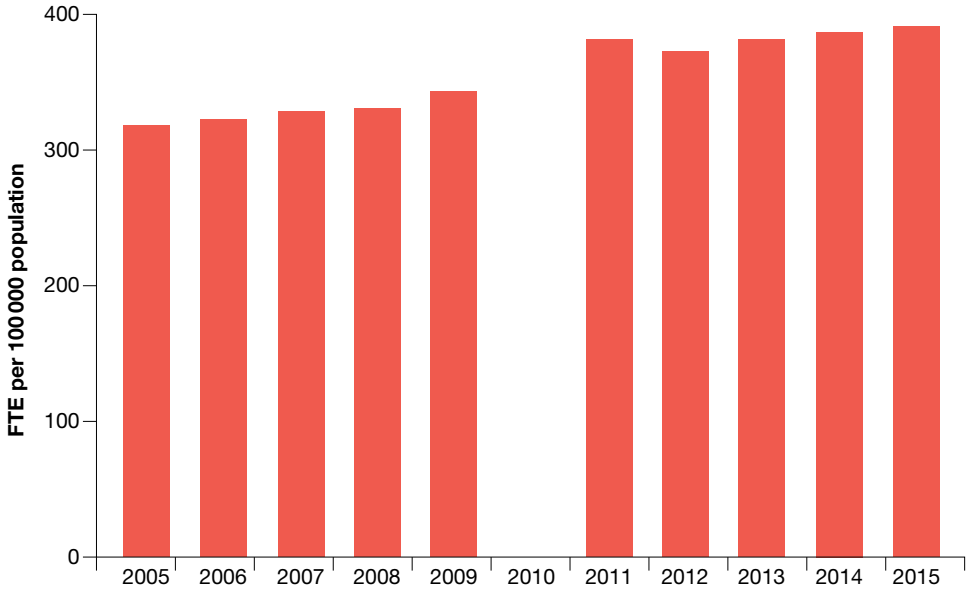
Medicare	The PBS	The NDIS	Private Health Insurance
• Determining which services will be subsidised through Medicare can preserve funds for the most necessary services, yielding the greatest gains in health outcomes. • The Medicare levy increased from 1.5 to 2 per cent in July 2014 to assist in providing the necessary funds to maintain Australia's health system and introduce the National Disability Insurance Scheme.	• Continually reviewing the medicines available through the PBS means those that will have the greatest benefits are prioritised, which assists in keeping the scheme sustainable. • The Therapeutic Goods Administration (a federal government body) verifies the effectiveness of all PBS medicines. This contributes to improved treatment and less reliance on the health system.	• Each participant in the NDIS receives an individualised plan which means that only necessary funds are spent on each person. As a result, more people can access the NDIS and experience improved health outcomes.	• Incentives such as the private health insurance rebate and Lifetime Health Cover assist in maximising the funding gained through the private system. This means more people are treated through the private system, which reduces the strain on the public system, improving health outcomes for more people.

An efficient health system and workforce

The healthcare workforce in Australia consists of a range of healthcare practitioners, and administrative and support staff. Ensuring that the health workforce is adequately staffed with highly trained healthcare practitioners is another important aspect of a sustainable health system, and responsibility for this rests with the state and territory governments. The health workforce must continue to develop in size and skill in order to achieve the objective of improving health and wellbeing for all Australians. Ensuring health services are delivered in an efficient manner assists in reducing health-related costs.

The rate of medical practitioners has increased over time in Australia (see figure 6.23).

FIGURE 6.23 Employed medical practitioners: FTE per 100 000 population, 2005–15



The way in which data were collected changed in 2010 and, due to the transition process, data for 2010 are not available. FTE is a unit of measurement that stands for 'full-time equivalent'. One FTE is equivalent to one person working a full week (40 hours). If two people work 20 hours a week each, they contribute one FTE. Due to the proportion of people working part time, it is useful to use FTE instead of the total number of people working in the field of healthcare.

Source: 'How many medical practitioners are there?', www.aihw.gov.au.

The federal and state/territory governments are also working to improve the efficiency of the health system. A key aspect of this work is the development of an electronic health record (eHealth) system in Australia referred to as 'My Health Record'. My Health Record promotes sustainability by streamlining the recordkeeping system and allowing healthcare information to be accessed electronically by an individual's healthcare provider anywhere in Australia. It also works to promote individual's health literacy by providing greater access to and control over healthcare information, helping to improve health status.

Disease prevention and early intervention

A key intervention for reducing the strain on the health system is to reduce the number of people who need to use it. This is done through disease prevention, early detection and health promotion. The health system plays a key role in this process by providing:

- Public cancer screening such as BreastScreen and BowelScreen — early detection can reduce the cost of treatment and improve health status.
- Immunise Australia Program — providing free vaccines for 16 diseases to people at specific ages. Reducing the incidence of these diseases through vaccination is a cost-effective intervention that saves the health system millions of dollars in treatment costs.

- Health promotion programs — programs implemented by government and non-government groups that work to decrease the risk or impact of diseases reduce the strain on the health system as fewer people require healthcare. Examples of health promotion programs include Quit, LiveLighter and SunSmart.

FIGURE 6.24 The BowelScreen Australia logo



Research and monitoring

Through the National Health and Medical Research Council (NHMRC), the government funds research into a range of health- and medical-related areas. NHMRC supports research to find new ways to cure, treat and prevent illness and disease, and to improve the effectiveness of health services in Australia. Examples of research funded by the NHMRC include:

FIGURE 6.25 Research is vital in ensuring the sustainability of the health system.

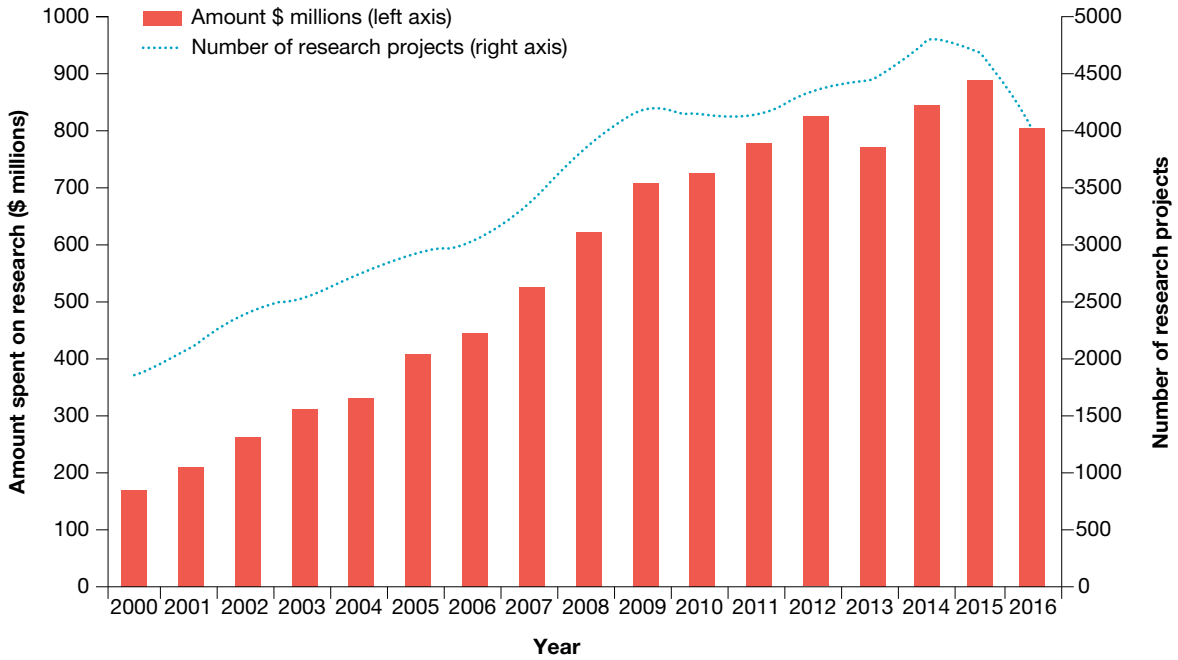


- reducing the spread and impact of sexually transmissible infections, especially among high-risk groups such as young people, Indigenous Australians and homosexual men
- new therapies for treating cancer
- developing new and more effective vaccines for a range of infectious diseases
- creating new ways to prevent and treat influenza
- suicide prevention among Indigenous youth
- preventing chronic disease through health promotion, including in Indigenous communities.

Through research projects such as these, the NHMRC assists in preventing disease and treating illness more effectively and efficiently, therefore saving valuable health system funding and promoting sustainability.

Figure 6.26 shows the total amount spent on research through the NHMRC between 2000 and 2015 and the total number of research projects receiving funding each year. Projects lasting more than one year are included for each year that they received funding.

FIGURE 6.26 Total health research funding from the NHMRC and the number of research projects being undertaken as a result



Source: Adapted from 'Research funding statistics and data', www.nhmrc.gov.au.

6.5 Activities

1. Access the **My Health Record** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **PBS** weblink and worksheet in the Resources tab then complete the worksheet.

6.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Identify the four areas that can be used to explore the way the health system targets health status in Australia.
2. Outline how the Australian health system is funded. You may need to refer to figure 6.18.
3. Identify five sources of health system funding.
4. Explain what sustainability refers to in the health system.
5. (a) Explain what is meant by eHealth.
   (b) Explain how eHealth can promote the sustainability of the health system.
6. Using examples, explain how disease prevention and early intervention can promote health status in Australia.
7. Explain how research can promote health status in Australia.

6.5 Exercise 2 APPLY your knowledge

1. Complete the following table explaining how each of the following can promote health outcomes in relation to funding and sustainability:

	Funding	Sustainability
Medicare		
The PBS		
The NDIS		
Private health insurance		

2. (a) Using data, describe the change in health system funding over time according to figure 6.20.
   (b) Outline three reasons why health system funding has increased over time.
3. (a) Identify the top three areas of health expenditure according to figure 6.21.
   (b) Explain what these areas relate to.
   (c) Which model of health do these areas reflect?
4. (a) Using data, outline the change in the rate of medical practitioners over time according to figure 6.23.
   (b) Explain how this change can promote sustainability of the health system.

studyON

6.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

ON Resources

Digital documents My Health Record worksheet (doc-32203)
PBS worksheet (doc-32204)

Weblinks My Health Record
PBS

6.6 Access and equity and the role of Australia's health system

KEY CONCEPT Understanding the role of Australia's health system in promoting health: access and equity

6.6.1 Access

An accessible health system is one that can provide all people with timely access to quality health services based on their needs, not ability to pay, regardless of where they live in the country. This means that access must be available to people from all socioeconomic groups and those living within and outside of Australia's major cities.

Access to healthcare promoted by Medicare, the PBS, the NDIS and private health insurance contribute to improved health outcomes in Australia as shown in table 6.6.

FIGURE 6.27 Dentistry often requires the patient to pay, and this can prevent people from accessing this important health service.



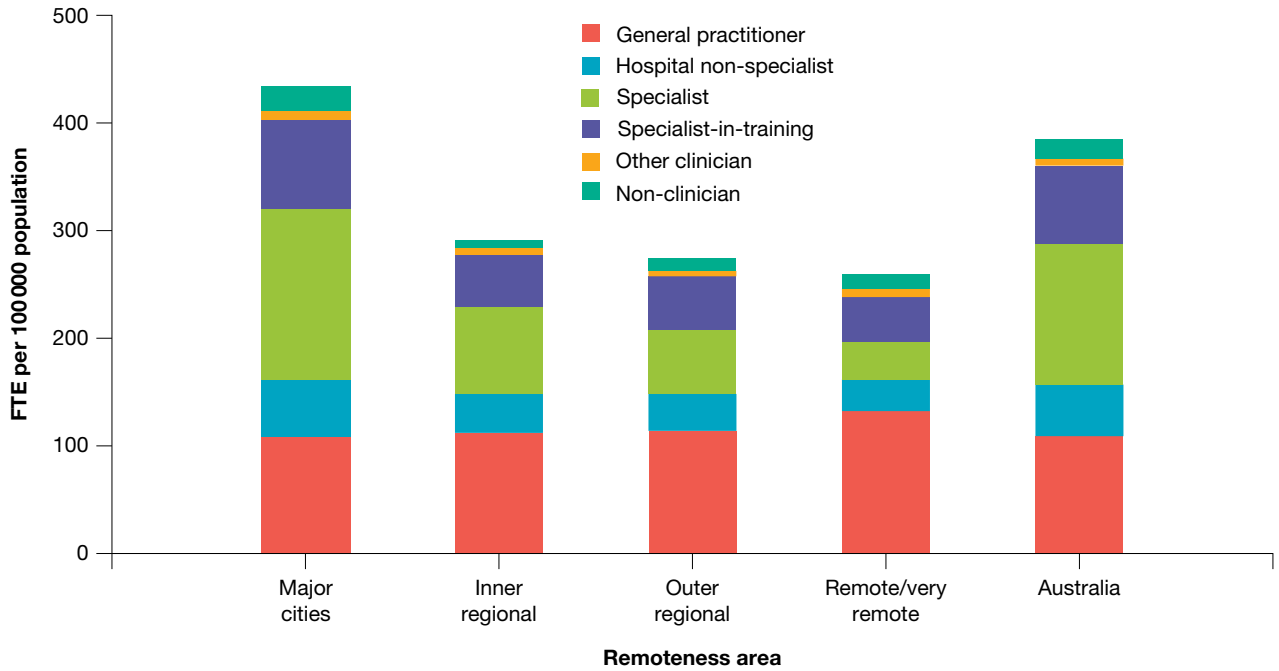
Despite these interventions, some people still struggle to meet the costs associated with healthcare — particularly in relation to patient co-payments for consultations and medications, allied health services such as physiotherapy, ambulance transport and treatment and dentistry. According to the AIHW (2018), almost one-third (35 per cent) of people delayed or avoided a visit to the dentist due to cost. Delaying medical treatment can cause conditions to progress and contribute to further ill health.

TABLE 6.6 Access to healthcare contributes to improved health outcomes in Australia

Medicare	The PBS	The NDIS	Private Health Insurance
• Medicare provides access to people of all socioeconomic backgrounds to services such as doctors' consultations and treatment in public hospitals • Medicare provides funding for telephone and video consultations which can assist those living outside major cities in accessing health services	• All Australian citizens and permanent residents are entitled to access subsidised medicines through the PBS • The PBS promotes access to essential medicines for low income earners by including a concessional co-payment amount	• The NDIS improves access to health services for people with significant, life-long disabilities • The NDIS has been rolled out in every region of Australia, improving access for those living outside major cities	• The federal government's private health insurance rebate increases access to private health insurance for those on lower incomes • Private health insurance can increase access to health services that may have otherwise been too expensive for patients to afford

As explored earlier, an increase in medical practitioners per 100 000 population in Australia indicates an overall increase in the ability to access healthcare when required, but access is not the same for people in all regions. Although rates of general practitioners are similar for all regions, those in major cities have greater access to a wider range of health professionals including specialists (see figure 6.28).

FIGURE 6.28 Employed medical practitioners — FTE per 100 000 population: principal area of practice, remoteness area, 2015



Source: 'How many medical practitioners are there?', www.aihw.gov.au.

Governments and non-government organisations work to increase access in all geographical areas through a range of interventions including:

- *Royal Flying Doctor Service* — a non-government organisation that provides healthcare to thousands of Australians living outside of major cities. The Royal Flying Doctor Service receives funding from the federal and state/territory governments to maintain its fleet of air and road vehicles and reach and treat those in need.
- *Rural Retention Program* — a federal government strategy that aims to provide financial incentives for doctors who work in rural and remote areas. It increases access to healthcare for those living outside Australia's major cities.

Access to culturally appropriate healthcare is also a consideration in Australia, especially for Indigenous Australians. The federal and state/territory governments have developed the Indigenous Health Incentive, which provides financial incentives to medical practices to provide culturally appropriate healthcare for Indigenous people. Through the Close the Gap initiative, governments have invested in other strategies as a part of the National Aboriginal and Torres Strait Islander Health Plan 2013–2023, which includes further training for Indigenous health workers and working with Indigenous groups and leaders to plan service delivery. While these initiatives have succeeded in increasing access to culturally appropriate healthcare, many Indigenous Australians still lack such access and this contributes to the variations in health status between Indigenous and non-Indigenous Australians.

FIGURE 6.29 For Indigenous Australians, culturally appropriate healthcare often involves Indigenous practitioners.



6.6.2 Equity

As already discussed, all Australians should be able to access healthcare when required. Achieving equality in access is important, as some people — such as Indigenous Australians and those living outside of major cities — do not have the same access to health services as others. Equal access, however, does not necessarily mean the system is equitable. As Australians have different healthcare needs, the health system must take these differences into account if it is to be equitable and fair for all people.

A range of factors contribute to disadvantage in using the health system including chronic illness, poverty, discrimination and access to goods and services. An equitable health system must recognise and respond to those with special needs.

Equity relating to Medicare, the PBS, the NDIS and private health insurance contribute to improved health outcomes in Australia as shown in table 6.7.

TABLE 6.7 Equity within the health system contributes to improved health outcomes in Australia

Medicare	The PBS	The NDIS	Private Health Insurance
• Medicare Safety Net — people who require frequent services covered by Medicare, such as doctor's visits and tests, receive additional financial support • Mental Health Treatment Plans — those with mental health disorders are eligible for 10 individual and 10 group therapy sessions per calendar year with the cost covered by Medicare	• PBS Safety Net — further protects individuals and families from large overall expenses for PBS-listed medicines • The concessional co-payment amount provides greater assistance to those who are unemployed or on low incomes • Many Indigenous Australians can qualify for reduced PBS co-payment amounts under the Closing the Gap initiative	• The individualised plan developed as a part of the NDIS ensures that those with more significant needs, receive more assistance • Those who require the NDIS do not have to pay more towards funding it than those who don't	• Those on lower incomes receive more financial assistance through the private health insurance rebate • Those aged over 65 and over (who often have lower incomes) receive a greater rebate from the government if they have private health insurance • People who use their private health insurance more often than others, do not have to pay a higher premium

Other interventions designed to promote equity include:

- interventions to increase access (discussed earlier) for those of low socioeconomic status, those living outside of major cities and Indigenous Australians
- public dental health services — the Victorian Government funds the Royal Dental Hospital of Melbourne and over 80 dental clinics in metropolitan and regional Victoria to provide dental treatment for vulnerable groups including:
  - young people aged 13–17 years who are healthcare or pensioner concession cardholders or dependents of concession cardholders
  - all youth justice clients in custodial care, up to 18 years of age
  - all refugees and asylum seekers
  - Aboriginal and Torres Strait Islander peoples.
    - Treatment is generally fee-free for these population groups.
- Continuity between healthcare providers — continuity aims to increase the level of communication and care planning between different health professionals, making the process of care more manageable for any patient with multiple healthcare needs. For example, a cancer patient may be under the care of a general practitioner and numerous specialists. Communication between these health professionals promotes equity for people with serious illness by coordinating care on behalf of the patient.

These interventions help to meet the specific needs of many Australians, thereby helping achieve equity in use of the health system. This in turn promotes the health and wellbeing of vulnerable populations.

6.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain what is meant by 'access' in Australia's health system.
2. Outline three ways that access to the health system has been promoted for low socioeconomic status groups in Australia.
3. Outline two ways that access to the health system has been promoted for those living outside of major cities in Australia.

4. Explain three interventions that have been implemented to promote equity in the health system in Australia.

6.6 Exercise 2 APPLY your knowledge

1. Complete the following table by explaining how each of the following can promote health outcomes in relation to access and equity:

	Access	Equity
Medicare		
The PBS		
The NDIS		
Private health insurance		

2. (a) Outline the difference in the rate of employed medical practitioners between major cities and other areas in Australia according to figure 6.28.
   (b) Explain how this may contribute to variations in health status between those living within and outside of major cities in Australia.
3. Outline two ways that culturally appropriate healthcare can be promoted for Indigenous Australians.

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6.6 Exercise 3 studyON: Past VCAA exam questions online only

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6.7 Topic 6 review

6.7.1 Key skills

KEY SKILL Analyse the role of Medicare, private health insurance, the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme in promoting Australia's health

This skill requires a detailed understanding of the key components of Australia's health system including:

- Medicare
- the Pharmaceutical Benefits Scheme
- the National Disability Insurance Scheme
- private health insurance.

Detailed knowledge of the various aspects of each component of the health system as listed is important in explaining the role each plays in promoting health and wellbeing and health status in Australia. This includes:

- the services covered by Medicare
- the services not covered by Medicare
- how Medicare is funded
- the contribution private health insurance makes to the health system
- the options available to an individual with private health insurance
- the incentives used to encourage people to take out private health insurance
- the function of the Pharmaceutical Benefits Scheme
- the support provided by the National Disability Insurance Scheme
- how funding, sustainability, access and equity apply to the health system and are reflected by each component of the health system
- making links between each component of the health system and improved health and wellbeing and health status.

An example of this skill could be explaining the role that Medicare plays in improving health outcomes in Australia in relation to funding and equity. A possible response could be as follows.

Medicare is Australia's universal health insurance scheme and contributes a significant amount of funding for doctors' consultations and treatment in public hospitals.[1] This means that Australians with medical problems can have them checked and treated if necessary, treating symptoms of disease and substantially reducing the risk of premature death and improving mortality rates.[2] The Medicare Safety Net provides additional subsidies for services such as specialists' consultations once a set amount has been paid in relation to Medicare funded services in a calendar year.[3] This promotes equity for those with chronic or ongoing medical issues requiring treatment by reducing the cost of treatment and promotes mental health and wellbeing by reducing the level of stress associated with paying for healthcare.[4]

1 How Medicare contributes to funding of the health system is specified.

2 This statement outlines how Medicare promotes health status in relation to funding.

3 How Medicare contributes to equity in the health system is identified.

4 This statement explains how Medicare promotes health and wellbeing in relation to equity.

Practise the key skill

1. What is Australia's universal health insurance scheme called?
2. Discuss the contribution private health insurance makes to Australia's health system.
3. Outline two ways the National Disability Insurance Scheme promotes health and wellbeing in Australia.
4. Explain how Medicare, the Pharmaceutical Benefits Scheme and private health insurance can promote the health and wellbeing of an individual with cancer.
5. Create a table that includes the four key components of the Australian healthcare system, a brief description of each and how it promotes health in relation to funding, sustainability, access and equity:

Component of the health system	Description	How it promotes health in relation to:			
		Funding	Sustainability	Access	Equity
Medicare					
PBS					
NDIS					
Private health insurance					

6.7.2 Topic summary

Medicare

- Australia's health system is made up of public and private providers.
- Public healthcare includes public hospitals, Medicare, the Pharmaceutical Benefits Scheme and National Disability Insurance Scheme.
- Private healthcare includes private health insurance, private hospitals, and medical practitioners in private practices.
- Medicare is Australia's universal health insurance scheme. It provides necessary treatment and hospital care in public hospitals for all Australians.
- Medicare is funded through three sources of income: the Medicare levy; the Medicare levy surcharge; and general taxation.

The Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme

- The Pharmaceutical Benefits Scheme (PBS) subsidises over 5000 essential medications, with individuals responsible for making a patient co-payment.

- Medicare and the PBS have safety nets in place to provide further support for those with extensive medical bills.
- The National Disability Insurance Scheme (NDIS) is a national insurance scheme that provides services and support for people with permanent, significant disabilities, and their families and carers.

Private health insurance

- Private health insurance companies play an important role in healthcare in Australia. They give people wider choice and assist in funding the health system.
- To encourage Australians to take out private health insurance, three incentives were created by the federal government: the private health insurance rebate, Lifetime Health Cover, and the Medicare levy surcharge.

Funding and sustainability and the role of Australia's health system

- Funding the health system increases access for all people by reducing the costs the individual must contribute for required treatment.
- Australia's health system operates with the combined funding from the federal and state/territory governments, private health insurance, other forms of insurance funds and individuals.
- Health costs have increased over time, and funding is an important consideration moving into the future.
- The sustainability of the Australian health system relates to the capacity to provide a workforce and infrastructure such as facilities and equipment, and to be innovative and responsive to emerging needs through interventions such as research and monitoring.
- Sustainability is promoted by adequate funding and regulation to increase the efficiency of the health system. Preventing disease and carrying out research and monitoring are also important considerations for sustainability.

Access and equity and the role of Australia's health system

- An accessible health system is one that can provide all people with timely access to quality health services based on their needs, not ability to pay, regardless of where they live in the country.
- Government support in the form of subsidised healthcare and medicines, fee-free treatment in public hospitals, and support provided through the NDIS, increase accessibility.
- All Australians have different healthcare needs so an equitable system provides more support for those who need it, such as the Medicare and PBS safety nets.

Resources

studyON

To access key concept summaries and past VCAA exam questions, download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0007).

6.7 Exercise 1 Exam preparation

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Question 1

Medicare is Australia's universal health insurance scheme.

a. Briefly explain how Medicare is funded. **(3 marks)**
b. Identify two services covered by Medicare. **(2 marks)**
c. Outline two differences between Medicare and private health insurance. **(4 marks)**

Question 2

Explain two ways the NDIS can promote the health and wellbeing of individuals. **(4 marks)**

Question 3

Briefly explain the role of the health system in promoting health status in relation to:

a. funding **(2 marks)**

b. equity. **(2 marks)**

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on Resources

Interactivities Crossword (int-6889)

Definitions (int-6890)

7 Targets of health promotion in Australia

7.1 Overview

Key knowledge

- The role of health promotion in improving population health, focusing on one of: smoking, road safety, or skin cancer, including:
  - why it was/is targeted
  - effectiveness of the health promotion in improving population health
  - how the role of health promotion reflects the action areas of the Ottawa Charter for Health Promotion
- Initiatives introduced to bring about improvements in Indigenous health and wellbeing in Australia and how they reflect the action areas of the Ottawa Charter for Health Promotion
- Initiatives to promote healthy eating in Australia including Australian Dietary Guidelines and the work of Nutrition Australia, and the challenges in bringing about dietary change

Key skills

- Apply the action areas of the Ottawa Charter for Health Promotion to a range of data and case studies
- Evaluate initiatives in terms of their capacity to improve Indigenous health and wellbeing
- Draw conclusions as to why dietary improvements are difficult to achieve in Australia

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 7.1 Healthy eating has the potential to promote health and wellbeing in Australia, but bringing about dietary change can be difficult.



KEY TERMS

Dermatologist a medical doctor with specialist training relating to conditions of the skin
Energy balance when the amount of energy consumed is the same as the amount of energy required. Energy balance contributes to neither weight gain or weight loss.
Legislation relating to a law or set of laws
Malignant abnormal cells that invade and destroy nearby healthy tissue
Metastasise when cancer has spread from one site to another
Paleo diet a diet characterised by consuming foods available to humans during the Paleolithic period (from around 2.5 million to 12 000 years ago). The Paleo diet restricts the consumption of dairy, refined grains such as bread and pasta, and refined sugar such as chocolate and soft drink. The main components of the Paleo diet are meat, fish, nuts, vegetables and seeds.
Sistergirls Indigenous transgender women (assigned male at birth) who have a distinct cultural identity and often take on female roles within the community, including looking after children and family (2015, Sisters & Brothers NT)
Solarium a unit that uses UV radiation to create a tan
UV index a scale from 0–10 that provides an indicator of how intense UV radiation will be. Sun protection methods are recommended for any UV index score of 3 and over

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To access key concept summaries and past VCAA exam questions, download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0008).

7.2 Smoking and the role of health promotion in improving population health

KEY CONCEPT Exploring the role of health promotion in improving population health in relation to smoking

As explored in topic 3, smoking is a major health concern in Australia. Smoking is linked to an increased risk of a range of conditions, including cardiovascular disease, many cancers and respiratory disease, and is responsible for 9 per cent of the total burden of disease in Australia, largely through premature death.

7.2.1 Why is smoking targeted?

According to the Department of Health, smoking kills an estimated 15 000 Australians and costs Australia $31.5 billion in social (including health) and economic costs each year. Smoking is a preventable risk factor, so all smoking-related diseases and impacts are considered to be avoidable.

Smoking affects vulnerable population groups disproportionately, with people living outside major cities and people from Indigenous and low socioeconomic backgrounds being more likely to smoke tobacco, contributing to the lower levels of health and wellbeing experienced by these groups:

- Some 12.7 per cent of those in major cities were smokers compared to 19 per cent of those in outer regional and remote areas.
- 39 per cent of Indigenous Australians were daily smokers, which was almost three times the rate of non-Indigenous Australians.
- Those in the lowest socioeconomic group smoked at a rate more than two times higher than the highest socioeconomic group (21.7 per cent compared to 6.8 per cent in 2017–18).

Tragically, half of all long-term smokers will die prematurely due to smoking.

Exposure to environmental tobacco smoke also causes disease and premature death in adults and children who do not smoke.

As a result of smoking being preventable, and its impacts on health and wellbeing and the economy, numerous health promotion initiatives have been implemented to change behaviours and reduce the impact of smoking.

7.2.2 Effectiveness of health promotion in promoting population health — smoking

In this section, a range of health promotion activities that have been implemented to reduce the burden associated with smoking are explored and their effectiveness evaluated.

Health promotion activities in relation to smoking have been particularly successful, seeing smoking rates decline from around 44 per cent for males and 33 per cent for females in 1976 to 16.5 per cent for males and 11.1 per cent for females in 2017–18.

Australia's relatively low smoking rate is the result of ongoing, focused health promotion efforts from all levels of government and action from public health organisations.

EXAM TIP

This study design dot point makes reference to 'effectiveness of the health promotion in improving population health'. Population health can relate to health and wellbeing or health status, but it should be noted that responses need to go further than the health and wellbeing or health status of an individual. Population health needs to refer to the health and wellbeing or health status of a group or groups of people (for example, the mental health and wellbeing of youth, incidence of cancer among males, or people of low socioeconomic status, etc.).

A range of health promotion interventions have been particularly successful at promoting health and wellbeing in relation to smoking, including government laws and policies, National Tobacco Campaigns and state and territory QUIT campaigns.

FIGURE 7.2 Environmental tobacco smoke can affect people who choose not to smoke.



The Ottawa Charter for Health Promotion is increasingly used to guide the development of health promotion interventions and, as a result, the action areas of the Ottawa Charter will be used to identify key aspects of each strategy:

- build healthy public policy
- create supportive environments
- strengthen community action
- develop personal skills
- reorient health services.

There are many factors that contribute to people smoking and as a result, multiple action areas of the Ottawa Charter must be targeted to achieve the most significant improvements possible.

EXAM TIP

Behaviours such as smoking are often the product of a range of influences and as a result, there is no single solution to bringing about behaviour change. Although very few health promotion initiatives focus on each of the five action areas of the Ottawa Charter, the greatest gains are achieved when all action areas are addressed. As a result, you should know a range of health promotion initiatives so that examples of interventions relating to each action area can be discussed.

Government laws and policies

Many of the most successful health promotion activities regarding smoking relate to the introduction of smoking-related laws and policies. Laws on advertising, packaging, smoke-free environments and tobacco taxes that work to increase the price of tobacco have been used since 1973 to reduce smoking rates. Some of the findings relating to **legislation** include:

- Increased taxation on tobacco and the resulting higher price of tobacco is associated with lower prevalence of smoking among all population groups.
- A 10 per cent rise in price resulted in a 3.2 per cent decline in prevalence among low-income smokers.
- Laws banning smoking in pubs and clubs have been shown to have a bigger impact on lower socioeconomic status (SES) populations, with reductions in consumption reported by 40 per cent of smokers.

FIGURE 7.3 Smoking bans in dining areas have contributed to reduced rates of smoking in Australia.



All levels of government implement laws relating to smoking. Federal law bans smoking in all Australian Commonwealth Government buildings, on public transport, in airports and on all international and domestic flights.

Further bans are in place but are governed by individual states and territories. All Australian states and territories have banned smoking in enclosed public places, particularly workplaces and restaurants.

Examples of Victorian legislation include:

- From 1 April 2014, smoking was banned at areas commonly used by children and young people for recreational and sporting activities.
- The bans complement those implemented in December 2012, which prohibit smoking at all Victorian patrolled beaches.
- Since January 2010, it has been an offence to smoke in a vehicle where there is a person under the age of 18 present. The ban applies regardless of whether the car is moving or not, whether the windows are open or closed, or whether the roof is down or not.
- A ban on smoking in government school grounds became effective in July 2009.

FIGURE 7.4 Smoking bans in children's playgrounds create a supportive physical environment.



- A restriction on smoking in enclosed public places has been in effect since July 2007.
- In 2006, smoking was banned in covered areas of train station platforms, tram stops and bus stops.

Some local governments have also introduced laws that prohibit smoking in public outdoor places, including in parks and beach areas.

Reducing the risk of exposure to environmental tobacco smoke is an example of *creating a supportive physical environment* for those who choose not to smoke.

Anti-smoking laws are examples of *healthy public policies* that work to make *not* smoking the easier and healthier choice.

National Tobacco Campaigns

A number of National Tobacco Campaigns have been implemented in Australia since the 1970s, contributing to the decrease in smoking rates. These campaigns are developed by the national and state/territory governments to work together with the private sector to reduce smoking rates and associated consequences in Australia. A number of interventions make up these campaigns and have been shown to be successful in a number of ways:

- **Anti-smoking media campaigns**. These campaigns work to *develop personal skills* by educating the population on the dangers and consequences of smoking. A recent campaign is 'Don't make smokes your story'. These campaigns also *create supportive environments* by providing information on how to access resources to assist in quitting. Research relating to media campaigns has shown:
  - Highly emotional anti-smoking advertisements are remembered more by survey participants and are perceived as being more effective. They influence smoking beliefs and increase quit attempts.
  - People in low SES groups are particularly responsive to emotional or personal testimonial advertisements.
  - Greater exposure to these advertisements is associated with a greater likelihood of quitting. For each ten additional exposures, the odds ratio of quitting is 1.15 times as high.
- **Quitnow**. The Quitnow website is the website of the National Tobacco Campaign (use the **Quitnow** weblink in the Resources tab). The website *strengthens community action* by providing links to the Quit organisation in each state and territory. Users can then access resources available in their location.

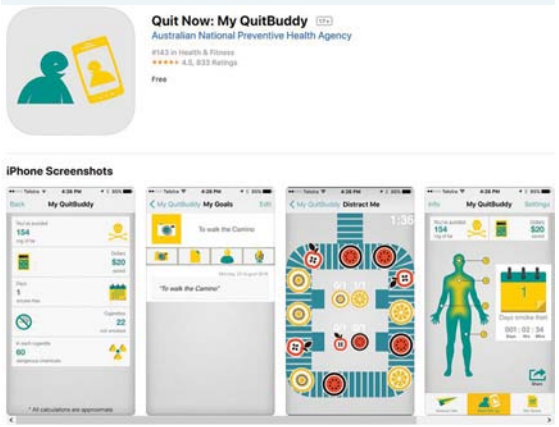
  The website develops *personal skills* by producing a range of fact sheets and resources arranged under the following headings:
  - Why quit — this section outlines the physical and social impacts of smoking and the benefits that occur when a smoker quits.
  - How to quit — users are supported by advice for preparing to quit, different methods of quitting and the support services available.
  - Having trouble quitting — this section provides advice on overcoming setbacks, ways to cope with cravings and how to plan another quit attempt if one fails.
  - Indigenous support — quitting information is provided for Indigenous youth and the benefits of quitting for the whole family are outlined.

  The site *creates a supportive environment* by providing advice in multiple languages.
- **My QuitBuddy.** Developed as part of the National Tobacco Campaign, the My QuitBuddy free smartphone app was created to assist Australian smokers of any age, gender and socioeconomic status to quit smoking.

  The app provides feedback to users enabling them to track how many cigarettes they haven't smoked, how many grams of tar they've not inhaled, how much money they've saved each day and how many days they've been smoke free. This assists in developing personal skills by providing information that can assist in reducing the risk of smoking-related diseases.

  My QuitBuddy *creates a supportive environment* by allowing users to:
  - record personal goals and motivation using pictures, words and audio messages. There is a community board where users can gain motivation and support from thousands of other people also quitting.

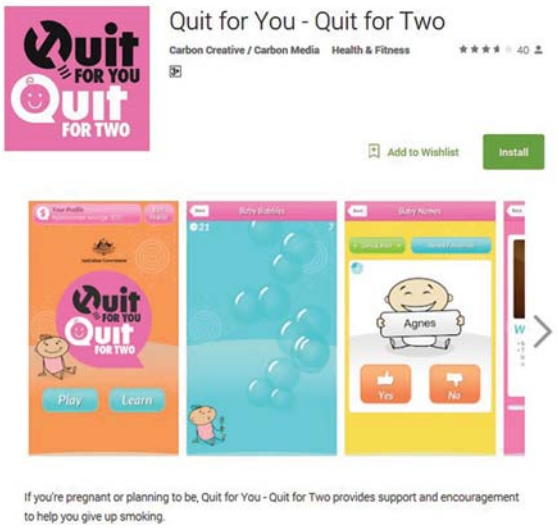
FIGURE 7.5 My QuitBuddy is an app that assists individuals wanting to quit smoking.



- to program danger times at which the app will send reminders of the health and wellbeing benefits of quitting, and games are provided to play during times of craving to provide a distraction.
- to share their quit journey and success stories with others on Facebook and Twitter.

- **Quit for you, quit for two app**. Developed as part of the National Tobacco Campaign, the Quit for you, quit for two free smartphone app was created to assist Australian smokers who are pregnant, or planning to be, to quit smoking.

FIGURE 7.6 The Quit for you, quit for two app



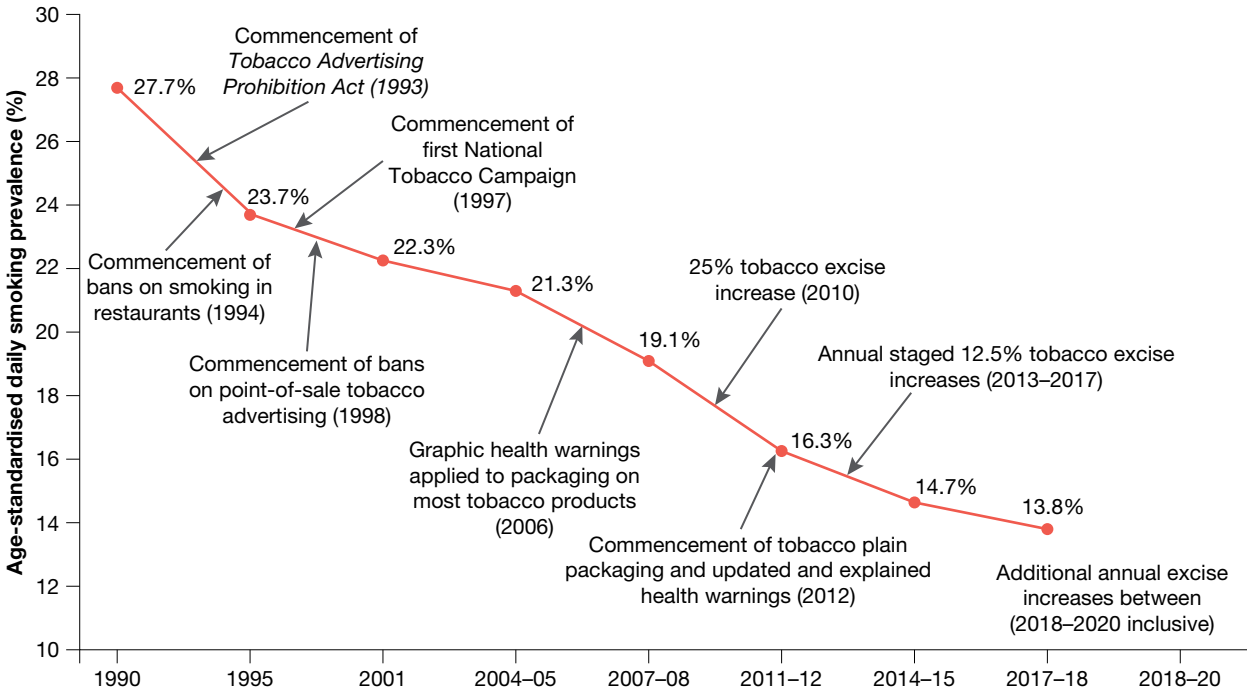
The app *creates a supportive environment* by including fun exercises and games to keep the user's hands busy to help beat cravings.

The app can be personalised to give the user daily reminders and words of encouragement. By entering the baby's due date, the app will automatically send messages detailing the baby's growth and development.

It *develops personal skills* by providing practical quit tips and advice to quit smoking. The app also provides a running tally of how much money has been saved by not smoking and what items could be purchased with that money. It also includes facts about the baby's development to provide more reasons to resist any urges to smoke.

Figure 7.7 summarises the range of government interventions and the corresponding smoking rates over time in Australia.

FIGURE 7.7 A number of interventions have contributed to decreased smoking rates in Australia.



Source: National Health Survey results: 1990, 1995, 2001, 2004–05, 2007-08, 2011–12 and 2014–15.

Quit campaigns

Quit campaigns are run in each state and territory, sometimes as a joint venture between the state or territory government and the Cancer Council for the respective state or territory, although other organisations may be involved. This section focuses on the actions of Quit Victoria.

Quit Victoria is a program of the Cancer Council Victoria, which is funded by the Victorian Government and VicHealth, and is an example of *strengthening community action*. Quit Victoria aims to decrease the prevalence of smoking by assisting smokers to quit and preventing the uptake of smoking in non-smokers. To achieve their aims, Quit employs a range of actions.

Quit *develops personal skills* by providing information regarding tobacco smoking and the benefits associated with not smoking. This is achieved through public education using mass media advertising campaigns, public relations and downloadable information on its website.

FIGURE 7.8 The Quit logo

Funded by state and territory governments and implemented by Quit-like organisations around Australia, Quitline is a telephone service that people can use to receive advice and behaviour change support to quit smoking. Quitline is a clinical service, staffed by highly trained specialists. It:

- *creates a supportive environment* by providing support throughout the quitting process and
- *develops personal skills* by providing advice and practical strategies for quitting.

Several evaluations have been carried out in relation to Quitline run by Quit Victoria, with the results being positive. In one evaluation, callers rated Quitline positively: 97 per cent said it was either very or somewhat friendly, 86 per cent said it was helpful, and 82 per cent said they would recommend it to friends. When callers were followed up at 6 months, 17 per cent had stopped smoking.

Aboriginal Quitline is a telephone helpline service that provides advice and behaviour change support for Aboriginal and Torres Strait Islander people who would like to quit smoking. Quit Victoria's Aboriginal Quitline:

- creates a culturally safe and supportive environment by using Aboriginal and Torres Strait Islander quit specialists with additional training to assist people with smoking cessation in a culturally appropriate way.

Quitline specialists provide callers with a plan for quitting that is tailored to their individual needs, as well as information on different quitting methods and products, and written and other resources. Advisers can also link callers up with local support groups if requested.

FIGURE 7.9 Quitline provides telephone counselling for those wanting to quit smoking.



Currently there is an Aboriginal Quitline service for New South Wales, Victoria and Queensland, but all Quitline services in Australia are funded to provide culturally sensitive services to Aboriginal and Torres Strait Islander people.

Online support is also available in Victoria through QuitCoach and QuitText on the Quit website. Both QuitText and QuitCoach are provided free of charge to Victorians, while Quitline is available for the cost of a telephone call (or free if referred by a health professional) and are is therefore available to all Australians regardless of socioeconomic status or geographical location. In addition to Quitline, QuitCoach and QuitText, the Quit Victoria website provides a range of materials to assist smokers in recognising reasons to quit, preparing to quit, staying smoke free and managing setbacks. These promote knowledge by providing easy to follow steps which work to *develop personal skills*.

Quit *strengthens community action* by assisting health professionals, community groups and various population groups to create environments that support quitting. It does this by providing specialist training for health professionals to undertake proven 'brief interventions' and referrals to Quitline, and by working

with community and population groups to create public education materials, health information and treatment pathways for groups that still have high smoking rates, including Aboriginal and Torres Strait Islander peoples, those experiencing mental disorders, and those with alcohol and other drug disorders.

Quit undertakes research and provides advice to the state government to implement *healthy public policies*. Examples of policies include laws relating to smoking in public places, tobacco advertising and the display of cigarettes in retail outlets. Quit also provides advice to the federal government to inform the development of health policies such as tobacco packaging and tobacco taxes.

Quit provides a free online learning training program for health professionals which assists in *reorienting health services.* Quit Victoria's Smoking Cessation Essentials course and Smoking Cessation Brief Intervention videos provide health professionals with knowledge and skills to:

- highlight the important role of health professionals and the effectiveness of smoking cessation interventions
- inform of the effects of smoking and the benefits to patients/clients in quitting
- provide an understanding of smoking behaviour
- help health professionals carry out brief smoking cessation interventions and assist them to help smokers quit in individual settings
- provide information about Quit Victoria's support services for smokers and how Quit can support the health professionals in assisting their patients/clients.

TABLE 7.1 Examples of smoking-related health promotion with regards to each of the five action areas of the Ottawa Charter

Action area	Examples relating to smoking	
Build healthy public policy	Anti-smoking laws and taxes work to make not smoking the easier and healthier choice.	Quit provides advice to the state government to implement legislation related to smoking. Examples of policies include laws relating to smoking in public places, tobacco advertising, the display of cigarettes in retail outlets, tobacco packaging and tobacco taxes.
Create supportive environments	National Tobacco Campaigns provide information on how to access resources to assist in quitting in a variety of languages at no cost.	My QuitBuddy allows users to record personal goals and motivation using pictures, words and audio messages. There is a community board where users can gain motivation and support from thousands of other people quitting.
Strengthen community action	The Quitnow website provides links to the Quit organisation in each state and territory allowing users to access resources available in their location.	Quit Victoria is a joint venture between the Victorian Government, VicHealth, the Heart Foundation and the Cancer Council.
Develop personal skills	National Tobacco Campaigns work to educate the population on the dangers and consequences of smoking. A recent campaign is the 'Don't make smokes your story'.	Quit provides information regarding tobacco smoking and the benefits associated with not smoking. This is achieved through a mass advertising campaign and via downloadable information on its website.
Reorient health services	Quit invests millions of dollars in smoking prevention research. This research then provides best practice techniques for health professionals in assisting preventing people from starting smoking and assisting smokers to quit.	Quit provides a free online learning training program for health professionals. Quit Victoria's Smoking Cessation Essentials course and Smoking Cessation Brief Intervention videos provide health professionals with knowledge and skills relating to assisting smokers to quit.

CASE STUDY

30 years of Quit saves half a million Victorians

Smoking was so common when Quit Victoria was established 30 years ago that people would light up on aeroplanes, inside restaurants, at their desks at work and even in hospitals.

Tobacco advertising could be seen in newspapers, at the cinema and on billboards, featuring healthy young actors smiling with friends as they enjoyed a cigarette. In fact, Melbourne television viewers saw — on average — one advertisement for cigarettes every eight minutes.

A small printed warning on tobacco packs stated that smoking was a health hazard, although this was vigorously denied by the tobacco industry.

Quit Victoria's work has helped turn the tide — and its sustained efforts to encourage smokers to quit and deter others from taking up the habit have delivered results.

In 1985, 32 per cent of Victorians were regular smokers. By 2012, this had fallen by more than half, with just 13 per cent of Victorians smoking regularly.

On the organisation's 30th birthday, Quit Victoria Director Dr Sarah White said it was frightening to imagine a Victoria in which smoking rates remained unchanged.

'If we hadn't achieved this reduction, and our smoking rate remained at 32 per cent, we would have seen a whopping 1.4 million regular smokers in Victoria in 2012,' Dr White said.

'There are more than 800 000 Victorians who are not smoking today, which means more than half a million Victorians have or will be saved from premature death thanks to Quit Victoria's work and the leadership of VicHealth, Cancer Council Victoria and federal and state governments.'

Cancer Council Victoria chief executive Todd Harper said anti-smoking advertisements, smoke-free areas and increased cigarette prices were vital to the success of anti-smoking campaigns.

'We know that these are the key measures that motivate smokers to quit and discourage young people from taking up the habit,' Mr Harper said.

'As we reflect on how far we've come, young Victorians might be shocked to know that you once came home from the pub with your clothes reeking of smoke, or were likely to find yourself breathing in someone else's secondhand smoke on a bus.'

Minister for Health Jill Hennessy congratulated Quit Victoria on its 30 years of success.

'Quit has been — and continues to be — a strong voice in the campaign against smoking.'

'I look forward to working with Quit Victoria and the Cancer Council to identify what more can be done to reduce the harm caused by smoking,' Ms Hennessy said.

FIGURE 7.10 Quit Victoria has helped reduce the number of regular smokers in Victoria from 32 per cent in 1985 to just 12 per cent in 2016.



Dr White said that although Victoria has come a long way in reducing the harms caused by smoking, it remained the state's leading cause of preventable disease and death, killing about 4500 Victorians in 2013.

'Quit and the Cancer Council Victoria have enjoyed broad political support for tobacco control over 30 years because our politicians — no matter their era or their party — recognise both the tragedy of the human toll and the incredible cost to Victoria's economy.

'Smoking still kills 11 Victorians every day, and for every death it's estimated there are another 30 people being treated for a smoking-related illness. More than 4000 Victorian teenagers are still taking up smoking every year.'

To celebrate Quit Victoria's 30th birthday, we've dug into the archives and found some of our favourite television campaigns.

Among the highlights:

- Pat Cash told us in a 1988 advertisement that he had a few tennis tips – 'but I'll give you one tip that I reckon's the best of the lot — don't smoke'.
- John Clarke, moonlighting as 'head honcho' of a tobacco company in 2002, announced a product recall over health concerns linked to his product — before breaking into raucous laughter.
- Footballer Paul Roos, then with Fitzroy, told us in the 'winners' advertisement in 1988: 'I don't smoke — it's the only way to stay ahead of the game'.

Quit Victoria is currently running the '16 cancers' campaign, highlighting the fact that smoking causes a range of cancers which can have a devastating impact on the daily life of individuals and their families.

Source: VicHealth/Cancer Council Victoria press release, 21 May 2015.

Case study review

1. In which places could people smoke when Quit Victoria was established?
2. Discuss the use of advertising to promote tobacco use when Quit was established.
3. Using examples from the case study, discuss the effectiveness of the Quit campaign. How many Victorians die from smoking each year?
4. Discuss how the health and wellbeing of the Victorian population may have been influenced by Quit Victoria.
5. Outline how examples from the case study relate to the action areas of the Ottawa Charter.

7.2 Activities

1. Access the **Smoking health promotion** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **My QuitBuddy** weblink and worksheet in the Resources tab then complete the worksheet.

7.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Outline three reasons why smoking is targeted by health promotion programs.
2. (a) Which population groups are more likely to smoke when compared to the rest of the population?
   (b) Explain how this could contribute to variations in burden of disease.
3. Which level of government is responsible for implementing smoking laws? Explain.
4. Identify three laws that have been created to address smoking.
5. Briefly describe the My QuitBuddy app.

7.2 Exercise 2 APPLY your knowledge

1. Briefly discuss how the action areas of the Ottawa Charter are evident in health promotion initiatives to address smoking.
2. Briefly explain how initiatives to address smoking can promote health in Australia.
3. Which intervention do you think has been the most successful in reducing smoking rates in Australia? Justify your choice.
4. (a) Explain how high-risk groups for smoking could be further targeted to reduce smoking rates in Australia.
   (b) Which action areas of the Ottawa Charter do your ideas reflect?

studyON

7.2 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Smoking health promotion worksheet (doc-32206)
My QuitBuddy worksheet (doc-32207)

Weblinks Quitnow
Smoking health promotion
My QuitBuddy

7.3 Road safety and the role of health promotion in improving population health

KEY CONCEPT Exploring the role of health promotion in improving population health in relation to road safety

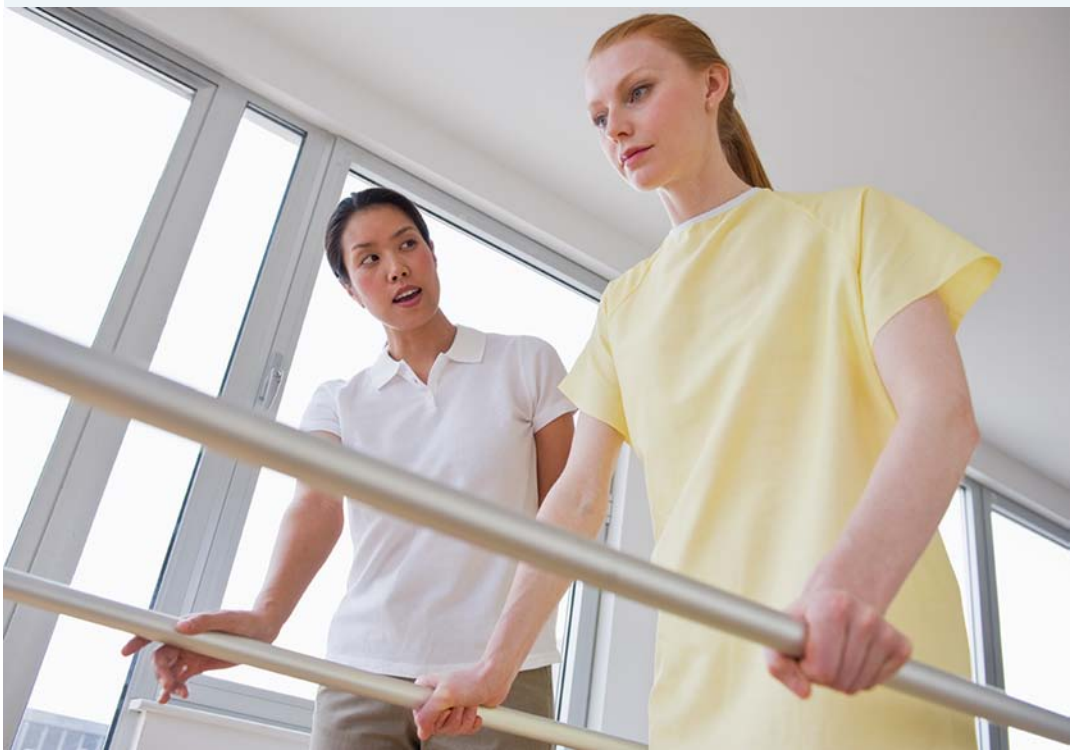
Road safety relates to interventions put in place to reduce the risk of crashes, death and injury caused to individuals as a result of using roads. Road users include pedestrians, cyclists, motorcyclists, and drivers and occupants of cars, trucks and public transport vehicles including trams and buses.

7.3.1 Why is road safety targeted?

Since recordkeeping commenced in 1925, there have been over 187 000 deaths on Australia's roads. Road-related deaths and injuries affect some population groups disproportionately, including the following inequalities in mortality reported by the Australian Institute of Health and Welfare (AIHW):

- Males — are almost 3 times more likely to die on the road than females.
- Indigenous Australians — the death rate for Indigenous males due to transport accidents was more than double the rate for non-Indigenous males.
- People living outside Australia's major cities — rates were more than four times higher for those in remote areas compared to those living in major cities.
- Low socioeconomic groups — those in the lowest socioeconomic group experienced a death rate 2.2 times higher than that for the highest socioeconomic group.
- Young people — in 2017, 112 drivers aged 17–25 years were killed in road crashes. People in this age group account for 21 per cent of drivers killed on Australia's roads yet represent only 16 per cent of the adult population.

FIGURE 7.11 The effects of road trauma can last for extended periods of time.



Every day, an average of four people are killed and 90 are seriously injured as a result of using Australia's roads. All road crashes are deemed to be preventable because the causes can be identified and targeted by health promotion activities, including:

- driver fatigue, distraction and error
- non-compliance with road laws such as alcohol and drug use, speeding and failure to use adequate restraints
- infrastructure including road quality, barriers and lighting
- vehicle quality.

As well as being a leading cause of death for some population groups, the economic and social impacts of road trauma are significant.

According to the Australian government, the economic impact of road crashes in Australia is estimated to be at least $27 billion per year as a result of lost productivity and taxation revenue; healthcare, rehabilitation, long-term care and insurance costs; and social security payments.

Deaths and injuries from road trauma cause significant emotional impacts on family, friends and other community members, especially as injuries are unforeseeable and cause a significant degree of shock. A person who is permanently disabled may experience frustration as they relearn tasks they could once do easily. They may also have to adjust to living without a limb or without the use of limbs.

Compared to the situation in Australia, though, the impact of road trauma is greater in most other countries — over 3000 people die each day from road accidents worldwide, equalling over 1.2 million deaths and 50 million injuries per year. The interventions put in place in Australia provide a reference point for many other countries in their attempt to decrease their own road toll.

CASE STUDY

Victoria records lowest road toll ever, but is it really possible to get to zero?

ABC Radio Melbourne

By Nicole Mills 3/1/19

Victoria has recorded its lowest annual road toll since records began, but experts agree the total of 214 lives lost last year can be reduced further.

The state's Transport Accident Commission (TAC) is working towards a goal of zero road deaths but is that a realistic aim?

Behavioural change expert Peter Bragge from Monash University said it would be "a huge challenge" but was possible.

"The language of road toll implies that there's a price that we're happy to pay," he told *ABC Radio Melbourne*.

"What we've decided in Victoria and around the nation, and in fact around the world, is that actually zero is the number that we should be aiming for.

"If we believe that it is possible, and there is evidence emerging now both in Australia and around the world that it is possible, then that can help us redouble our efforts to change our behaviour."

Strategies having an effect

TAC road safety director Samantha Cockfield said the record low road toll showed that police, government and community interventions were working.

The number of deaths could continue to fall by looking at the evidence and targeting high-risk regions and demographics, she said.

"One of the key things we did when we launched the new Towards Zero Road Safety Strategy and Action Plan was recognise that in country Victoria, those travelling on high-speed rural roads were at really high risk.

"[Road users are] four to five times more likely to be killed on country roads than on metro roads, so we've done a lot of work in those areas."

Ms Cockfield said the installation of 1500 kilometres of flexible barriers, including on roads such as the Hume Freeway, had reduced serious crashes.

The barriers prevent drivers veering into trees or oncoming traffic.

"Three or four years ago you would have been seeing reports coming in every month or so of somebody being killed on the Hume, so that barrier system is really working for us."

More education for young motorists and stricter rules around getting enough practice hours as a learner had also reduced road deaths among young drivers, she said.

Breaking the mobile phone habit

Professor Bragge said reaching a road toll of zero relied on creating long-term behavioural change which was notoriously difficult to achieve.

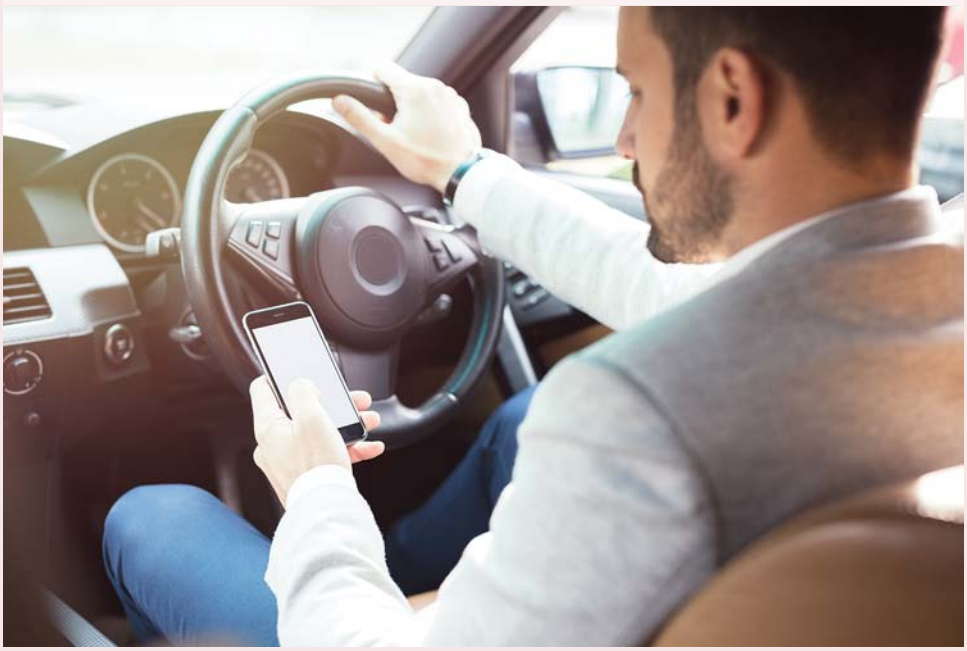
The next big shift needed to be around using mobile phones while driving, he said.

"The things about mobile phones is they're very cleverly manufactured to become addictive.

"There are pings, there are likes — we tend to want to read a message as soon as we get it, and when we do that, we get a little spurt of dopamine in our brains and that makes us feel good.

"For some people they become addicted to that feeling and they become glued to their phones and that extends into the time that they spend in the car."

FIGURE 7.12 The use of mobile phones whilst driving is a considerable issue in Australia.



You definitely can't multi-task

Despite what people might think, neuroscience had proven multitasking was a myth, he added.

"The brain cannot pay attention to two things at a time, that's actually impossible.

"People who think they're multitasking are actually doing a thing called rapid attention switching.

"For the time that you're engaging with the phone, if you are in control of a car, you are not engaging with the road. That's why mobile phone use contributes to so many deaths and accidents on the road."

No letting up

Victoria Police Superintendent John Fitzpatrick said the record low toll was encouraging but more needed to be done.

"One life lost is one too many," he said.

"Police and our road safety partners are determined to prevent and reduce road trauma, which is why we put so much effort into enforcing the law and educating people about the risks of unsafe behaviour."

Source: https://www.abc.net.au/news/2019-01-03/road-toll-is-it-possible-to-achieve-zero-road-deaths/10678650.

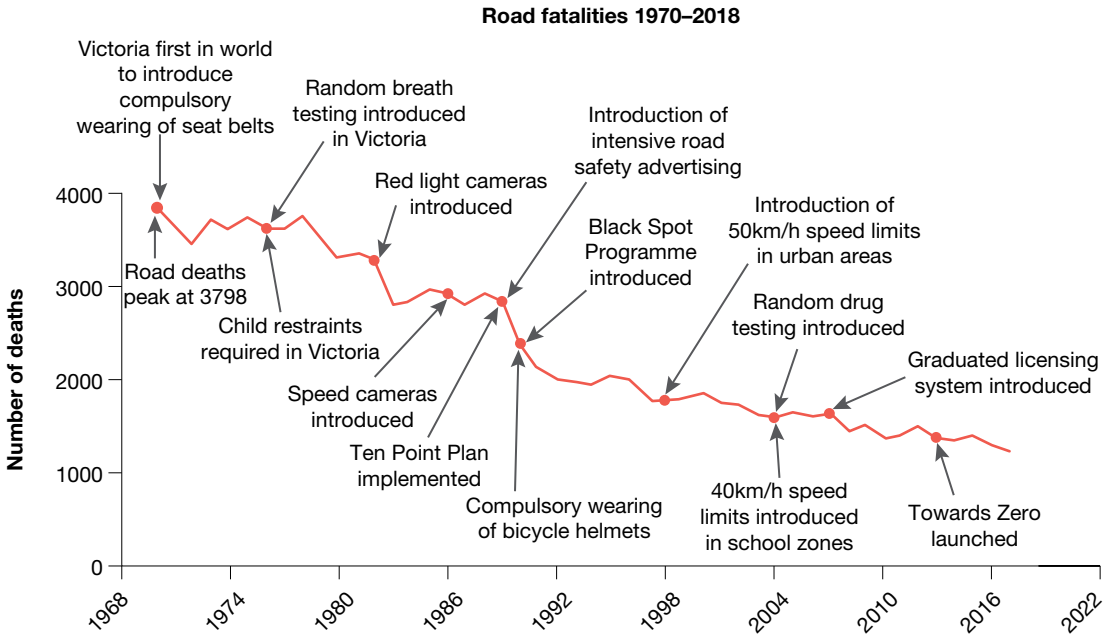
Case study review

1. (a) Which interventions have contributed to a reduction in deaths on Australia's roads according to the article?
   (b) Which action area of the Ottawa Charter do these interventions reflect?
2. Use the action areas of the Ottawa Charter to brainstorm ways that mobile phone use can be targeted among road users.

7.3.2 Effectiveness of health promotion in promoting population health — road safety

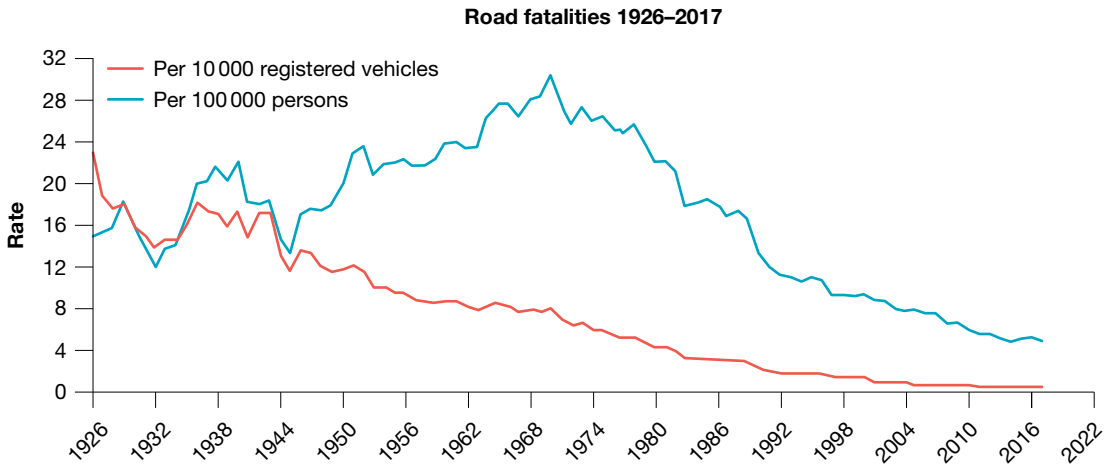
Although Australia still experiences road deaths and injuries, the impact of health promotion interventions has been significant. As a result of these interventions, road trauma levels have declined substantially over the last four decades, despite considerable population growth and a threefold increase in registered motor vehicles. During this period, the number of road deaths per year has fallen from 3798 deaths in 1970 to 1050 deaths in 2018 (see figures 7.13 and 7.14).

FIGURE 7.13 Road fatalities over time in Australia



Source: Graph from ABS Year Book Australia, 2012 supplemented with data for 2011–18 from Australian Government, Bureau of Infrastructure, Transport and Regional Economics (BITRE), Road Trauma Australia — Annual Summaries, 2018 and https://infrastructure.gov.au/roads/safety/publications/2004/pdf/Safety_Aust.pdf.

FIGURE 7.14 Road fatality rates over time in Australia



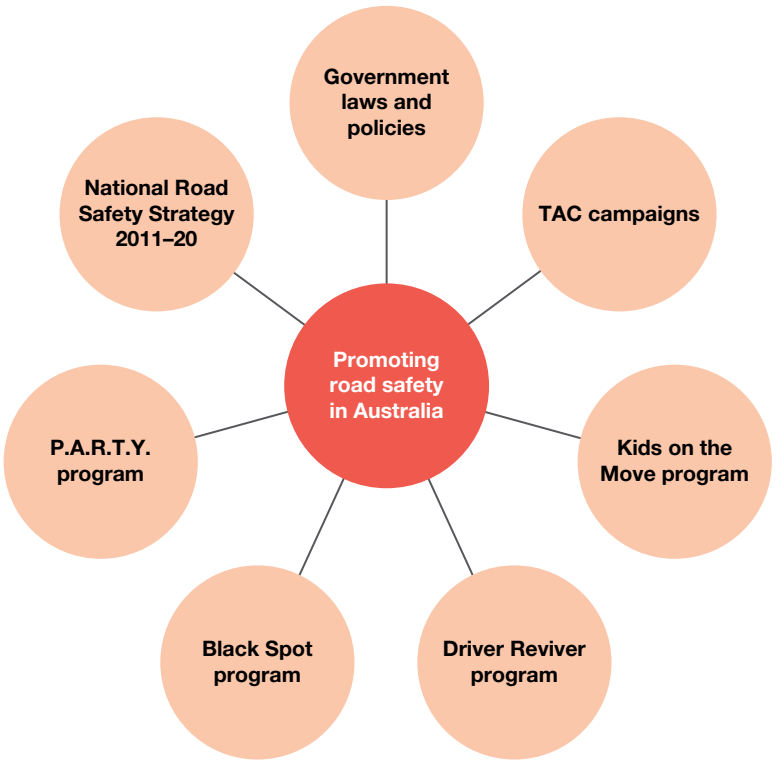
Source: Graph from ABS Year Book Australia, 2012 supplemented with data for 2011–15 from Australian Government, Bureau of Infrastructure, Transport and Regional Economics (BITRE), Road Trauma Australia — Annual Summaries, 2015.

EXAM TIP

This study design dot point makes reference to 'effectiveness of the health promotion in improving population health'. Population health can relate to health and wellbeing or health status, but it should be noted that responses need to go further than the health and wellbeing or health status of an individual. Population health needs to refer to the health and wellbeing or health status of a group or groups of people (for example, the mental health and wellbeing of youth, incidence of injuries among males, or people of low socioeconomic status, etc.).

A number of health promotion interventions have contributed to the success experienced in relation to improving road safety, including those shown in figure 7.15.

FIGURE 7.15 Examples of interventions that have promoted road safety in Australia



The Ottawa Charter for Health Promotion is increasingly used to guide the development of health promotion interventions and, as a result, the action areas of the Ottawa Charter will be used to identify key aspects of each strategy:

- build healthy public policy
- create supportive environments
- strengthen community action
- develop personal skills
- reorient health services.

There are many factors that contribute to road trauma and as a result, multiple action areas of the Ottawa Charter must be targeted to achieve the most significant improvements possible.

EXAM TIP

Road trauma is often the product of a range of influences and as a result, there is no single solution to promoting road safety. Although very few health promotion initiatives focus on each of the five action areas of the Ottawa Charter, the greatest gains are achieved when all action areas are addressed. As a result, you should know a range of health promotion initiatives so that examples of interventions relating to each action area can be discussed.

Government laws and policies

Road rules reflect *healthy public policies*, and the development of rules and law enforcement have been a major contributor to the success achieved in reducing the road toll. A review of road safety measures in Australia found that the wearing of seatbelts, random breath testing and speed cameras explain almost all of the variation in mortality rates since the late 1960s (BITRE, 2010).

In 1969, the Australian Design Rules required all new vehicles to have seatbelts. In 1970, Victoria became the first jurisdiction in the world to mandate the wearing of seatbelts, marking the start of a significant decrease in road deaths.

The introduction of random breath testing began in the 1970s and contributed to a further decrease in road deaths. This intervention also *creates a supportive environment* by reducing the number of drivers on the road affected by alcohol or drugs.

In 1989, the Ten Point Plan was created. It saw the progressive implementation of a range of road-related laws which reflect *building healthy public policies*, including:

- a national 0.05 blood alcohol concentration limit
- national licensing of drivers of buses and heavy trucks
- national uniform speed limits so that no speed limits will exceed 110 km/h
- speed limiters for heavy vehicles
- zero blood alcohol limits for young drivers
- enforcement to ensure that one in four drivers is subjected to a random breath test each year.

Victoria introduced **legislation** for the compulsory wearing of bicycle helmets in 1990. By 1992, all Australian states and territories had adopted this legislation.

Red light and speed cameras were first used in Victoria in the 1980s. This intervention assisted in reducing average speeds and *created a supportive environment* for all road users.

TAC campaigns

Since 1989, the Transport Accident Commission (TAC) has played a large role in promoting road safety by focusing on a range of road safety issues to change public behaviour. Working with Victoria Police and VicRoads, the TAC addresses road safety by:

- providing resources to target speeding and drink-driving
- creating high-profile, hard-hitting mass media campaigns
- focusing on drink-driving, speeding, fatigue and young drivers
- providing public education programs to support police enforcement
- conducting road safety research.

The TAC takes a hard-hitting approach by addressing the key causes of road accidents — the attitudes and behaviours of road users.

Examples of TAC campaigns include:

- 'If you drink, then drive, you're a bloody idiot.'
- 'Wipe off 5.'
- 'Everybody hurts when you speed.'
- 'Drinking. Driving. They're better apart.'
- 'Belt up, or suffer the pain.'

FIGURE 7.16 Legislation such as drink-driving laws and random breath testing has made a significant impact on the road toll in Australia.

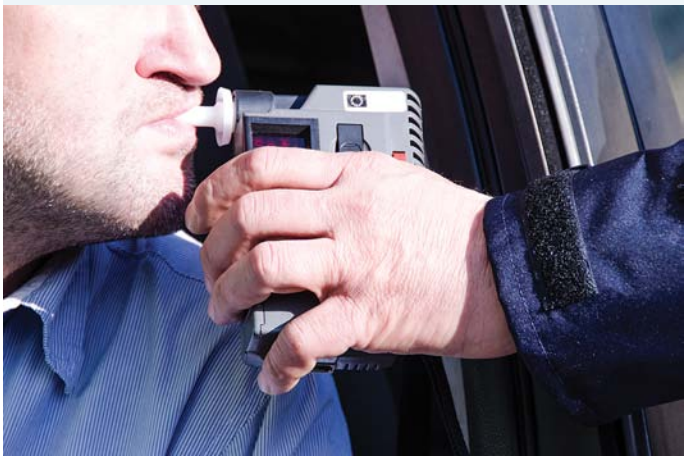


FIGURE 7.17 An anti-speeding advertisement produced by the Transport Accident Commission



- ‘Take a break, fatigue kills.’
- ‘It’s in your hands, concentrate or kill.’
- ‘Country people die on country roads.’

These campaigns work to *develop personal skills* relating to young drivers, fatigue, drug-driving, motorcycle safety, distractions, vehicle safety, speeding and drink-driving.

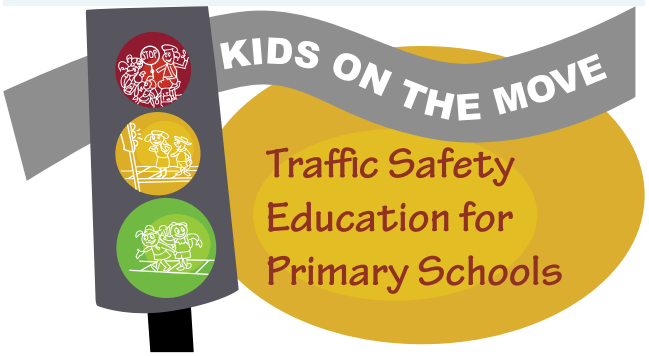
Through a partnership with the Road Trauma Support Services, the TAC assists in providing seminars to community groups, schools and businesses, to educate individuals about the risks associated with road use. Ambulance officers participate in this program, which is an example of *reorienting health services*.

Kids on the Move

Kids on the Move is designed to *develop the personal skills* of children by assisting the implementation of a core road-safety education program in Victorian primary schools.

Kids on the Move *strengthens community action* because all members of the school and general community are encouraged to share the responsibility for the safety of children when they are travelling. Safe road-use behaviour develops over time and needs to be constantly practised and reinforced in a range of different scenarios as children develop and learn to be responsible for themselves.

FIGURE 7.18 Kids on the Move promotes road safety for children.



Kids on the Move *creates a supportive environment* by providing a variety of teaching and learning activities organised into modules. The modules can be downloaded from the Kids on the Move website and assist teachers at different levels to plan, develop and teach their own comprehensive road-safety education program. Each module relates to a specific theme such as pedestrian, passenger and cycling safety.

Driver Reviver program

For over 20 years, Driver Reviver has been a national program campaigning to reduce road collisions by addressing driver fatigue. Unlike other safety hazards, such as speeding and drink-driving, driver fatigue is not a criminal offense but can be just as deadly as those hazards. As it is difficult to address driver fatigue through legislation, the Driver Reviver program was established to *create a supportive environment* for drivers on long journeys.

FIGURE 7.19 The Driver Reviver program provides a supportive environment for drivers on long journeys.



Each holiday season, up to 220 Driver Reviver sites open across Australia to provide motorists with a safe place to stop and refresh. Throughout Australia, the program *strengthens community action* by involving a range of organisations such as State Emergency Services volunteers, rural and volunteer fire services, Lions Club and Apex members, State Police forces and the TAC. The sites offer a place to stop and rest, provide toilet facilities and offer free coffee, tea and biscuits.

The Driver Reviver program also *develops personal skills* by offering ‘holiday motoring tips’ on their website to assist drivers in operating their vehicles safely and by educating the public about the dangers of driving when fatigued.

Black Spot program

The Black Spot program is part of the commitment to reduce crashes on Australian roads. Black Spot projects target those road locations where crashes occur. By funding measures such as traffic signals and roundabouts at dangerous locations, the program *creates a supportive physical environment* and reduces the risk of crashes. Programs of this sort are very effective, saving the community many times the cost of the relatively minor road improvements that are implemented.

According to evaluation reports, crashes involving injury at Black Spot sites would have been 2.5 times higher if the interventions had not been applied.

FIGURE 7.20 The P.A.R.T.Y. program works by providing an experience of trauma services.



P.A.R.T.Y. program

The Prevent Alcohol and Risk-related Trauma in Youth (P.A.R.T.Y.) program is a trauma prevention and health promotion initiative that seeks to *develop the personal skills* of young people by providing a real experience of a major trauma service.

Operating at the Royal Melbourne and Alfred hospitals, the program *reorients health services* by utilising the experiences of presenters including emergency services, doctors, nurses, allied health professionals and researchers.

The program is aimed at 15–24 year olds who spend a day touring the trauma facilities and meeting with healthcare workers and patients. The initiative works to assist participants to make smart choices and think twice about taking risks to prevent harm to themselves and others.

The National Road Safety Strategy 2011–20

The National Road Safety Strategy 2011–20 is a *healthy public policy* developed by the Australian Transport Council, a government group made up of representatives from the federal and state/territory governments.

FIGURE 7.21 The National Road Safety Strategy aims to reduce the risk of injury for all road users.



The program aims to cut the road toll by at least 30 per cent by 2020. It aims to do so by addressing the range of factors that contribute to road-related injuries, such as infrastructure, road laws, human behaviour and vehicle safety.

The program is based on the internationally recognised 'Safe System' approach, which acknowledges that people using the road network will make mistakes and therefore the whole system needs to be addressed to reduce the impact of such errors.

The National Road Safety Strategy reflects the Safe System approach by working to achieve four key objectives: safe roads, safe speeds, safe vehicles, and safe people.

Safe roads

The National Road Safety Strategy works to *create supportive environments* by improving the quality of the infrastructure that can contribute to road injuries. It does this by promoting:

- installation of bicycle lanes to reduce the risk of car–bicycle collisions
- installation of pedestrian crossings and speed humps in residential areas to decrease the risk of injury to pedestrians
- removal of vegetation and other hazards that may limit the visibility of road users

- use of rumble strips that alert drivers when they are drifting out of their lanes
- use of barriers to separate traffic flowing in opposite directions to decrease the risk of head-on collisions.

Safe speeds

Speed is a factor in many road-related injuries. This aspect of the program encourages motorists to slow down by:

- implementing a national public education campaign about the community safety benefits of complying with speed limits. This *develops personal skills* by providing education resources suitable for use by government agencies, local governments and community groups.
- creating a *supportive environment* by:
  - implementing reduced speed limits at intersections to decrease the risk of collisions
  - introducing speed limits of 40 km/h or lower in more pedestrian, cycling and school areas (this is also an example of *building healthy public policy*)
  - using point-to-point speed cameras that record average speeds over a long distance, as opposed to standard speed cameras that only record speed at a given moment in time. Point-to-point speed cameras encourage motorists to slow down across their entire journey, instead of slowing down only in areas known to contain speed cameras.

Safe vehicles

Governments are working with car manufacturers and road users to *create supportive environments* by improving the safety of vehicles used in Australia in relation to:

- expanding the Australian New Car Assessment Program (ANCAP) to increase the coverage of crash test results across the full range of new vehicles on the Australian market
- supporting the implementation of a national Stars on Cars program to encourage the production and purchase of safer cars. This program would use stars to reflect the safety ratings of different cars on the market to allow consumers to make informed decisions when buying a new car.

Safe people

This aspect of the program works to educate people and assist them in *developing the personal skills* required to reduce the risk of injuries on the road by:

- reviewing licensing conditions for motorcycle riders, which reflects a healthy public policy. Possible changes include restrictions for beginner riders (including a minimum period with a car licence before being able to apply for motorcycle licensing), and additional education and training if proven to deliver road safety benefits.
- *strengthening community action* by working in partnership with police to deter motorists from drink- and drug-driving through the use of random breath testing programs and random roadside drug testing programs, and improving public awareness of these programs.
- educating drivers of the dangers of mobile phone use through mass advertising campaigns, which acts to *develop personal skills*.

Towards Zero

Each state and territory government is devising and implementing a *healthy public policy* to reflect the National Road Safety Strategy. In Victoria, this strategy is known as Towards Zero. It works to *strengthen community action* by being the responsibility of the Transport Accident Commission, VicRoads, Victoria Police, the Department of Justice and Regulation, and the Department of Health and Human Services.

FIGURE 7.22 The Towards Zero strategy is aimed at creating a safer road system in Victoria.



TABLE 7.2 Examples of road safety-related health promotion with regards to each of the five action areas of the Ottawa Charter

Action area	Examples relating to road safety	
Build healthy public policy	Road laws such as seatbelts, speed limits and drink driving laws.	The Ten Point Plan saw the progressive implementation of a range of road-related laws.
Create supportive environments	Random breath testing reduces the number of drivers on the road affected by alcohol or drugs making it safer for all road users.	Kids on the Move provides a variety of teaching and learning activities organised into modules.
Strengthen community action	The Driver Reviver program involves a range of organisations such as State Emergency Services volunteers, rural and volunteer fire services, Lions Club and Apex members, State Police forces and the TAC.	Kids on the Move encourages all members of the school and general community to share the responsibility for the safety of children when they are travelling.
Develop personal skills	TAC campaigns work to provide education relating to young drivers, fatigue, drug driving, motorcycle safety, distractions, vehicle safety, speeding and drink-driving.	The P.A.R.T.Y. program seeks to educate young people by providing a real experience of a major trauma service.
Reorient health services	Through the TAC, ambulance officers assist in presenting seminars to community groups, schools and businesses, to educate individuals about the risks associated with road use.	The P.A.R.T.Y. program utilises the experiences of presenters including emergency services, doctors, nurses, allied health professionals and researchers.

7.3 Activity

Access the **Road safety health promotion** weblink and worksheet in the Resources tab then complete the worksheet.

7.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Outline three reasons why road safety is targeted by health promotion programs.
2. Which population groups are more likely be injured or killed on the roads when compared to the rest of the population?
3. Approximately how many people were killed on Australia roads in 2018?
4. Using data, outline a trend in relation to road deaths in figure 7.14.
5. Identify the three interventions that account for almost all of the reduction in mortality rates since the 1960s due to road accidents.

7.3 Exercise 2 APPLY your knowledge

1. Briefly discuss how the action areas of the Ottawa Charter are evident in initiatives to promote road safety.
2. Briefly explain how improving road safety can promote health in Australia.
3. Which intervention do you think has been the most successful in promoting road safety in Australia? Justify your choice.

4. (a) Explain how high-risk groups for road accidents could be further targeted to promote road safety in Australia.
   (b) Which action areas of the Ottawa Charter do your ideas reflect?

studyON

7.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Road safety health promotion worksheet (doc-32208)
Weblink Road safety health promotion

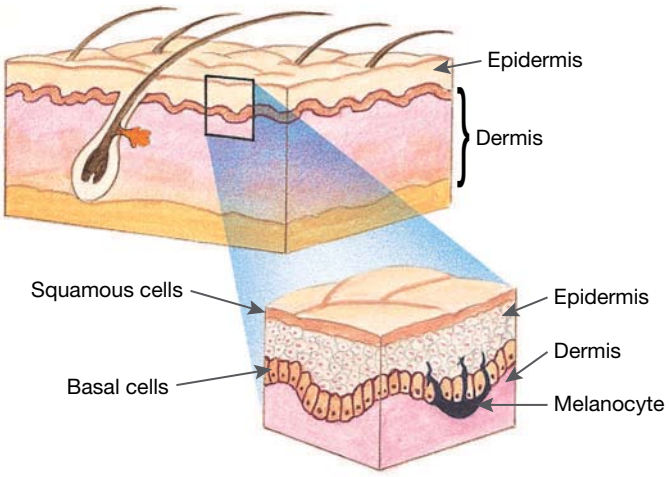
7.4 Skin cancer and the role of health promotion in improving population health

KEY CONCEPT Exploring the role of health promotion in improving population health in relation to skin cancer

There are many types of skin cancer. Most are non-melanoma skin cancers, which can usually be treated reasonably effectively. Melanoma, on the other hand, is an extremely dangerous type of skin cancer and can cause death if left undiagnosed and untreated. Fair and freckly skinned people are at greater risk of skin cancer. The risk also increases with age and UV exposure.

Melanoma is cancer of the melanocytes (see figure 7.23). Melanocytes are the cells in the skin that are responsible for making melanin, which is a pigment in the skin that gives the skin its colour and also protects it from harmful UV rays. When a person spends extended time in the sun without using adequate skin protection, more melanin is made to protect the skin. This is why the skin turns darker after exposure to the sun. Too much UV exposure can cause the melanocytes to grow abnormally and become **malignant**. If not diagnosed and treated in the early stages, the cancerous cells can grow deeper into the skin and eventually **metastasise**. If this occurs, the risk to health and wellbeing is serious.

FIGURE 7.23 The anatomy of skin and the location of melanocytes



Exposure to UV radiation, which is present in sunlight and **solariums**, is the biggest risk factor for skin cancer. The cancer usually appears as a spot that changes over time. Some moles can turn cancerous and should be monitored by a doctor.

7.4.1 Why is skin cancer targeted?

Australia has the highest rate of skin cancer in the world. More than 2000 Australians die from skin cancer each year, and around two in three Australians are diagnosed with skin cancer before the age of 70.

FIGURE 7.24 Sunburn is a major risk factor for skin cancer.



Non-melanoma skin cancers are the most common skin cancers in Australia, but exact numbers are not known as these cancers do not have to be reported to cancer registries. Excluding non-melanoma skin cancer, melanoma is the third most common cancer in Australian women and the fourth most common cancer in men, and the most common cancer in Australians aged 15–44 years. In 2020, there were estimated to be 15 691 Australians diagnosed with melanoma. Overall, skin cancers account for around 80 per cent of all newly diagnosed cancers in Australia.

According to the AIHW (2013), in 2011 melanoma skin cancers were responsible for 31 647 of years of life lost (YLL) or 1.4 per cent of the total fatal burden, and 0.8 per cent of the total burden in Australia was attributed to sun exposure.

Like most public health issues, skin cancer affects some population groups more than others:

- Males — non-melanoma skin cancer is more common in males, with almost double the incidence compared to females. Males are also more likely to die from skin cancer, with 1222 males estimated to die from skin cancer in 2020 compared to 547 females.
- Those working outdoors — approximately 200 melanomas and 34 000 other skin cancer types per year are estimated to be caused by occupational exposures in Australia. According to one study, outdoor workers exposed to solar UV radiation were more likely to be males and those residing in lower socioeconomic and regional areas. The occupations with the highest percentage of outdoor workers were farming, painting and plumbing (Carey et al. 2014, 'Occupational exposure to solar radiation in Australia: who is exposed and what protection do they use?', *Australian and New Zealand Journal of Public Health*, 38(1), pp. 54–9).

In addition to the impacts on health and wellbeing, the economic costs of skin cancer are substantial in Australia:

FIGURE 7.25 Sun protection behaviours such as using sunscreen and wearing a hat can reduce the risk of developing skin cancer.



- Medicare records show there were almost one million treatments for non-melanoma skin cancers in 2016, or more than 2500 skin cancer treatments every day.
- Non-melanoma skin cancers accounted for almost one-quarter of all cancer-related hospitalisations in 2014–15. The cost to the health system in 2015 of these skin cancers alone is estimated at over $700 million.
- Lost productivity and premature mortality that contribute to other costs associated with skin cancers in Australia cost over $100 million each year.

The emotional and mental health and wellbeing impacts of skin cancer are also considerable:

- Surgery can alter a person's appearance as large amounts of surrounding tissue are often removed, which can contribute to higher levels of depression and anxiety among sufferers.
- Those diagnosed with melanoma may experience high levels of stress as they undergo treatment.
- Premature death of an individual causes immense distress among family and friends which increases the level of grief in the community.

The Cancer Council estimates that between 95 and 99 per cent of skin cancers are caused by exposure to the sun. Therefore, health promotion activities have significant potential to reduce the impact of skin cancer in Australia by implementing activities that act to reduce overexposure to UV radiation.

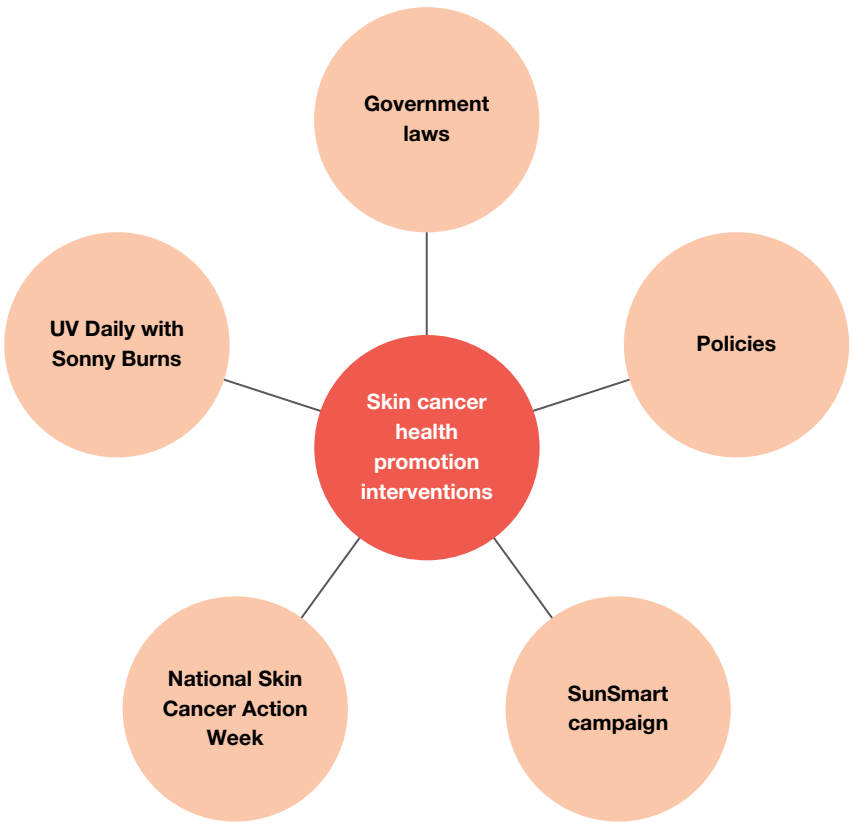
It is estimated that in Australia almost 14 per cent of adults, 20 per cent of teenagers and 8 per cent of children are sunburnt on an average summer weekend. Many people get sunburnt when they are taking part in water sports and other activities at the beach or a pool, or when gardening or having a barbeque.

7.4.2 Effectiveness of health promotion in promoting population health — skin cancer

Health promotion activities relating to skin cancer have been in place in Australia since the 1980s and have achieved great success overall.

While melanoma incidence in Victoria continues to rise among those aged over 45 years, the rate of increase has slowed. In addition, melanoma incidence is falling in those under the age of 45. This suggests that health promotion is having a positive effect on generations who have grown up with skin cancer interventions (see figure 7.26).

FIGURE 7.26 Interventions put in place to reduce the risk of skin cancer



EXAM TIP

This study design dot point makes reference to 'effectiveness of the health promotion in improving population health'. Population health can relate to health and wellbeing or health status, but it should be noted that responses need to go further than the health and wellbeing or health status of an individual. Population health needs to refer to the health and wellbeing or health status of a group or groups of people (for example, the physical health and wellbeing of youth, incidence of skin cancer among males, or those working outdoors).

The Ottawa Charter for Health Promotion is increasingly used to guide the development of health promotion interventions and, as a result, the action areas of the Ottawa Charter will be used to identify key aspects of each strategy:

- build healthy public policy
- create supportive environments
- strengthen community action
- develop personal skills
- reorient health services.

There are many factors that contribute to people developing skin cancer and as a result, multiple action areas of the Ottawa Charter must be targeted to achieve the most significant improvements possible.

EXAM TIP

Skin cancer is often the product of a range of influences and as a result, there is no single solution to reducing rates of skin cancer. Although very few health promotion initiatives focus on each of the five action areas of the Ottawa Charter, the greatest gains are achieved when all action areas are addressed. As a result, you should know a range of health promotion initiatives so that examples of interventions relating to each action area can be discussed.

Government laws

Research published in 2008 found that 281 melanomas, 43 deaths and 2572 non-melanoma skin cancers were attributable to solarium use in Australia each year, at a cost to the health system of around $3 million (SunSmart).

In 2015, the Victorian Government *developed a healthy public policy* that made it illegal to operate commercial solarium units in Victoria. The ban came as the result of ongoing campaigning led by Cancer Councils across Australia. The result of this policy is that many Victorians will be saved from the devastating effects that skin cancer has on patients and their families.

FIGURE 7.27 Commercial solariums are now banned in most areas of Australia.



Commercial solarium operators have also been banned in New South Wales, South Australia, Tasmania, the Australian Capital Territory, Western Australia and Queensland. There are no commercial solariums operating in the Northern Territory.

Policies

A range of *healthy public policies* relating to skin cancer and UV protection are implemented across community, education and employment settings:

- Many schools implement a 'no hat, no play' or 'no hat, play in the shade' policy to promote the wearing of hats during play times.
- Many local governments have implemented 'shade policies' to guide the development of sustainable shade options (natural and built) in public places such as playgrounds and sports facilities.
- As a part of their occupational health and safety policies, many workplaces eliminate, reduce or control overexposure to UV radiation through interventions such as providing:
  - free sunscreen to workers
  - long sleeve uniforms and hats
  - shade in areas where employees spend their time
  - training and education about sun exposure and protection methods.

SunSmart

SunSmart is an initiative of Cancer Council Victoria. It was launched in 1988 and is funded by Cancer Council Victoria and the Victorian Health Promotion Foundation (VicHealth). In 2004, SunSmart was appointed the World Health Organization's Collaborating Centre for UV Radiation. It is a world leader in skin cancer prevention.

SunSmart has helped prevent more than 103 000 skin cancers and more than 1000 deaths since 1988, but more improvements can be made. Australian youth still have the highest incidence of malignant melanoma in the world compared with youth in other countries. In young people aged 12–24 years in Australia, melanoma is the most common cancer, and accounts for more than one-quarter of all cancers in this age group.

One of the first campaigns developed to promote sun protection was Cancer Council Victoria's 1980 'Slip, Slop, Slap' campaign featuring Sid the Seagull (see figure 7.28).

Today, SunSmart *develops personal skills* through mass advertising campaigns. These include paid and unpaid media strategies (television, radio, print, digital, and public relations activities) that help people know when they need sun protection. Examples of media campaigns include:

- 'Slip, Slop, Slap, Seek, Slide,' — during sun protection times (when the **UV index** reaches 3 or higher), SunSmart recommends using a combination of sun protection measures: *Slip* on covering clothing; *Slop* on SPF30 or higher, broad-spectrum, water-resistant sunscreen; *Slap* on a broad-brimmed hat; *Seek* shade; and *Slide* on sunglasses.
- 'UV. It all adds up' — this campaign raised awareness about the cumulative effect UV exposure can have over long periods of time.
- 'There's nothing healthy about a tan' — this campaign highlights the fact that even one damaged melanocyte can lead to skin cancer and therefore tanning to any degree is dangerous.
- 'How to remove a skin cancer' — graphic footage was shown of skin cancer removal to act as a deterrent to spending too much time in the sun.
- 'Belinda's story' — tells the true story of a Victorian mum who died of melanoma in April 2016. With the aim of encouraging parents to increase their sun protection, the campaign provides an insight into the devastating impact skin cancer can have on an individual and their family.

FIGURE 7.28 Sid the Seagull featured in one of the first sun-protection mass-advertising campaigns.



CASE STUDY

Victorians urged to be SunSmart over holidays as study exposes lack of sun protection habits

Monday 17 December, 2018

A study looking at sun protection behaviours in Melbourne's parks, streets and swimming areas has found an abysmally low use of clothing, hats and shade over summer weekends.

The findings have prompted a warning from Cancer Council Victoria's SunSmart program about the danger of UV damage, with experts urging Victorians to use a combination of measures to protect their skin this summer.

The Sun Observation Study monitored teenagers' and adults' use of covering clothing, hats, sunglasses and shade in public outdoor settings. Observations took place over six summer weekends in Melbourne, from January to February 2018.

The study found low protection from clothing cover at pools and beaches (5% people observed had arms covered and 8% had legs covered), parks and gardens (15% arms and 39% legs) and in outdoor streets and cafes (18% and 49%).

About 1 in 3 people wore a hat to parks and gardens or pools and beaches, however most of these hats did not offer enough protection to the face, neck and ears.

Shade was also not well used. Just 11% of people sought or created their own shade at the pool or beach, 14% at parks and gardens, and 31% at streets and cafés.

Sunglasses were more popular across the settings – as many as 50% of people observed slid on sunglasses at the pool or beach, and around 1 in 3 people protected their eyes across other locations.

The findings come as SunSmart prepares to launch its summer campaign *UV. It all adds up*, which warns UV rays can damage unprotected skin no matter where you are.

SunSmart manager Heather Walker said the campaign message was one Victorians clearly need to hear.

"The only one with a red nose this season should be Rudolph. But this study shows us that we really need to step up our sun protection efforts if we want to keep our skin safe," Ms Walker said.

"The low use of protective clothing reflected in this observation study is really concerning. Of course, we don't expect people to rug up in sweltering weather, but it's important to choose loose, cool clothing that covers as much skin as possible. Leaving skin exposed by going shirtless, for example, is simply putting yourself at risk of a sunburn, and down the line, skin cancer.

"This is an especially important message as Victorians prepare for their holiday break. Whether you're heading down to the beach, out doing the shopping, grabbing a coffee or simply relaxing in the backyard, at this time of year you'll need sun protection each and every day."

While the study was unable to collect information on sunscreen use, Ms Walker said it was a timely reminder to use all five sun protection steps in combination.

"Sunscreen is an excellent form of protection and absolutely essential but for our extreme UV climate you need the best level of protection – clothing, a hat, shade, sunglasses and sunscreen together," Ms Walker said.

The Sun Observation Study found adults 50 years or older were more likely to engage sun protection behaviours than the teenagers and younger adults observed. For example, more adults aged 50 or older wore covering leg clothing in parks and gardens (51% vs 28% of teenagers) and outdoor streets and cafes (63% vs 32% of teenagers).

Ms Walker said the *UV. It all adds up* campaign would help remind Victorians of all ages of the importance of sun protection.

"The sun's UV radiation is strong enough at this time of year to cause a sunburn in just 11 minutes. Although the signs will fade, the damage remains," Ms Walker said.

"The more time you spend unprotected in the sun, the more UV damage will build up, increasing your risk of skin cancer, including the deadliest form – melanoma."

In 2017, 2,993 Victorians were diagnosed with melanoma and 270 lost their lives to the disease. Non-melanoma skin cancer is the most common cancer in Victoria, with doctors treating more than 92,000 cases in a single year.

"Despite its prevalence, most skin cancer can be prevented by using good sun protection. Summer is the peak risk time for UV damage, so it's absolutely critical Victorians protect their skin in five ways outdoors," Ms Walker said.

SunSmart recommends checking local sun protection times on the free SunSmart app or Bureau of Meteorology app. During these times each day:

- Slip on clothing that covers as much skin as possible
- Slop on SPF30 (or higher) broad-spectrum, water-resistant sunscreen

- Slap on a broad-brimmed hat that shades your face, neck and ears
- Seek shade
- Slide on sunglasses

UV. It all adds up airs across TV, radio and online from 30 December, thanks to funding provided by the Victorian Government.

Source: SunSmart Cancer Council Vic.

Case study review

1. What are the five ways to reduce damage caused by UV?
2. Which sun protection methods were under-utilised according to the study?
3. Explain why wearing a hat didn't always prevent UV exposure.
4. Outline ways that SunSmart works to reduce damage caused by UV exposure according to the article and explain which action area each relates to.

SunSmart works to *create supportive environments* by improving environmental protection strategies, such as shade audits, options for built and natural shade, and promoting the SunSmart UV Alert.

SunSmart *strengthens community action* by assisting various groups to reduce UV exposure. Targeted groups include early childhood centres, schools, workplaces, local communities, sporting clubs and sporting venues.

SunSmart has developed a range of *healthy public policies* that can be adapted to individual childcare centres, kindergartens, schools and workplaces. The SunSmart Primary School and Secondary School programs encourage schools to implement a SunSmart policy that meets the Cancer Council Victoria's criteria. These include using a combination of sun protection measures during sun protection times. Sun protection measures include clothing, hats, sunscreen, shade and sunglasses. SunSmart also encourages SunSmart education within the school's curriculum, which *develops personal skills*.

SunSmart assists in *reorienting health services* by providing support for community health workers, general practitioners and local governments in promoting awareness of UV exposure. This support includes advice on strategy development, making research available to health professionals, and making advertising and educational materials available for use by health professionals.

National Skin Cancer Action Week

Each year Cancer Council Australia and the Australasian College of Dermatologists work together to implement National Skin Cancer Action Week. This intervention is an example of *reorienting health services* as **dermatologists** are working to raise awareness of and prevent skin cancer.

During the designated week, the Cancer Council and the Australasian College of Dermatologists *develop personal skills* by reminding Australians of the importance of sun protection and early skin cancer detection.

The 2018 theme was '#OwnYourTone '. It focused on reminding Australians to use five forms of sun protection to help reduce their skin cancer risk: slip on sun protective clothing; slop on SPF30 (or higher) broad-spectrum, water-resistant sunscreen; slap on a broad-brimmed hat; seek shade; and slide on sunglasses.

National Skin Cancer Action Week *strengthens community action* by encouraging people to get involved, including:

- putting posters up at work, home or at school to remind Australians of the importance of sun protection
- updating cover photos on individuals' social media channels using the images provided on the Cancer Council website
- sharing photos showing five forms of sun protection and using the #SunSmart5 hashtag
- spreading the word by sharing National Skin Cancer Action Week social media posts during the week.

FIGURE 7.29 Each year National Skin Cancer Action Week raises awareness of skin cancer and promotes preventative measures to reduce its incidence.



UV Daily with Sonny Burns

UV Daily with Sonny Burns is an intervention designed by the Cancer Council and aims to *develop personal skills* relating to sun safety among those working in outdoor trades.

FIGURE 7.30 Sonny Burns is the face of the UV Daily website.



The Australian Workplace Exposure Study found workers in the construction and agriculture industries had inadequate protection against the sun's UV radiation, despite it being the most common cancer risk to which they were exposed. In the construction industry, 86 per cent of workers were exposed to UV radiation, but just 7 per cent were adequately protected. In agriculture, 99 per cent of workers were exposed to UV radiation, yet only 10 per cent were considered to be adequately protected with the use of shade, clothing, a hat and sunscreen.

UV Daily with Sonny Burns is a website that targets outdoor workers, specifically those working in trades. Sonny Burns is the character who is the face of the UV Daily website. He is a tradesman and self-appointed UV spokesperson. Sonny Burns *creates a supportive environment* by notifying users of the UV index and conveying sun safety messages to other tradespeople. He also has a presence on social media such as Twitter and Facebook.

TABLE 7.3 Examples of skin cancer-related health promotion with regards to each of the five action areas of the Ottawa Charter.

Action area	Examples relating to skin cancer	
Build healthy public policy	In 2015, the Victorian Government introduced laws that made it illegal to operate commercial solarium units in Victoria.	Many schools implement a 'no hat, no play' or 'no hat, play in the shade' policy to promote the wearing of hats during play times.
Create supportive environments	Sonny Burns notifies users of the UV index and conveys sun safety messages to other tradespeople.	SunSmart works to improve environmental protection strategies, such as shade audits, options for built and natural shade, and promoting the SunSmart UV Alert.
Strengthen community action	SunSmart assists various groups to reduce UV exposure. Targeted groups include early childhood centres, schools, workplaces, local communities, sporting clubs and sporting venues.	National Skin Cancer Action Week encourages people to get involved, including by putting posters up at work, home or at school to remind Australians of the importance of sun protection.
Develop personal skills	'UV. It all adds up' — this campaign raised awareness about the cumulative effect UV exposure can have over long periods of time.	During National Skin Cancer Action Week, the Cancer Council and the Australasian College of Dermatologists educates people by reminding them of the importance of sun protection and early skin cancer detection.
Reorient health services	SunSmart provides support for community health workers, general practitioners and local governments in promoting awareness of UV exposure.	During National Skin Cancer Action Week dermatologists work to raise awareness of and prevent skin cancer.

7.4 Activities

1. Access the **SunSmart** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **SunSmart app** weblink and worksheet in the Resources tab then complete the worksheet.

7.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Outline three reasons why skin cancer is targeted by health promotion programs.
2. Which population groups are more likely to develop skin cancer in Australia?
3. What proportion of skin cancers are estimated to be caused by exposure to the sun?

4. Briefly explain what is meant by melanoma.
5. What is a solarium?

7.4 Exercise 2 APPLY your knowledge

1. Briefly discuss how the action areas of the Ottawa Charter are evident in initiatives to address skin cancer.
2. Briefly explain how addressing skin cancer can promote population health in Australia.
3. Which intervention do you think has been the most successful in reducing skin cancer Australia? Justify your choice.
4. (a) Explain how high-risk groups for skin cancer could be further targeted to reduce their risk in Australia.
   (b) Which action areas of the Ottawa Charter do your ideas reflect?

studyON

7.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents	SunSmart worksheet (doc-32209)
	SunSmart app worksheet (doc-32210)
Weblinks	SunSmart
	SunSmart app

7.5 Initiatives to address Indigenous health and wellbeing

KEY CONCEPT Exploring initiatives introduced to address Indigenous health and wellbeing

As explored in topic 4, there are a number of population groups within Australia who do not experience the same level of health and wellbeing as the rest of the population. Indigenous Australians, particularly, have significant potential to experience improvements in health and wellbeing and have therefore been a focus of numerous initiatives. Exploring these initiatives allows successful interventions to be identified and built upon in the future to bring greater gains in health and wellbeing to Indigenous Australians.

FIGURE 7.31 The health and wellbeing of young Indigenous Australians is a key focus of the Closing the Gap campaign.



In March 2008, the Council of Australian Governments (COAG), which includes Australian, state, territory and local government representatives, along with Indigenous leaders, agreed 'to work together to achieve equality in health status and life expectancy between Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians by the year 2030'. This commitment is known as 'Closing the Gap' and represents a *healthy public policy*.

To evaluate change in relation to the Closing the Gap initiative, COAG set measurable targets to monitor improvements in Indigenous health and wellbeing. The targets are:

- close the gap in life expectancy within a generation
- halve the gap in mortality rates for Indigenous children under five within a decade
- ensure all Indigenous four-years-olds in remote communities have access to early childhood education within five years
- halve the gap for Indigenous students in reading, writing and numeracy within a decade
- halve the gap for Indigenous students in year 12 attainment or equivalent attainment rates by 2020
- halve the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade.

In addressing these targets, COAG has committed $4.6 billion across early childhood development, health and wellbeing, housing, economic participation and remote service delivery, and has achieved a number of supportive commitments by the non-government sector.

Under the Closing the Gap strategy, numerous interventions have been put in place. It is not possible to explore all of these interventions in this section, but a series of case studies have been selected to highlight the work happening under the Closing the Gap initiative (see figure 7.32).

FIGURE 7.32 Examples of strategies implemented under the Closing the Gap initiative



7.5.1 Delivering Deadly Services initiative

Training the health workforce in cultural awareness and employing people from the local community are two important factors in enabling Indigenous people to feel comfortable in accessing services. The Delivering Deadly Services initiative *develops personal skills* by focusing on cultural awareness training for staff and promoting effective identification of Indigenous clients. This *creates a supportive environment*

and leads to Indigenous clients reporting that staff were 'generally more aware and supportive', with nurses demonstrating greater cultural awareness when engaging with clients.

Culturally appropriate healthcare has been shown to increase the rate at which Indigenous Australians access healthcare. Appropriate healthcare works to improve health and wellbeing outcomes especially for vulnerable groups such as pregnant women and young children.

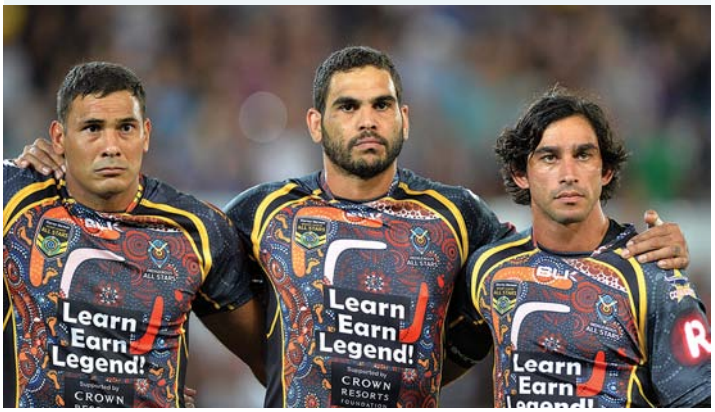
FIGURE 7.33 Indigenous culture has a long and rich history that must be considered when providing healthcare to ensure that the care provided is appropriate.



7.5.2 Learn Earn Legend!

'Learn Earn Legend!' is a program launched by the Australian government in February 2010. The program's message encourages and supports young Indigenous Australians to stay at school to *develop personal skills* such as literacy and numeracy, so they can get a job and be a legend for themselves, their family and their community. Young people are paired with Indigenous mentors to provide guidance on the importance of education, training and employment.

FIGURE 7.34 Learn Earn Legend! uses mentors that Indigenous youth look up to, including professional sportspeople.



Learn Earn Legend! is *strengthening community action* as it is delivered by community leaders, sport stars and local community members whom young Indigenous Australians respect and aspire to emulate. Learn Earn Legend! supports events and programs throughout Australia by creating partnerships with other groups to promote Indigenous health and wellbeing, including AFL in NSW and ACT, Tennis Australia National Indigenous program, NRL Indigenous all stars, and Former Origin Greats (FOGS).

7.5.3 The 2 Spirits program

The '2 Spirits' program embraces a 'whole of community approach' to improve the sexual health and wellbeing of Indigenous gay men and **sistergirls** through education, prevention, health promotion, and community development activities.

The program *reorients health services* by working in consultation with community members to identify appropriate means of addressing sexual health issues in this population. An example of some of the services 2 Spirits provide include: printed resources and campaigns; peer education workshops; retreats for gay men, sistergirls, and people living with HIV; and social support groups.

The 2 Spirits program also has services directed at the partners, families and friends of Indigenous people living with HIV, gay men, and sistergirls as well as the wider community, which *strengthens community action*. For example, the program holds community forums focusing on HIV/AIDS, sexual health and wellbeing, injecting drug use, discrimination, and sexuality issues. Such forums *develop personal skills* and increase knowledge and understanding within Indigenous communities.

7.5.4 The Be Deadly, Get Healthy program

The 'Be Deadly, Get Healthy' program aims to *reorient health services* and improve the health and wellbeing of Indigenous families and reduce chronic disease in the Baw Baw Shire in the Gippsland area of Victoria. The program was developed by the West Gippsland Healthcare Group (WGHG) in partnership with Ramahyuck District Aboriginal Corporation (RDAC). The program also *strengthens community action* by strengthening the relationship between RDAC and WGHG.

The Be Deadly, Get Healthy program uses a family-based approach. Children and parents are encouraged to participate in the program together and *develop personal skills* as they learn long-term healthy behaviours. The program involves an initial health status assessment on joining and requires participation in regular physical activity sessions. These weekly sessions are run by health workers such as physiotherapists and include group walks, gym circuits and cardio-strengthening exercises. These sessions aim to promote fitness and mental health and wellbeing, and assist in promoting a healthy body weight and reducing the risk of associated conditions such as type 2 diabetes.

7.5.5 The Aboriginal Road to Good Health program

The 'Aboriginal Road to Good Health' program is a type 2 diabetes prevention program for Victorian Indigenous people and their families. The program aims to *develop personal skills* so people can make sustainable lifestyle changes, like being more physically active and choosing healthier food and drink. Such measures help reduce the risk of developing type 2 diabetes and other conditions such as heart disease and high blood pressure.

The program *creates a supportive environment* by being free for participants. It is run in a number of communities across Victoria by Indigenous health workers and other health professionals, and therefore also works to *reorient health services*.

FIGURE 7.35 Reading food labels is a skill taught by the Aboriginal Road to Good Health program.



7.5.6 Aboriginal Quitline

Aboriginal Quitline is a telephone counselling service that *creates a supportive environment* by providing confidential support for Indigenous Australians who want to quit smoking. The service is available to clients in Victoria, New South Wales, and Queensland.

Aboriginal Quitline staff are professionals with specialist training to help people quit smoking in a culturally appropriate way. Counsellors provide callers with a plan for quitting that is tailored to their

individual needs, as well as information on different quitting methods and products which *develops personal skills*. Counsellors can also provide callers with links to local support groups if requested which assists in *creating a supportive environment.*

7.5.7 Feedin' the Mob

'Feedin' the Mob' is a nutrition, physical activity and healthy lifestyle program for Indigenous Australians in the City of Whittlesea, Victoria. Based at Plenty Valley Community Health, Feedin' the Mob is funded by the federal government and supported by Whittlesea Council through its Healthy Communities initiative. This commitment to funding represents a *healthy public policy*.

Feedin' the Mob *strengthens community action* by encouraging the community to be involved in activities that draw on local culture to *develop personal skills* by teaching the benefits of healthy eating and lifestyle. The target audiences are teenagers, parents and carers, people living with chronic illness and Elders. The project includes a community garden, cooking classes and information sharing about primary healthcare and the prevention of chronic disease.

7.5.8 Fitzroy Stars

The Fitzroy Stars Football Club (FSFC), based in the Indigenous community in Melbourne's northern suburbs, is a Victorian institution.

The mission of the Fitzroy Stars Football Club is not just about football. The club's mission is to:

- Nurture a culture that promotes a healthy lifestyle
- Promote fitness, nutrition, diet, self-esteem
- Offer pathways to employment and education
- Foster reconciliation by building strong bridges between Aboriginal and non-Aboriginal communities.

First formed in 1970, the club was inactive for 13 years until 2008, when VicHealth, Oxfam and the Aboriginal Advancement League *strengthened community action* by working together to resurrect the FSFC. Today, families and community members spend weekends and week nights engaged in supporting their team and undertaking volunteer activities to ensure that the club is sustained and grows.

The FSFC has become an integral part of the way people spend their weekends and *creates a supportive environment* by giving families a safe place where they can participate in sport and socialise.

In order to achieve its mission, the FSFC *develops personal skills* by providing education relating to issues such as nutrition and employment. It also *reorients health services* by using health professionals to present weekly sessions relating to preventative healthcare such as quitting smoking and receiving regular health checks.

TABLE 7.4 Examples of Indigenous health promotion with regards to each of the five action areas of the Ottawa Charter

Action area	Examples relating to smoking	
Build healthy public policy	'Closing the Gap' is an agreement between all levels of government and Indigenous representatives to close the gap in life expectancy within a generation.	Based at Plenty Valley Community Health, Feedin' the Mob is funded by the federal government and supported by Whittlesea Council through its Healthy Communities initiative. This commitment to funding represents a healthy public policy.
Create supportive environments	The Delivering Deadly Services program provides culturally appropriate healthcare using people from the local community.	Aboriginal Quitline is a telephone counselling service that provides confidential support for Indigenous Australians who want to quit smoking.

(continued)

TABLE 7.4 Examples of Indigenous health promotion with regards to each of the five action areas of the Ottawa Charter *(continued)*

Action area	Examples relating to smoking	
Strengthen community action	Learn Earn Legend! is delivered by community leaders, sport stars and local community members whom young Indigenous Australians respect and aspire to emulate.	Feedin' the Mob encourages the community to be involved in activities that draw on local culture to educate by teaching the benefits of healthy eating and lifestyle.
Develop personal skills	The 2 Spirits program presents community forums focusing on HIV/AIDS, sexual health and wellbeing, injecting drug use, discrimination, and sexuality issues. These forums increase knowledge and understanding within Indigenous communities.	Learn Earn Legend! supports young Indigenous Australians to stay at school to develop personal skills such as literacy and numeracy
Reorient health services	The Aboriginal Road to Good Health program is delivered by Indigenous health workers and seeks to prevent the incidence of type 2 diabetes.	The 'Be Deadly, Get Healthy' program uses health workers such as physiotherapists to promote physical activity and reduce the risk of chronic disease.

Evaluating initiatives in relation to their capacity to improve Indigenous health and wellbeing

It is important to evaluate initiatives to ensure they are as effective as possible in promoting Indigenous health and wellbeing. Funding is generally limited and ensuring that the most effective interventions are implemented contributes to the greatest gains being achieved.

In order to evaluate initiatives, reasons why it is judged to be effective or ineffective should be included and can be based on a number of considerations:

- actual improvements in health and wellbeing that have been made as a result of the initiative — effective initiatives conduct research to determine the level of success achieved. This information can provide evidence to the actual successes of the initiative and the improvements to health and wellbeing that have been achieved.
- the number of people who have accessed or been involved in the initiative — many programs keep records on the number of people taking part. An increase in participants over time and / or participants taking part over an extended period can indicate that the target audience are engaged with the initiative, assisting in achieving its goals.
- feedback provided by participants — those taking part in the program often provide information of their personal experiences which can indicate the level of success in promoting Indigenous health and wellbeing.
- action areas of the Ottawa Charter that are evident in the initiative, including:
  - develop personal skills through the provision of education — education is a resource that people can use to promote their health and wellbeing long after the program finishes.
  - strengthen community action by the involvement of various stakeholders and other concerned groups in the planning and implementation of the initiative — when various stakeholders are involved in the planning or implementation of the program, each can bring their strengths and expertise, contributing to the success of the program.
- whether the initiative is culturally appropriate for Indigenous Australians, including the consultation, use and training of Indigenous personnel in planning and delivering the program — Indigenous culture is a strong influence in the lives of many Indigenous Australians. Ensuring interventions are culturally appropriate can assist in increasing participating in the program and improved health and wellbeing outcomes.

- whether the initiative has taken the specific needs of the target group into account, including the specific needs relating to the health and wellbeing of Indigenous people — the most significant gains in health outcomes occur when the areas requiring the most attention are the focus.
- funding that has been provided to implement the initiative — most interventions require some sort of financial support to ensure they are planned and implemented appropriately. The provision of adequate funding therefore assists the intervention in achieving its goals.
- whether the initiative addresses a significant health issue for Indigenous Australians and why it is important to address this issue. For example, food intake is a key contributor to negative health and wellbeing outcomes for many Indigenous Australians. Focusing on this factor can therefore contribute to significant improvements in health and wellbeing for Indigenous Australians.

FIGURE 7.36 Considerations in evaluating Indigenous programs



EXAM TIP

In many cases, using one of these considerations will not be enough to justify a judgement. As a result, a range of reasons should be used to add depth to the response.

7.5 Activities

1. Access the **Closing the Gap** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **2 Spirits** weblink and worksheet in the Resources tab then complete the worksheet
3. Access the **Fitzroy Stars** weblink and worksheet in the Resources tab then complete the worksheet.

7.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Briefly explain why Indigenous Australians are the target of health promotion activities.
2. Explain how exploring interventions already put in place can promote Indigenous health and wellbeing in the future.
3. Briefly explain the Closing the Gap initiative.
4. Briefly describe two health promotion interventions working to promote the health and wellbeing of Indigenous Australians.
5. Briefly discuss three considerations when evaluating the capacity of initiatives to improve Indigenous health and wellbeing.

7.5 Exercise 2 APPLY your knowledge

1. Identify three targets of the Closing the Gap strategy and discuss how progress in each could be made by interventions discussed in this section.
2. Briefly discuss how the action areas of the Ottawa Charter are evident in Indigenous initiatives and explain how each may promote Indigenous health and wellbeing.
3. Use the considerations discussed in this section to evaluate the following initiatives in relation to their capacity to improve Indigenous health and wellbeing:
   (a) Delivering Deadly Services initiative
   (b) The 2 Spirits program
   (c) The Aboriginal Road to Good Health program
   (d) Feedin' the Mob.

studyON

7.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Closing the Gap worksheet (doc-32212)
2 Spirits worksheet (doc-32003)
Fitzroy Stars worksheet (doc-32004)

Weblinks Closing the Gap
2 Spirits
Fitzroy Stars

7.6 The Australian Dietary Guidelines

KEY CONCEPT Understanding the Australian Dietary Guidelines as an initiative to promote healthy eating in Australia

Healthy eating is associated with lower rates of disease and increased health status. Inadequate food intake is emerging as a key factor contributing considerably to the burden of disease in Australia, particularly as related to obesity, cardiovascular disease and type 2 diabetes. The prevalence of these conditions is high and is predicted to increase if food behaviours are not modified among many Australians.

The social and economic impacts associated with diet-related diseases are significant and take a great toll on the community and individuals. The federal government and non-government agencies, such as Nutrition Australia, play a number of roles in promoting healthy eating in the community with the aim of reducing the impact of these conditions.

7.6.1 The Australian Dietary Guidelines

The Australian Dietary Guidelines were developed by the National Health and Medical Research Council (NHMRC), a federal government body, and were reviewed and updated in 2013.

The Australian population has experienced an increase in diet-related conditions and diseases, and the guidelines are designed to address the causes of the increase. Eating too many energy-dense processed foods and not enough fruit and vegetables are two examples of trends that are designed to be addressed by the guidelines.

The guidelines are intended to be used by health professionals, educators, industry bodies and other parties interested in promoting healthy eating. They are aimed at all people in the general healthy population, including those with common diet-related risk factors such as being overweight, but not for those with serious medical conditions, such as type 2 diabetes, who require specialised dietary advice.

The Dietary Guidelines have been developed to provide advice relating to the types and amounts of foods, food groups and dietary patterns that will help Australians to:

- develop healthy dietary patterns that will promote health and wellbeing in the community
- reduce the risk of developing a range of diet-related conditions such as hypertension (high blood pressure) and impaired glucose regulation
- reduce the risk of developing chronic conditions such as type 2 diabetes, cardiovascular disease and some cancers.

Advice is also provided on individual differences among the population that contribute to different needs and choices regarding food intake, including for:

- those at different lifespan stages, such as childhood and late adulthood
- pregnant and lactating women
- vegetarians and vegans
- people from different backgrounds, such as Australians of Asian origin
- Indigenous Australians
- people living in rural and remote areas
- people living in socioeconomic disadvantage
- individuals aiming to lose weight
- individuals aiming to maintain their weight.

The five guidelines are summarised in table 7.5.

TABLE 7.5 The Australian Dietary Guidelines

GUIDELINE 1	To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs. • Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly. • Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight.
GUIDELINE 2	Enjoy a wide variety of nutritious foods from these five groups every day: • Plenty of vegetables, including different types and colours, and legumes/beans • Fruit • Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley • Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans • Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under the age of two years) And drink plenty of water.
GUIDELINE 3	Limit intake of foods containing saturated fat, added salt, added sugars and alcohol. a. Limit intake of foods high in saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks. • Replace high fat foods which contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado. • Low fat diets are not suitable for children under the age of two years. b. Limit intake of foods and drinks containing added salt. • Read labels to choose lower sodium options among similar foods. • Do not add salt to foods in cooking or at the table. c. Limit intake of foods and drinks containing added sugars such as confectionery, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks. d. If you choose to drink alcohol, limit intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.
GUIDELINE 4	Encourage, support and promote breastfeeding.
GUIDELINE 5	Care for your food; prepare and store it safely.

Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

Guideline 1 relates to **energy balance** and encourages individuals to only consume the amount of energy they require for their specific energy needs. A positive energy imbalance occurs when people consume too much energy for their needs, increasing the risk of obesity and associated conditions such as cardiovascular disease, type 2 diabetes and some cancers. Energy comes from foods rich in carbohydrates, fats and protein, and these should be moderated to ensure energy intake is balanced.

Guideline 2 provides advice relating to the consumption of the five food groups. Consuming a range of foods from the five food groups is associated with lower levels of mortality and morbidity compared to diets in which a range of foods is not consumed. The benefits to health and wellbeing from consuming the five food groups are outlined below.

- Vegetables and legumes/beans — these foods are low in fat and relatively low in energy (kilojoules) while also providing carbohydrates, the body's preferred fuel for energy production. Vegetables, legumes and beans are also high in fibre, which maintains the health of the digestive system and reduces the risk of colorectal cancer. Fibre also provides feelings of fullness, which can reduce the risk of overeating and weight gain. Rich in antioxidants, vegetables work to reduce the impact of free

radicals and thus the risk of cardiovascular disease and cancer. As a result of this range of functions, adequate consumption of vegetables is related to a reduced risk of obesity, some cancers, cardiovascular disease and type 2 diabetes.

- Fruit — like vegetables, fruits are low in fat and provide carbohydrates for energy while also being a major source of fibre and antioxidants. As a result, adequate fruit intake is associated with lower rates of some cancers, obesity, cardiovascular disease and type 2 diabetes, and improved functioning of body systems such as the immune system.
- Grain (cereal) foods — wholegrain and/or high cereal fibre foods, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley, are good sources of carbohydrates and fibre while being low in fat. Grain foods contribute to a decreased risk of obesity, colorectal and other cancers, cardiovascular disease and type 2 diabetes.
- Lean meats and alternatives — lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans are major sources of protein as well as vitamins, minerals and essential fatty acids. Protein is required to maintain healthy cells, tissues and systems for optimal functioning of many body processes such as immune and cardiovascular function. Fish, nuts and seeds can contain monounsaturated and polyunsaturated fats, which can decrease the risk of cardiovascular disease by lowering levels of low-density lipoprotein (explored in section 3.6.1).
- Dairy products and alternatives (reduced fat) — milk, yoghurt, cheese and/or their alternatives are high in many nutrients including protein and calcium, which supports bone health and reduces the risk of osteoporosis. Regular consumption of milk and alternatives has also been shown to decrease the risk of cardiovascular disease, some cancers and type 2 diabetes, although the cause of this is not fully understood.
- Water — water is required for many bodily processes including digestion, waste removal and chemical reactions, and does not contribute any energy to the body (as most other drinks do). As a result, adequate water intake is associated with well-functioning body systems and reduced risk of weight gain and associated conditions such as cardiovascular disease, some cancers and type 2 diabetes. As water doesn't contain any sugar, it can also decrease the risk of dental caries (explored in section 3.6.3).

TABLE 7.6 Recommended number of serves per day from each food group

Recommended number of serves per day						
	Age (years)	Vegetables and legumes/ beans	Fruit	Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties	Lean meats, poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans	Milk, yoghurt, cheese and/or alternatives, mostly reduced fat
Boys	2–3	2½	1	4	1	1½
	4–8	4½	1½	4	1½	2
	9–11	5	2	5	2½	2½
	12–13	5½	2	6	2½	3½
	14–18	5½	2	7	2½	3½
Men	19–50	6	2	6	3	2½
	51–70	5½	2	6	2½	2½
	70+	5	2	4½	2½	3½

(continued)

TABLE 7.6 Recommended number of serves per day from each food group *(continued)*

Recommended number of serves per day						
	Age (years)	Vegetables and legumes/ beans	Fruit	Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties	Lean meats, poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans	Milk, yoghurt, cheese and/or alternatives, mostly reduced fat
Girls	2–3	2½	1	4	1	1½
	4–8	4½	1½	4	1½	1½
	9–11	5	2	4	2½	3
	12–13	5	2	5	2½	3½
	14–18	5	2	7	2½	3½
	Pregnant (up to 18 years)	5	2	8	3½	3½
	Breastfeeding (up to 18 years)	5½	2	9	2½	4
Women	19–50	5	2	6	2½	2½
	51–70	5	2	4	2	4
	70+	5	2	3	2	4
	Pregnant (19–50 years)	5	2	8½	3½	2½
	Breastfeeding (19–50 years)	7½	2	9	2½	2½

Note: Additional amounts of the five food groups or unsaturated spreads and oils or discretionary food choices are needed only by people who are taller or more active to meet additional energy requirements.
Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

To help people consume the required number of serves from each food group, examples of foods making up one 'serve' are also provided in the guidelines (see tables 7.7 to 7.11 and tables 7.13 and 7.14). People can use this information to analyse their food intake more accurately and make informed changes to their food intake.

TABLE 7.7 Sample serving sizes for vegetables and legumes/beans

Food group	Serving sizes
Vegetables and legumes/beans	75 g (½ cup) cooked green or *Brassica* or cruciferous vegetables
	75 g (½ cup) cooked orange vegetables
	75 g (½ cup) cooked dried or canned beans, chickpeas or lentils, no added salt
	75 g (1 cup) raw green leafy vegetables
	75 g starchy vegetables (e. g. ½ medium potato, or equivalent of sweet potato, taro, sweet corn or cassava)
	75 g other vegetables e. g. 1 medium tomato

Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

FIGURE 7.37 Foods that represent one serve of vegetables and legumes/beans



TABLE 7.8 Sample serving sizes for fruit

Food group	Serving sizes
Fruit	150 g (1 piece) of medium-sized fruit e. g. apple, banana, orange, pear
	150 g (2 pieces) of small fruit e. g. apricots, kiwi fruit, plums
	150 g (1 cup) diced, cooked or canned fruit[1]
	125 mL (½ cup) 100% fruit juice[2]
	30 g dried fruit[2] e.g. 4 dried apricot halves, 1½ tablespoons of sultanas

Notes:
[1] Preferably with no added sugar
[2] Only to be used occasionally as a substitute for other foods in the group
Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

FIGURE 7.38 Foods that represent one serve of fruit



TABLE 7.9 Sample serving sizes for grains (cereal) foods

Food group	Serving sizes
Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties	1 slice of bread or ½ a medium roll or flat bread (40 g)
	½ cup cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgur or quinoa (75–120 g)
	½ cup cooked porridge (120 g), ⅔ cup wheat cereal flakes (30 g) or ¼ cup muesli (30 g)
	3 crispbreads (35 g)
	1 crumpet (60 g) or 1 small English muffin or scone (35 g)
	¼ cup flour (30 g)

Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

FIGURE 7.39 Foods that represent one serve of grain (cereal) foods



TABLE 7.10 Sample serving sizes for lean meats, poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans

Food group	Serving sizes
Lean meats, poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans	65 g cooked lean red meats (e. g. beef, lamb, pork, venison or kangaroo) or ½ cup of lean mince, 2 small chops, 2 slices of roast meat (about 90–100 g raw weight)
	80 g cooked poultry (about 100 g raw weight) e. g. chicken, turkey
	100 g cooked fish fillet (about 115 g raw weight) or 1 small can of fish, no added salt, not in brine
	2 large eggs (120 g)
	1 cup (150 g) cooked dried beans, lentils, chickpeas, split peas, or canned beans
	170 g tofu
	30 g nuts or seeds or nut/seed paste, no added salt[1]

[1]Only to be used occasionally as a substitute for other foods in the group
Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

FIGURE 7.40 Foods that represent one serve of lean meat, poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans



TABLE 7.11 Sample serving sizes for milk, yoghurt, cheese and/or alternatives

Food group	Serving sizes
Milk, yoghurt, cheese and/or alternatives, mostly reduced fat	1 cup (250 mL) milk — fresh, UHT long life or reconstituted powdered
	½ cup (120 mL) evaporated unsweetened milk
	¾ cup (200 g) yoghurt
	40 g (2 slices or 4 × 3 × 2 cm piece) hard cheese e. g. cheddar
	½ cup (120 g) ricotta cheese
	1 cup (250 mL) soy, rice or other cereal drink with at least 100 mg of added calcium per 100 mL

Source: Adapted from NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

FIGURE 7.41 Foods that represent one serve of milk, yoghurt, cheese and/or alternatives



The Australian Dietary Guidelines also provide advice on how many serves of unsaturated fats should be consumed on a daily basis to promote health and wellbeing (see table 7.12).

FIGURE 7.42 Examples of foods containing unsaturated fats



TABLE 7.12 Recommended number of serves of unsaturated spreads and oils per day

	Age (years)	Number of serves
Boys	2–3	½
	4–8	1
	9–11	1
	12–13	1½
	14–18	2
Men	19–50	4
	51–70	4
	70+	2
Girls	2–3	½
	4–8	1
	9–11	1
	12–13	1½
	14–18	2
	Pregnant (up to 18 years)	2
	Breastfeeding (up to 18 years)	2
Women	19–50	2
	51–70	2
	70+	2
	Pregnant (19–50 years)	2
	Breastfeeding (19–50 years)	2

Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

Examples of food items that count as one serve of unsaturated fats are shown in table 7.13.

TABLE 7.13 Sample serving sizes for unsaturated fats

Food group	Serving sizes
Unsaturated fats	10 g polyunsaturated spread
	10 g monounsaturated spread
	7 g polyunsaturated oil, for example olive or canola oil
	10 g tree nuts or peanuts or nut pastes/butters

Source: National Health and Medical Research Council.

Guideline 3 focuses on limiting the intake of foods that are either energy dense or increase the risk of conditions like cardiovascular disease. These foods are referred to as discretionary foods. They can sometimes be included in small amounts by people who are taller or more physically active, but they are not a necessary part of a healthy diet.

Discretionary foods are food and drinks that are not necessary to provide the nutrients the body needs but may add variety. Foods in this category include cakes and biscuits; confectionery and chocolate; pastries and pies; ice confections, butter, cream and spreads that contain predominantly saturated fats; potato chips, crisps and other fatty or salty snack foods; sugar-sweetened soft drinks and cordials; sports and energy drinks; and alcoholic drinks (see figure 7.43). Intake of these foods should be limited as many are high in saturated fats, sugars and/or alcohol, and are therefore described as energy dense (see table 7.14). Many are also high in salt, which increases the risk of cardiovascular disease and osteoporosis.

FIGURE 7.43 Discretionary foods include those with high levels of saturated fat, added salt, added sugar and / or alcohol.



Source: NHMRC 2013, *Eat for Health — Australian Dietary Guidelines.*

TABLE 7.14 Sample serving sizes for discretionary foods

Food group	Serving sizes
Discretionary foods	2 slices (50–60 g) processed meats, salami or Mettwurst
	½ snack-size packet (30 g) salty crackers or crisps
	1 (40 g) donut
	½ bar (25 g) chocolate
	1 tbsp (20 g) butter
	1 can (375 mL) soft drink (sugar-sweetened)
	¼ (60 g) commercial meat pie or pastie (individual size)
	12 (60 g) fried hot chips

Source: National Health and Medical Research Council.

Guideline 4 promotes breastfeeding for infants. According to the World Health Organization, 'breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants'. This is largely because breast milk contains all of the nutritional requirements to support the growth and development of infants to around six months of age. Those who are breastfed for the first six months of life have a lower risk of infection, asthma and sudden infant death syndrome. Later in life, those who were breastfed as infants experience a decreased risk of obesity, hypertension and some chronic diseases.

Guideline 5 relates to caring for food, and preparing and storing it safely. The aim of this guideline is to reduce the risk of foodborne diseases in the community. It is estimated that there are over five million cases of food poisoning in Australia every year, and this reduces the level of health and wellbeing experienced.

The Australian Guide to Healthy Eating

The Australian Guide to Healthy Eating is a food selection tool incorporated into the Australian Dietary Guidelines. It is intended to be used by consumers to assist them in planning, selecting and consuming adequate proportions of foods from the five food groups. The Australian Guide to Healthy Eating is a visual tool that reflects the recommended dietary advice detailed in Australian Dietary Guidelines 2 and 3.

The Australian Guide to Healthy Eating shows a circle divided into five wedges, each representing one of the five food groups, representing Dietary Guideline 2. The size of each wedge reflects the proportion of each food group that should be consumed on a daily basis.

TABLE 7.15 The Australian Guide to Healthy Eating

Grain foods such as bread, cereal, rice and pasta should account for around 30–35 per cent of total daily food intake. These foods are high in carbohydrates, which provide fuel for energy production, and high in fibre, which assists with weight management and maintenance of digestive health.
Vegetables and legumes/beans make up the second biggest section and should account for around 30 per cent of daily food intake. These foods include fresh, frozen and tinned vegetables, legumes such as lentils and chickpeas, and beans such as kidney beans. These foods are rich sources of carbohydrates, fibre, protein and antioxidants, which assist in promoting optimal health and wellbeing.
Meats and meat alternatives should account for around 15 per cent of total food intake. These foods provide much of the protein required for maintenance of cells and tissues and the provision of energy.
Although **fruit** contains many vitamins and minerals required for optimal health and wellbeing, it can also contain high levels of carbohydrates, which can contribute to weight gain if not used for energy. As a result, fruit should make up around 10–12 per cent of total food intake.
Milk and other dairy products or alternatives (mostly reduced-fat varieties) should also account for around 10–12 per cent of total food intake. These foods are rich in calcium and are required for optimal bone health.

The Australian Guide to Healthy Eating recommends that people consume plenty of water, represented by an image of a glass being filled from a tap. Water is required for many body processes but does not contribute any energy and so can assist in maintaining a healthy body weight.

FIGURE 7.44 The Australian Guide to Healthy Eating is a food selection model designed to visually represent dietary guidelines 2 and 3.



The healthier fats, including foods such as margarine and canola spray, are shown in the bottom left corner of the Australian Guide to Healthy Eating. These foods contain monounsaturated fats and/or polyunsaturated fats and can assist in reducing the risk of cardiovascular disease.

The foods shown in the bottom right corner of the Australian Guide to Healthy Eating are those that should be consumed only sometimes and in small amounts, representing Guideline 3. They are not necessary to provide the nutrients the body needs, but may add variety. Many of these foods are high in saturated fats, sugars and/or alcohol and are therefore described as energy-dense; these can contribute to weight gain and associated conditions. Many are also high in salt, which increases the risk of cardiovascular disease and osteoporosis. Examples of discretionary foods include pies and other pastries, cakes, processed meats, soft and sports drinks, cordial, alcohol, potato chips, chocolate and biscuits.

The Australian Guide to Healthy Eating is a useful model that provides basic nutrition advice; however, it does not provide information on serving sizes, and composite foods (those containing food from a number of different groups, such as pizza or a casserole) are not included, and this can make the model difficult to follow.

CASE STUDY

Anna's food intake: applying the Australian Dietary Guidelines

Consider the following food intake of Anna, a 20-year-old female.

Breakfast:

2 pieces of toast with margarine (5 grams per slice) and 1 slice of cheese on each piece
2 cups of orange juice

Snack:

Roast beef roll (2 slices of beef, medium roll)
1 can of soft drink
1 chocolate bar

Lunch:

1 egg and lettuce sandwich (total filling equal to 1/2 cup of lettuce, 1 large egg)
1 small carton of yoghurt (100 g)
1 can of soft drink

Snack:

50 grams of peanuts
1 banana
1 glass of water

Dinner:

2 slices of roast pork and 1 cup of cooked, mixed vegetables, 1 medium bread roll with butter
1 cup of fruit salad with cream

Case study review

1. Complete a summary table identifying the number of serves of each food group consumed by Anna.
2. Compare Anna's intake to the guidelines given in table 7.6.
3. (a) Which food groups did Anna consume the optimal amount of?
   (b) Explain how consuming an optimal amount of these foods might promote Anna's health and wellbeing.
4. (a) Which food groups did Anna not consume enough of?
   (b) Explain how not consuming enough of these foods might affect Anna's health and wellbeing.
5. (a) Which food groups did Anna consume too much of?
   (b) Explain how consuming too much of these foods might affect Anna's health and wellbeing.
6. Comment on Anna's water consumption. What modifications would you recommend for Anna in relation to her water intake?
7. Why might it be more accurate to assess food intake over three days instead of only one?
8. Suggest changes that Anna could make to her diet to more closely reflect the recommendations of the Australian Dietary Guidelines.

7.6 Activity

Access the **Servings calculator** and **Nutrients calculator** weblinks and worksheet in the Resources tab then complete the worksheet.

7.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Briefly describe the Australian Dietary Guidelines.
2. Briefly explain why the guidelines were developed.
3. Complete the following table using the information about guideline 2:

Food group	Key nutrients present in the food group	How the food group can promote health and wellbeing and / or health status.

4. (a) Identify the nutrients and substances found in discretionary foods.
   (b) Explain why the intake of these nutrients and substances should be limited.
5. Briefly describe the Australian Guide to Healthy Eating.

7.6 Exercise 2 APPLY your knowledge

1. Choose three of the Australian Dietary Guidelines and write a short response explaining why each guideline is important. Share your results with a partner.
2. Explain how the Australian Dietary Guidelines could promote healthy eating and health status for children in Australia.
3. Outline the similarities and differences between the Australian Dietary Guidelines and the Australian Guide to Healthy Eating.
4. Explain two ways that the Australian Dietary Guidelines could assist in addressing cardiovascular disease.

studyON

7.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Servings and nutrients calculator worksheet (doc-32213)

Weblinks Servings calculator

Nutrients calculator

7.7 The work of Nutrition Australia

KEY CONCEPT Understanding the role of Nutrition Australia as an initiative to promote healthy eating in Australia

Nutrition Australia is Australia's major community education body for nutrition. Established in 1979, Nutrition Australia is represented by a wide range of members from the community and services all of Australia. Nutrition Australia's mission is to promote optimal health and wellbeing for all Australians by encouraging food variety and physical activity. The objectives of Nutrition Australia are to:

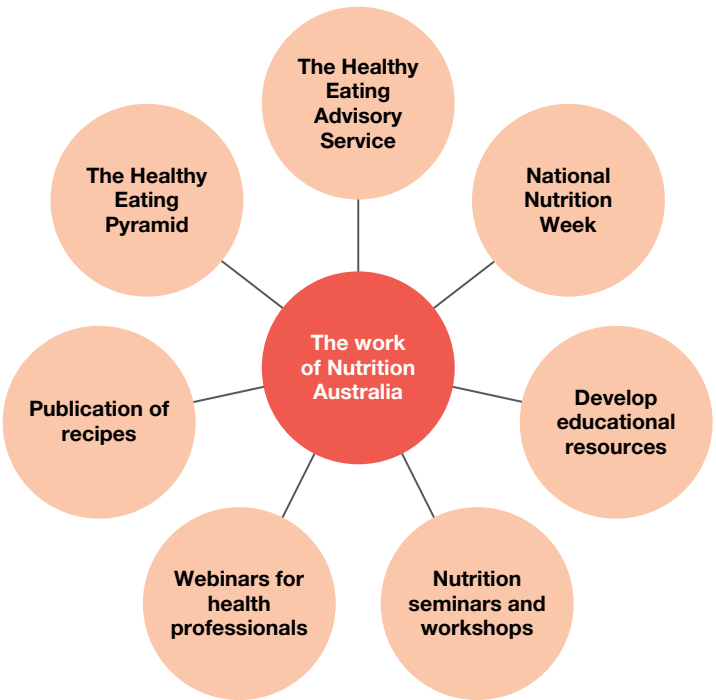
- act as a source of scientific information on key nutrition issues
- produce and disseminate material on nutrition to policy makers, the media, educators, the food industry and consumers
- act as consultants to government departments, the food industry and consumer groups as required on issues related to food and nutrition
- encourage innovation in the dissemination of nutritional knowledge.

7.7.1 Nutrition Australia

Nutrition Australia acts to promote healthy eating by providing the latest information on nutrition research, and current food and health and wellbeing trends. This information is dispersed via media campaigns, the Nutrition Australia website and through seminars for health professionals and the general public. Nutrition Australia also provides a range of resources and services aimed at helping groups and individuals to implement their own healthy eating plan (figure 7.46).

FIGURE 7.45 Nutrition Australia aims to promote healthy eating and adequate physical activity.

FIGURE 7.46 The work of Nutrition Australia



Healthy Eating Advisory Service

The Healthy Eating Advisory Service is funded by the Victorian Government and delivered by Nutrition Australia Vic Division. The Healthy Eating Advisory Service works to promote consumption of healthy food and drinks in early childhood services, schools, hospitals and workplaces across Victoria (see the case study on Goulburn Valley Grammar School). Services provided include:

- phone advice and support to assist in providing nutritious, tasty and cost-effective food and drink choices, including assistance with menu planning
- staff training on developing and modifying menus, menu assessments, considering options for healthy vending machines and developing a healthy food policy
- training for cooks, chefs, food service and other key staff to produce healthy food options
- advice to the food industry and health professionals to promote healthy eating in these settings.

CASE STUDY

Goulburn Valley Grammar School

Taking small steps can add up to significant change. And that's how Marlene Rutherford at Goulburn Valley Grammar School approached the transition to a healthier canteen menu.

As Canteen Manager at the Shepparton-based secondary school, Marlene has a vision of providing food that's nutritious and delicious for students.

With just five staff and the support of volunteers, the canteen serves more than 650 students each day. This means a very busy schedule, so Marlene was looking for quick and simple ways to improve the menu, without blowing the budget or losing sales.

They started with a free menu assessment from the Healthy Eating Advisory Service, which categorised all the available foods and drinks as Everyday, Select Carefully or Occasionally, and provided tailored advice for healthy changes the canteen could make in a step-by-step approach. The aim was to make Everyday foods dominate. The major recommendations were to start slowly removing the Occasionally items, and increasing the number of Everyday items on offer.

FIGURE 7.47 The free menu assessment from the Healthy Eating Advisory Service aimed to make 'Everyday' foods dominate in the school's canteen.



So far, Goulburn Valley Grammar School has made good progress and they're committed to working towards meeting the School Canteens and Other School Food Services Policy.

Marlene says some of their major successes were making changes that the students didn't even notice, like increasing the number of dishes made on site, including more veggies in their favourite foods, and no longer putting margarine and butter on rolls and sandwiches. These small changes instantly improved the nutritional value of many of the foods, and the students actually prefer it!

Vegetable-packed dishes made on site, such as pizza and bolognaise, are now more popular than the pre-made varieties. This is a *great* result for Marlene and the team, as making more meals on site gives them full control over the ingredients, the nutritional value and their budget.

The canteen also now promotes water consumption by lowering the price to make it the cheapest drink to buy, which has seen water sales increase as a result.

The feedback from students, staff and parents is very positive and encouraging. They've welcomed the changes and Marlene remains committed to applying the recommendations from the Healthy Eating Advisory Service menu assessment. Her vision is to have even more healthy, tasty dishes, helping to educate the students to make informed food and drink choices, even when they're away from school.

Source: Healthy Eating Advisory Service.

Case study review

1. Using examples, explain how the information provided to Goulburn Valley Grammar School by Nutrition Australia Vic Division's Healthy Eating Advisory Service has assisted in promoting healthy eating among staff and students.
2. Discuss how this information may promote health and wellbeing and health status.

National Nutrition Week campaign

Nutrition Australia coordinates the events and produces resources for the annual National Nutrition Week, which runs during the week of 16 October (World Food Day) each year. Information, recipes and resources can be downloaded from the Nutrition Australia website to support schools, health centres, community fairs and shopping centres in promoting healthier eating in line with the annual theme.

FIGURE 7.48 The 'try for 5' campaign is a key focus of National Nutrition Week.



7.7.2 Educational resources

Nutrition Australia produces a wide range of publications and resources, including nutrition books, portion bowls and plates, booklets, posters, fact sheets, leaflets and webinars, each of which is designed to encourage individuals, families and communities to enjoy optimal health and wellbeing through food variety. Nutrition Australia has produced resources to address each lifespan stage:

- For schools, Nutrition Australia provides DVDs, teacher resources and incursions (see the following case study), posters and publications that include activities and games for students relating to healthy eating. The 'Packing a School Lunchbox' DVD helps educate parents, students and teachers about healthy eating at school.
- For childcare centres, Nutrition Australia produces resources on meeting accreditation and menu planning, as well as stickers and puzzles designed to entertain and educate children about healthy eating.
- For adults, Nutrition Australia provides a range of healthy recipes, resources and fact sheets containing nutrition information for adults and seniors.

CASE STUDY

Healthy Lunchbox Week is a Nutrition Australia initiative that aims to inspire parents and carers across Australia to create healthy lunchboxes their children will enjoy

With Australian families gearing up for another school year, Nutrition Australia is helping families to prepare their children's lunchboxes, through its second annual Healthy Lunchbox Week campaign (January 20–26, 2019).

A new Healthy Lunchbox Week website provides plenty of lunchbox recipe inspiration such as main meals, snacks, and leftovers, as well as fact sheets, guides, and videos.

'Whether you're a parent of school-age children or new to the school lunchbox world, we can all do with some help and inspiration to get us off to a good start at this time of year' says Nutrition Australia Accredited Practising Dietitian, Leanne Elliston.

'Busy parents can very easily get caught into the convenience trap, resorting to the plethora of highly processed, packaged foods, specially marketed for kids' lunchboxes' says Leanne, who is also a seasoned lunchbox packer for her two school-age children. "We all love the convenience of those easy grab-and-go lunchbox items, but it comes at a cost, not only financially but also to our children's health and the environment. With a little planning and food preparation, you can save money while providing more nutritious options for your children, reduce environmental impact and limit the age-old playground litter problem all schools face.'



But forget feeling pressured to create Insta-worthy lunchbox creations every day. Simple options like the humble sandwich still burst with nutrients, minus the fuss.

'Whole grain bread, rolls, or wraps are the perfect vehicle for other healthy ingredients, like salad or leftover roast veggies, lean meat, cheese, and dips like hummus,' said Felicity Curtain, Nutrition Manager of the Grains & Legumes Nutrition Council.

And it's not just what you pack, but what it's packed in that matters. Leanne recommends looking for a versatile lunchbox that can fit a range of items — think different sized fruit, sandwich, roll or wrap options. 'Also look for lunchboxes that can accommodate a frozen water bottle and will fit into an insulated bag to keep food cool and safe in the hot weather'.

Source: Nutrition Australia.

Case study review

1. Briefly explain the purpose of Healthy Lunchbox Week.
2. Explain how Healthy Lunchbox Week may promote the health and wellbeing of Australian children.
3. Discuss how the Healthy Lunchbox Week initiative reflects actions areas of the Ottawa Charter.

Nutrition seminars and workshops

Nutrition Australia dietitians and nutritionists conduct a range of seminars to provide education to workplaces and members of the public wanting to improve their diet. Examples of seminar topics include:

- Nutrition 101
- Healthy eating for corporate lifestyles
- Nutrition for shift workers
- Understanding food labels
- Healthy habits for a healthy heart.

Nutrition Australia dietitians and nutritionists provide healthy eating demonstrations in workplaces. Examples include one-hour demonstrations showcasing smoothies and salads (summer workshops), and soups and warm salads (winter workshops). The workshops are also tailored to meet the needs of the individual business.

Webinars for health professionals

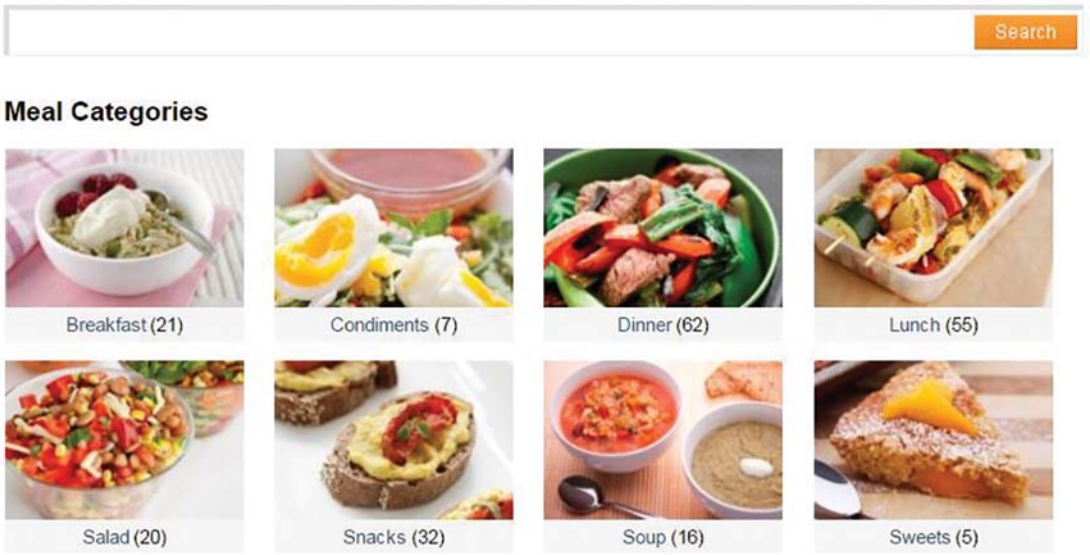
Webinars are developed for health professionals to provide training and education to assist them in promoting healthy eating in the community. The webinars cover a range of topics, including:

- The Modern Mediterranean Diet
- Communicating the Australian Dietary Guidelines
- Unpacking the Health Star Rating
- Food and fitness — nutrition update for fitness professionals.

Publication of recipes

Hundreds of healthy recipes are provided free of charge on the Nutrition Australia website, and cookbooks reviewed by Nutrition Australia are available for purchase. Recipes are available for breakfast, snacks, lunch, dinner, sweets, salads and condiments (figure 7.49).

FIGURE 7.49 A range of recipes are available free of charge on the Nutrition Australia website.



Healthy Eating Pyramid

The Healthy Eating Pyramid is a simple visual guide to the types and proportion of foods that individuals should eat every day for good health and wellbeing. Based on the Australian Dietary Guidelines, it contains the five core food groups, plus healthy fats, according to how much they contribute to a balanced diet.

The Healthy Eating Pyramid encourages Australians to enjoy a variety of foods from every food group, every day, by showing four layers with different food groups in each, representing the proportion in which each should be consumed.

The first two layers of the Healthy Eating Pyramid are known as the 'foundation layers' and include the three plant-based food groups:

- vegetables and legumes
- fruits
- grains.

These layers make up the largest portion of the pyramid because plant foods should make up the largest portion of the diet — about 70 per cent of what a person eats. The first foundation layer contains vegetables and legumes, and fruits. Vegetables and legumes account for the majority of this layer with fruits making up a smaller portion, reflecting the fact that vegetables and legumes should be consumed in greater amounts than fruits. The second foundation layer contains the grains group, which is represented by whole grains (such as brown rice, oats and quinoa) and wholemeal/wholegrain varieties of bread, pasta, crisp breads and cereal foods, instead of highly processed, refined varieties such as white bread and pasta.

FIGURE 7.50 The Healthy Eating Pyramid is a food selection model based on the Australian Dietary Guidelines.



Foods in the foundation layers contain a wide variety of nutrients such as vitamins and minerals. They are also the main source of carbohydrates and fibre.

The third layer includes milk, yoghurt, cheese and alternatives, and the lean meat, poultry, fish, eggs, nuts, seeds and legumes food groups.

Foods in the milk, yoghurt, cheese and alternatives group are a major source of calcium and protein, as well as other vitamins and minerals. This food group also refers to non-dairy options such as soy, rice or cereal milks that are fortified with calcium.

Foods in the lean meat, poultry, fish, eggs, nuts, seeds and legumes group are a major source of protein and can contain healthy fats. They are also sources of iron, which can prevent anaemia.

The top layer presents foods that contain monounsaturated and polyunsaturated fats, which individuals should consume in small amounts to support heart health and brain function. Choosing foods that contain these healthier fats instead of foods that contain saturated fats and trans fats can provide health and wellbeing benefits.

The pyramid recommends that consumers enjoy herbs and spices. Using herbs and spices to add flavour to food is preferable to adding salt, sugar and/or fat.

Water is shown at the bottom of the pyramid as it is the best drink for hydration and it supports many other essential functions in the body. Choosing water also reduces the number of sugary options consumed, such as soft drinks, sports drinks and energy drinks, which can add energy to the diet and contribute to weight gain.

The Healthy Eating Pyramid recommends limiting the intake of salt (which contains sodium) and added sugar. Although sodium is required for optimal functioning, too much can contribute to hypertension and cardiovascular disease.

Consuming a lot of added sugars, especially from foods such as lollies, chocolate, cakes, biscuits, desserts and soft drink, can add extra kilojoules to the diet. This can lead to weight gain and increase the risk of developing type 2 diabetes, cardiovascular disease and some cancers. The average Australian already consumes too much salt and added sugar, and this is linked to an increased risk of developing these diseases.

The Healthy Eating Pyramid provides consumers with a simple visual tool that promotes healthy food intake. However, serving sizes and provisions for composite foods (such as pizzas and casseroles) are not included, which may make the model difficult to follow.

EXAM TIP

The Healthy Eating Pyramid and Australian Guide to Healthy Eating are both food selection models based on the Australian Dietary Guidelines. As a result, they have a number of similarities, including representing the five food groups in their correct proportions and encouraging the consumption of water. When describing one of these models, it is therefore important to provide specific details to ensure you are accurately describing the model in question. For example, the pyramid shows the food groups in four layers. The guide shows the food groups in a pie chart.

7.7 Activities

1. Access the **Nutrition Australia** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Global Kitchen cookbook** weblink and worksheet in the Resources tab then complete the worksheet.

7.7 Exercise 1 TEST your knowledge

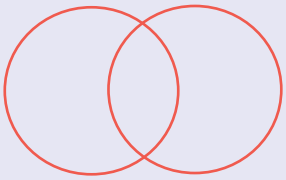
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1. Briefly explain the role of Nutrition Australia.
2. Outline three ways in which Nutrition Australia promotes healthy eating.

3. (a) What is the Healthy Eating Pyramid?
   (b) Explain how the Healthy Eating Pyramid promotes healthy eating.
4. Which food groups are represented in the Healthy Eating Pyramid?
5. Explain why using herbs and spices to flavour food is preferable.

7.7 Exercise 2 APPLY your knowledge

1. Explain how Nutrition Australia promotes healthy eating among:
   (a) children
   (b) adults.
2. Copy and complete the following Venn diagram, outlining the similarities and differences between the Australian Dietary Guidelines and the Healthy Eating Pyramid:



3. Select two ways that Nutrition Australia promotes healthy eating and identify how these two health promotions reflect the action areas of the Ottawa Charter.
4. Record everything you have eaten in the past 24 hours and then draw a pyramid with four layers. For each food item you consumed, put a stroke in the appropriate layer of the pyramid.
   (a) Was your diet in the past 24 hours consistent with the proportions suggested by the Healthy Eating Pyramid?
   (b) Did you have any difficulties completing this activity? Why or why not?
   (c) Suggest two ways in which the Healthy Eating Pyramid could be changed to be more user-friendly.
5. What are the advantages and disadvantages of the Healthy Eating Pyramid?

studyON

7.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Nutrition Australia worksheet (doc-32214)
Global Kitchen cookbook worksheet (doc-32215)

Weblinks Nutrition Australia
Global Kitchen cookbook

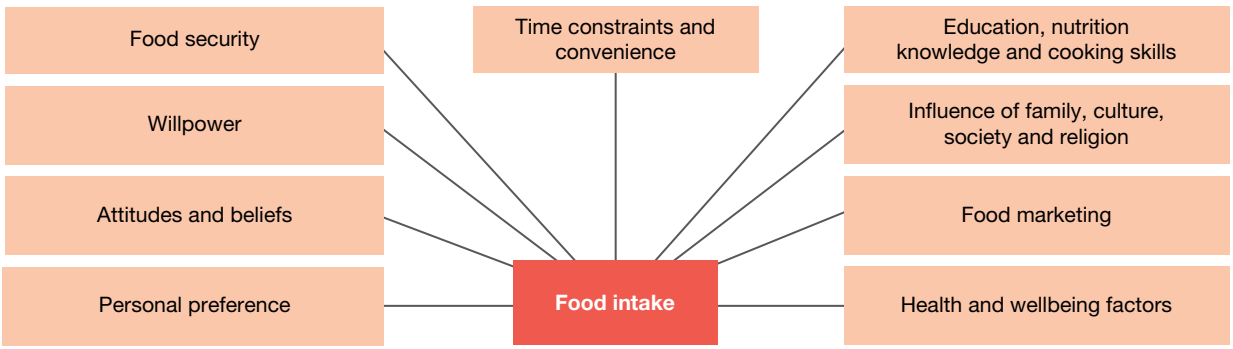
7.8 The challenges in bringing about dietary change

KEY CONCEPT Exploring the challenges in bringing about dietary change in Australia

Food intake in Australia has changed significantly in recent decades with a significant shift away from nutrient-dense, whole foods to energy-dense, processed foods. This change has contributed to the increasing rates of obesity and associated diet-related diseases in Australia over time.

Although there are a range of health promotion activities designed to address food intake in Australia, bringing about dietary change can be difficult to achieve. The foods people consume are a result of a complex set of factors that provide a range of challenges in improving dietary behaviour (figure 7.51).

FIGURE 7.51 Food intake is the product of a range of factors



7.8.1 Personal preference

Most people prefer certain foods to others. This may be the result of factors such as taste preferences and past experiences. Foods high in fat, salt and sugar are known as flavour enhancers because they stimulate the taste buds and the brain's reward system by releasing dopamine, one of the body's feel-good chemicals. This cycle can create cravings for foods containing these substances, making dietary change challenging for some.

Taste preferences are often established over a long period of time, and can therefore be difficult to change.

FIGURE 7.52 Substances such as sugar trigger the brain's reward system and produce feelings of wellbeing.



7.8.2 Attitudes and beliefs

If an individual has not tried a variety of healthier food options, they may believe that they are bland or tasteless. Many people also feel that the negative effects of consuming unhealthy foods will not happen to them, both of which can reduce the likelihood of these individuals trying new, healthier foods.

Many people also consume foods based on philosophical beliefs, such as vegetarianism or only consuming organic or Australian-made products. Although consuming these products can be beneficial, a range of other factors influence the specific foods these people consume so their overall intake may not be considered healthy. Most health promotion interventions relating to healthy eating encourage consuming a balanced diet. Restricting certain food items can mean that achieving a balanced food intake and consuming adequate amounts of all nutrients may be more difficult.

The Australian Health Survey (2011–12) indicated that just over 2.3 million Australians aged 15 years and over reported being on a diet to lose weight or for some other reason relating to health and wellbeing. Although following a diet can promote health and wellbeing, some diets, such as the sugar-free and **Paleo diets,** restrict the consumption of certain food groups. People on such diets may find it difficult to follow nutritional advice because certain food groups are restricted.

7.8.3 Willpower

Related to self-control, willpower is defined by the American Psychological Association as 'the ability to resist short-term temptations in order to meet long-term goals'. Changing food intake often requires a commitment from the individual, and many people will discard certain foods from their home when attempting to alter their dietary patterns to assist in reducing temptation. In modern society, however, there are many other situations when foods considered to be unhealthy are offered such as at parties and other social gatherings, work functions, restaurants, school canteens and food stalls. Choosing healthy foods in these situations can be challenging. Although consuming such foods in small amounts or only sometimes can be part of a balanced diet, exposure to these foods on a regular basis can provide a challenge to achieving lasting dietary change.

FIGURE 7.53 Making lasting changes to food intake can take considerable willpower.



7.8.4 Food security

The United Nation's Food and Agricultural Organization (FAO) states that food security exists 'when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs for an

active and healthy life' (FAO, 1996). This includes having enough money to afford nutritious foods and the means to access them, including geographical access and transport.

Although it is not clear if consuming healthy foods is more expensive than unhealthy foods, those who spend more on food generally have a healthier diet (Australian Prevention Partnership Centre, 2016). Those with higher incomes often have more choice in relation to the foods they consume and, although they spend more per person on food, they spend a smaller proportion of their income on food than lower income earners. Although most whole, healthy foods do not attract GST in Australia, the cost of healthy food has increased more rapidly than that of unhealthy foods. Due to financial constraints, those on lower incomes are more likely to experience food insecurity than higher income earners, and this can reduce their ability to follow nutritious dietary advice.

Those living outside Australia's major cities also experience higher rates of food insecurity. According to the AIHW (2012), the cost of basic nutritious foods is about 30 per cent higher in rural and remote areas than in urban and metropolitan areas. The availability of quality fresh fruit and vegetables and better food choices decreases in remote communities while the cost increases. Those without adequate transport may find it particularly difficult to change their dietary behaviours due to decreased access to a range of foods.

7.8.5 Time constraints and convenience

Meals are often planned with consideration of the time available and the convenience of the foods to be consumed. For many families where both parents are employed, more time is spent working and less time is spent preparing food. As a result, convenience foods are often consumed in the home because there is a lack of time to purchase fresh ingredients and prepare a meal from scratch. For employed people, meals consumed outside the home are also more likely to be influenced by the foods they can access in the time they have. Certain occupations, such as truck drivers and those working in the trades, may rely on the foods that are offered from outlets near their place of employment. Accessing fast food may be more convenient for these people but it can reduce their ability to consume a healthy diet.

FIGURE 7.54 For employed people, meals consumed outside the home are more likely to be influenced by the foods they can access in the time they have.



Suburbs where socioeconomic disadvantage is greater are often the suburbs with the highest number of fast-food outlets. Fast-food is generally higher in fat, salt and sugar than other options (see the following case study on fast-food outlets). Living in close proximity to such venues may increase the likelihood of people consuming these foods and influence the ability of people in these suburbs to change their dietary intake.

CASE STUDY

Why a fat tax is not enough to tackle the obesity problem

We often hear calls for a junk food tax or 'fat tax' when there's discussion of Australia's growing obesity problem. The idea behind such a tax is that it would enable governments to subsidise healthy foods so that they're more affordable, and make unhealthy foods comparatively expensive so people buy less of them.

But would they really? Is cost really the most powerful determinant of what food products people buy?

Let's consider the likely effects of a junk food tax. Researchers claim that a 20 per cent tax on a can of soft drink would be a sufficient deterrent to purchasing it.

FIGURE 7.55 Most meal options are not arrayed together for a simple price comparison.



It's easy to visualise this: someone approaches the refrigerator in a convenience store wanting to buy a drink and ready to make a decision based on taste and cost. If a soft drink is more expensive than low-fat milk or water, it becomes less attractive and we could see a change in buying behaviour — and the attendant reduction in the consumption of obesity promoting products.

But the junk food tax idea falls over in other situations where food choices are made — when factors other than price come into play. Family dinner options, for instance, are rarely arrayed together in one location for a simple price comparison.

In lower income areas, where obesity is disproportionately more common, main roads are lined with takeaway food outlets and the only greengrocer may not have a car park (let alone a drive-through service). Part of the attraction of takeaway food is that it provides instant satisfaction while demanding little in the way of (cooking) skills or (nutritional) knowledge.

Dinner options that require food preparation may be out of the question for people living in housing with inadequate cooking and food storage facilities. So, although I can prepare a vegetable and lentil curry with brown rice, followed by apple crumble with real egg custard, for a total of $3.39 per person, in disadvantaged communities this might not compare favourably with the 'Five-dollar Meal Deals' offered by various takeaway chains, even if the meals were taxed until they became 'Ten-dollar Meal Deals.'

And regardless of the price, it may be hard to sell my healthy $3.39 meal to someone accustomed to takeaway's addictively sweet and salty and fatty flavours, low in vegetables and high in melt-in-the-mouth starches.

FIGURE 7.56 Unlike fast-food outlets, a greengrocer may not have a car park or a drive-through service.



When people claim that healthy food is expensive, they are sometimes simply observing that processed foods labelled 'diet' are priced higher, or that high-energy junk foods supply more (unneeded) calories per dollar than vegetables do. Both claims are true, but trivial.

But sometimes they are actually pointing out, correctly, that the real cost of my meal is more than $3.39 — that, unlike the takeaway alternative, this home-cooked dinner cost nearly an hour of my time. An hour that I might not be inclined to spare if I were tired and footsore from a hard low-income job and trying to feed fractious children as soon as possible.

And that my home-cooked meal required a number of different skills and resources I might take for granted, such as cooking ability and a functional kitchen. And that it would cost more than $50 if I had to fund the startup cost of all the ingredients — the kilogram of flour and the bottle of oil, and so on — instead of just using (and costing) smaller amounts of items I already had.

My $3.39 meal is very nutritious. Unlike the takeaway meal, it provides the full spectrum of essential vitamins and minerals, as well as beneficial fibre and health-protective plant substances, at around 2800 kJ per serve. Five-dollar meal deals, on the other hand, typically overfeed, with one meal providing 4300 kJ or more (over half of a day's requirement), as well as less protein and more fat than my version.

Better food labelling might help consumers realise this. But labelling also works best when your options are equally convenient and equally available, sitting side by side for comparison on the supermarket shelf or a food outlet's menu. When this is not the case, labelling loses much of its power to influence food choices. Just as price manipulation strategies, such as a 'fat tax', do.

Efforts to combat obesity need to look beyond simple pricing strategies, to the underlying knowledge and skills that influence food choices. Just as physical activity is now compulsory at school, basic cooking (real basics, not just biscuits and pizza) should be an integral part of the personal development and life skills curriculum for all kids.

And rather than merely requiring a sink and food preparation area as they do now, building codes need to be updated so that adequate cooking facilities are mandatory in all dwellings. Communal kitchens are another suggestion worth considering.

An emphasis on improving skills means that rather than just punishing poor food choices, we equip people to make better ones — every day at home, not just in the convenience store.

Source: 'Why a fat tax is not enough to tackle the obesity problem', Suzie Ferrie, *The Conversation online*, 2 July 2016. http://theconversation.com/why-a-fat-tax-is-not-enough-to-tackle-the-obesity-problem-6443.

Case study review

1. (a) What is the idea behind a 'fat tax'?
   (b) Explain how this may assist in addressing obesity among low socioeconomic groups.
2. What is 'part of the attraction of takeaway food'?
3. Outline the factors that contribute to poorer food intake in low socioeconomic areas identified in the article.
4. Outline the changes required to promote healthy eating among low socioeconomic groups identified in the article.

7.8.6 Education, nutrition knowledge and cooking skills

According to the AIHW (2012), lack of nutritional knowledge and cooking skills often predisposes people to consume unhealthy meals. Lack of education can also lead to consumers believing that they are consuming healthy foods as they do not have the skills to accurately assess their current food intake. Difficultly in reading food labels and lack of understanding of portion sizes are also common in Australia, providing further challenges to changing dietary patterns.

Lower levels of education, nutritional knowledge and cooking skills can mean that even people who want to change their dietary choices may lack the resources to do so. As a result, they may continue consuming foods that are familiar to them, and this can decrease their capacity to improve their food intake.

FIGURE 7.57 Developing cooking skills can increase healthy menu options and so improve food intake.



7.8.7 Family, culture, society and religion

Food is an important part of human existence and the earliest food experiences most people have is shaped by family. The cultural and religious background of the family may include ties to traditional foods that have been consumed through generations. Family influences also play a significant role in shaping the personal preferences that people have in relation to food. Childhood in particular is seen as a stage when many personal preferences in relation to food are established. Familiarity with specific foods can make it difficult to change to other, non-familiar food items.

Food is often consumed in social settings, either in private homes or at commercial food outlets. The people with whom an individual consumes food can influence the foods they consume. This is particularly relevant to children and young people, who gain more independence as they develop. They may choose foods that their friends eat and this can reduce their ability to choose healthier foods, regardless of their nutritional knowledge.

FIGURE 7.58 Social networks influence food intake for many.



7.8.8 Food marketing and media

The food industry actively markets its goods to consumers in a variety of ways including: advertisements in newspapers and magazines, and on television, radio and the internet; supermarket and point-of-sale promotions; sponsorships; websites; the use of celebrities, including celebrity chefs; product placement on cooking programs; emails and text messages. The information provided through marketing and media can create conflicting messages for individuals, potentially affecting their ability to choose healthy foods.

Television advertising is the most common form of food advertising in Australia, and children are the focus of many of these advertisements. According to the AIHW (2012), 'television advertising influences children's food preferences, purchase requests and consumption patterns (National Preventative Health Taskforce, 2009). Food advertising to children is increasing worldwide and most is for foods with a high content of fat, sugar or salt (WHO, 2010). Australian children's exposure to television food advertising is among the highest in the world. High-fat/high-sugar food advertisements on Australian television are more frequent during children's compared with adults' viewing hours, and during popular children's programs'.

The messages provided through food marketing can cause confusion for many, especially children, if they are unable to distinguish between advertising and the presentation of factual information. Children can be a significant influence on items purchased while shopping (sometimes referred to as 'pester power'). This can impact on the ability of all family members to consume a healthy diet.

FIGURE 7.59 Advertising foods on television can be particularly influential for children.



Food marketing and the media influence food trends in Australia. Reality cooking shows, for example, have contributed to an increased interest in food, particularly among young people. While these trends can promote healthy eating, the dominance of fast-food outlets in marketing often counteracts any positive effects.

CASE STUDY

How we get sucked in by junk food specials in supermarkets

By Jane Martin, Executive Manager of the Obesity Policy Coalition; Senior Fellow, Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne; and Trevor Shilton, Director Cardiovascular Health, Heart Foundation of Australia; Adjunct Professor in the School of Public Health, Curtin University

Three in five Australian adults get sucked in by promotions and specials on junk food and sugary drinks at the supermarket, research released today shows.

The research for LiveLighter — a health education campaign delivered by the Cancer Council and Heart Foundation — found 53 per cent of shoppers visit the supermarket several times a week or every day.

This presents many occasions during which shoppers are influenced to purchase unhealthy foods through the layout of the store, product placement and advertising.

From healthy intentions

Most people aspire to eat a healthy diet. Two-thirds of the 2000 Australians surveyed regularly plan their meals in advance. Around half compare supermarket products to see which is healthier.

But three in five respondents said they were likely to purchase junk foods — lollies, chocolate, chips, biscuits, ice cream and soft drinks — when they were on sale or promotion. It's hardly surprising, given how cheap and conveniently junk foods are located; not just in our shops, but also at transport hubs, workplaces and local neighbourhoods.

In an attempt to trigger impulse purchases in supermarkets, processed snack foods are available at the end-of-aisle and in-island bin displays, as well as at the checkout. Sometimes they are on special, or feature large promotional packages, multipacks or two-for-one offers, appealing to price-sensitive shoppers.

Shoppers may place value on the convenience, taste or brand of a highly processed 'snack' food. Discounted fruit or vegetables don't have the same persuasive power to increase purchases, nor do these products have the same profit margins. Supermarket catalogues and websites promote weekly specials which include some fresh produce but are dominated by unhealthy food promotions.

Around 35 per cent of Australians' daily energy intake now comes from unhealthy food. As a result, around 63 per cent of Australians adults and 27 per cent of children are overweight or obese.

What needs to be done?

Supermarkets have a role to play in helping make the healthy choice the easy choice for Australian families.

Some supermarkets have introduced initiatives like confectionery-free checkouts and offering free fresh fruit to children in store. We'd like to see more of this.

We'd also like to see healthy food and drinks feature more heavily in their end-of-aisle promotions, catalogues and advertising.

When it comes to obesity more broadly, comprehensive action is well overdue. There is growing international consensus about the types of measures that are most likely to have the biggest impact on the promotion of healthy eating. These include:

- Restricting the advertising and promotion of discretionary junk foods and drinks to children and young people. Current self-regulation is seriously inadequate and should be addressed with more robust regulation.
- Introducing a sugary drinks tax to increase the price of these products and reduce consumption. The funds raised could be used for obesity-prevention initiatives.
- Taking action to make the Health Star Rating System mandatory and refining the system to ensure it reflects dietary guidelines.
- Limiting the promotion and availability of unhealthy foods and drinks in settings such as hospitals and public places, with particular attention to places that are frequented by children and young people.
- Supporting the reformulation of processed foods to reduce key nutrients of concern to health, with clear targets and timelines to achieve these.
- Sustaining and increasing funding for evidence-based public education campaigns. Evaluation shows they can increase knowledge and understanding and shape attitudes, leading to intention to change behaviour.

As a society, we are all responsible for ensuring that there are measures in place to protect the health of our children and our nation.

Source: 'How we get sucked in by junk food specials in supermarkets', Jane Martin and Trevor Shilton, *The Conversation online,* 11 October 2016, http://theconversation.com/how-we-get-sucked-in-by-junk-food-specials-in-supermarkets-66392.

Case study review

1. (a) What proportion of Australian adults get 'sucked in' by promotions and specials on junk food and sugary drinks?
   (b) Explain how this could impact health status in Australia.
2. Outline the techniques used to promote unhealthy food items.
3. Discuss the role supermarkets can play in promoting healthy eating.
4. Outline the measures that can have the biggest impact on promoting healthy eating.

7.8.9 Health and wellbeing factors

The health and wellbeing experienced by individuals can also influence the foods they consume. In the Australian Health Survey (2011–12), 3.7 million people reported avoiding a food due to allergy or intolerance. The most common type of food reported to cause intolerance was cow's milk followed by gluten. Omitting these foods may contribute to difficulty in following health promotion initiatives, such as the Healthy Eating Pyramid and the Australian Dietary Guidelines, especially if the individual lacks the knowledge of substitutes that provide the nutrients they may be lacking.

As explored earlier, certain foods trigger the release of dopamine, a brain chemical that can enhance mood. Some people experiencing emotional and mental distress may subconsciously use this mechanism in an attempt to make themselves feel better. If they have a bad day or feel down, they may use food as a coping mechanism. Until this relationship with food is addressed, such behaviour can impact on the ability of individuals to make changes to their dietary patterns.

7.8 Activity

Access the **Food insecurity** weblink and worksheet in the Resources tab then complete the worksheet.

7.8 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Identify five factors that present challenges in bringing about dietary change.
2. Discuss why salt, fat and sugar can be particularly influential on food preferences.
3. (a) Explain what is meant by 'food security'.
   (b) Explain why food insecurity is a challenge in bringing about dietary change.
   (c) Identify two population groups and explain why they are more likely to experience food insecurity.
4. Outline why children are often the target of food advertising.
5. Explain how personal preferences present a challenge to dietary change.

7.8 Exercise 2 APPLY your knowledge

1. Using three factors that influence food intake as the basis of your response, explain why simply telling people about healthier foods does not necessarily bring about dietary change.
2. Explain why people in low socioeconomic groups may find it particularly difficult to make dietary changes.
3. Identify a food pattern that is typical for your family and discuss how it promotes healthy eating.
4. Describe how being time-poor may impact on the ability to meet the Australian Dietary Guidelines.
5. Identify three challenges you face that may impact on your ability to make dietary change. Suggest ways you may be able overcome these challenges
6. Outline the challenges each of the following people may face in making dietary changes:
   (a) Oliver is a five-year-old boy who lives with his mother and father. His father does all of the cooking for the family. His parents are vegetarian so Oliver does not consume meat at home.
   (b) Vi is 79 and lives alone. She is of Vietnamese background, and was taught to cook traditional Vietnamese meals from her grandmother when she was a child. Vi doesn't drive, instead walking to the local supermarket to purchase food.
   (c) Michael is 43 and lives in a remote area of South Australia. He is a truck driver and spends a lot of time on the road.

studyON

7.8 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Food insecurity worksheet (doc-32211)
Weblink Food insecurity

7.9 Topic 7 review

7.9.1 Key skills

KEY SKILL Apply the action areas of the Ottawa Charter for Health Promotion to a range of data and case studies

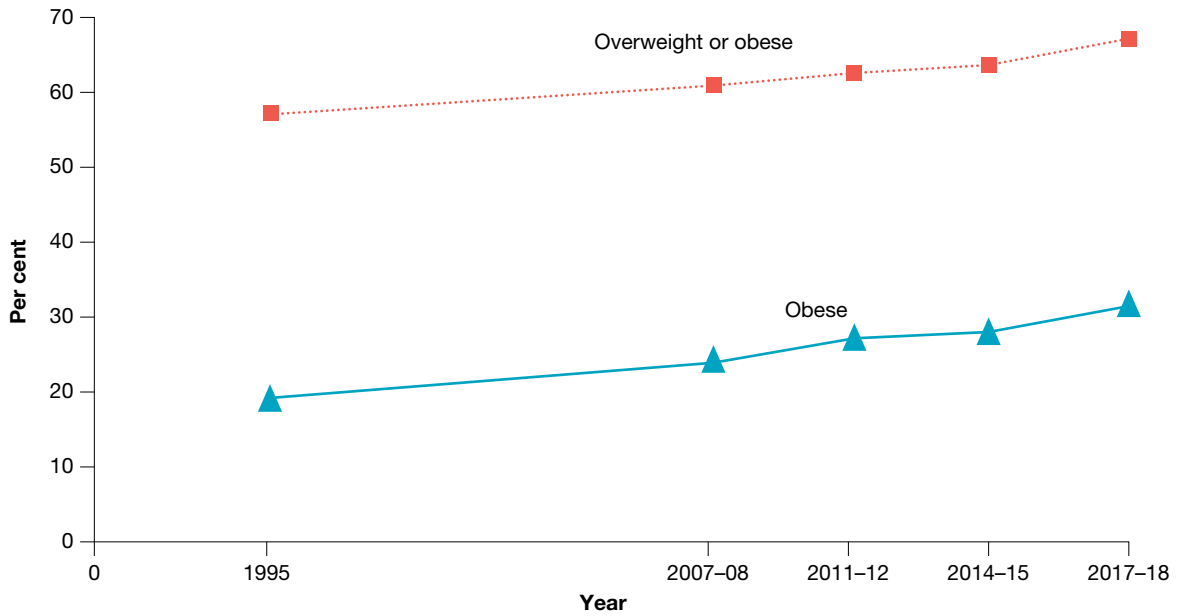
The first step in being able to complete this key skill is to have a thorough knowledge of the action areas of the Ottawa Charter. This goes beyond knowing the name of each, although that is also important. Ensure you have an understanding of what each action area relates to. Sometimes aspects of a project will incorporate more than one action area, but generally not all areas will be addressed in one program.

In applying the action areas, you may be required to identify how they are evident in data or a case study. You may have to also explain *how* the action area of the Ottawa Charter is represented in the stimulus material provided. Make sure you make specific links between the action area and the example from the case study or data.

In other cases, you may need to use the action areas of the Ottawa Charter to explain how improvements in health and wellbeing can be achieved. It is important to be specific here. If explaining how developing personal skills can promote Indigenous health, simply stating that 'by being more educated, Indigenous people will be better equipped to quit smoking and therefore their health and wellbeing will improve', does not explain *how* the action area may be used to improve health and wellbeing. A better answer would be that 'telephone counselling could be provided to Indigenous Australians in a culturally appropriate manner which can provide education relating to quitting smoking. This can reduce smoking rates which can decrease the risk of respiratory conditions among this group'.

The action areas of the Ottawa Charter should be applicable to major health concerns in Australia such as dietary intake and obesity, and the issues facing population groups such as Indigenous Australians, males, low socioeconomic groups and those living outside Australia's major cities. As a result, the health concerns and issues facing these population groups should also be understood.

FIGURE 7.60 Trends in overweight and obesity in Australia over time for those aged 18 and over



Notes:

1. Age-standardised to the 2001 Australian population.
2. Overweight and obesity classification based on measured height and weight in all surveys.

Source: AIHW 2012, ABS 2013.

In the following example, the data relating to obesity are analysed and three action areas of the Ottawa Charter are applied in relation to how they could be used to reverse the trend in obesity:

Rates of obesity have increased in Australia for those aged 18 and over from around 20 per cent of the population in 1995 to around, 27 per cent in 2011–12 to around 30 per cent in 2017–18.[1] The action areas of the Ottawa Charter could assist in promoting health and wellbeing and reversing this trend by:

- Build healthy public policy[2] — a junk food tax could be introduced by the federal or state/territory governments to increase the price[3] and reduce the intake of these items, which could assist in reducing energy consumption and the rate of obesity.[4]
- Develop personal skills — traffic light labelling systems could be introduced in food outlets such as school canteens to assist in providing advice to consumers as to which foods should be eaten regularly, in moderation and occasionally. This can reduce the amount of energy dense food being consumed, which can assist in reversing the trend relating to obesity.[5]
- Reorient health services — health professionals such as doctors could be encouraged to prescribe exercise for those who are obese or at risk of becoming obese.[6]

1. The data are analysed.

2. An action area of the Ottawa Charter is correctly identified.

3. A practical application of the action area is outlined.

4. A specific link to obesity is made.

5. A second action area is identified and applied to the scenario of reversing the trend in rates of obesity.

6. A third action area is identified and applied to the scenario of reversing the trend in rates of obesity.

Practise the key skill

Read the following case study and answer the questions that follow.

Good Sports

As part of its strategy to promote health and wellbeing, VicHealth provides funding to the Good Sports program (goodsports.com.au) — an initiative of the Australian Drug Foundation.

The program helps sporting clubs manage alcohol responsibly and reduce alcohol-related issues such as binge drinking and drink driving.

By fulfilling Good Sports accreditation criteria, clubs benefit from a range of support services and earn the right to display the Good Sports logo. The logo confirms that the club promotes responsible attitudes towards alcohol and provides a safe, healthy and family-friendly environment for players, members and supporters.

The three-level accreditation process is based around alcohol management standards for clubs that serve and consume alcohol. One of the key benefits of registering in the program is the support clubs receive to promote a family-friendly, safe and healthy culture.

At Level 1, clubs focus on liquor licensing laws, bar management, Responsible Service of Alcohol (RSA) training and creating smoke-free environments. Once they have progressed to Level 3, they have an alcohol management policy, healthy food and drink options (with low and non-alcoholic drinks), a safe transport policy and less reliance on alcohol sales and sponsorships for revenue. In addition, all bar servers are RSA-qualified. Good Sports also offers an accreditation for clubs where alcohol is not served or consumed.

Good Sports has been adopted by a diverse range of community clubs spanning more than 80 codes of sport. More than 7000 clubs are involved across all Australian states and territories.

There is evidence that community-based sports clubs contribute to alcohol problems by accepting and promoting excessive drinking and providing inappropriate role models for young people.

According to independent research, Good Sports has been proven to reduce risky drinking in clubs participating in the program.

Tyntynder Football Netball Club

Tyntynder Football Netball Club had fallen into the same trap as a lot of clubs in relying too heavily on alcohol for revenue, and so creating a 'boozy' atmosphere.

The committee decided to turn to Good Sports to help them become more family and community-focused, valuing off-field success as highly as on-field performances.

Through the program, the club trained members in RSA, created a healthier canteen and implemented the 'Tyntynder Taxi' to ensure everyone gets home safely.

Previously relying heavily on bar sales to function, the club now enjoys more revenue from memberships and family-friendly social events.

The club is also extremely proactive when it comes to social issues and regularly promotes new causes, training and education for members.

In recognition of its efforts, the club has previously won the Victorian Good Sports Club of the Year and AFL Victoria Club of Excellence.

1. Identify three action areas of the Ottawa Charter and explain how they are reflected in the Good Sports program.
2. Select an action area not used in question 1 and explain how it could promote wellbeing in relation to alcohol consumption.

KEY SKILL Evaluate initiatives in terms of their capacity to improve Indigenous health and wellbeing

For this key skill, judgements must be made about the capacity of initiatives to improve Indigenous health and wellbeing.

In order to make judgements, an understanding of the issues facing Indigenous Australians is essential. Once the issues are known, relevant initiatives can be judged relating to their actual or perceived effectiveness in bringing about improvements in Indigenous health and wellbeing. Reasons why a program is judged to be effective or ineffective should be included and can be based on:

- actual improvements in health and wellbeing that have been made as a result of the initiative
- the number of people who have accessed or been involved in the initiative
- feedback provided by participants
- action areas of the Ottawa Charter that are evident in the initiative, including:
  - the provision of education
  - the involvement of various stakeholders and other concerned groups in the planning and implementation of the initiative
- whether the program is culturally appropriate for Indigenous Australians, including the consultation, use and training of Indigenous personnel in planning and delivering the program
- whether the program has taken the specific needs of the target group into account, including the specific needs relating to the health and wellbeing of Indigenous people
- funding that has been provided to implement the program
- whether the program addresses a significant health issue for Indigenous Australians and why it is important to address this issue.

In many cases, using one of these considerations will not be enough to justify a judgement. As a result, a range of considerations should be used to add depth to the response.

In the following example, the Aboriginal Driving Stories program is described and then evaluated.

This project involved the development of a road safety booklet which included short stories for children up to the age of 12 years. The booklet covered a number of road safety issues including:

- the wearing of seatbelts
- driving without a licence
- overloading in cars

- drink-driving and drink-walking
- driving
- speeding.

It aimed to increase awareness and educate young people about road safety, information which they could then pass on to the Elders in the community in an attempt to change the cultural attitudes towards road safety. The resource was developed in close consultation with Aboriginal people and the community to give it more credibility and cultural significance.

This program addresses a significant need among Indigenous Australians who experience significantly higher rates of road trauma compared to non-Indigenous Australians.[7] The program worked to develop personal skills among young Indigenous people which can then be passed on to Elders. These skills can be passed from generation to generation in the future and decrease the risk of injuries among Indigenous Australians, promoting physical health and wellbeing.[8] Indigenous Australians were included in the development of the program. This enhances its cultural appropriateness, and this may increase the participation rate among Indigenous Australians and the chance of promoting their health and wellbeing.[9]

7 This program is linked to a significant need among the Indigenous population which is specified in the response.

8 The fact that education was included in the program is identified and then linked to improved health and wellbeing outcomes.

9 The involvement of Indigenous Australians in the development of the program is specified and linked to cultural appropriateness and increased participation among the target audience.

Practise the key skill

Read the following case study and answer the questions that follow.

Specky dreaming footy frenzy program

The *Specky dreaming footy frenzy program* aims to improve fitness, coordination, balance and timing for children of all ages. The program aims to give all children, boys and girls, the enthusiasm, and skills to have an ongoing active and healthy lifestyle. The program promotes the idea that all children should be encouraged to have a go at sports so all children are encouraged.

The program is delivered in Aboriginal communities throughout Australia and can be adapted to reflect the needs of the community.

Through participation in the program, children learn:

- to identify and develop their natural talents
- skills to pursue and achieve personal goals and improve self-esteem
- how to make decisions and take actions based on personal values and principles that reflect empathy and integrity
- about healthy eating and living
- the importance of attending school
- how to use appropriate language that is sensitive to the audience and culture.

Specky Dreaming delivers the program in a culturally safe manner and is sensitive to community needs.

Source: Australian Indigenous HealthInfoNet.

3. Evaluate the Specky Dreaming program in terms of its capacity to improve Indigenous health and wellbeing.
4. Identify two action areas of the Ottawa Charter and explain how each is reflected in the Specky Dreaming program.

KEY SKILL Draw conclusions as to why dietary improvements are difficult to achieve in Australia

To complete this skill, conclusions must be drawn as to why dietary improvements are difficult to achieve in Australia. In order to draw conclusions, a range of factors that contribute to food intake must be understood.

When presented with stimulus material such as case studies or data, ensure that any references to factors that may present challenges to changing dietary behaviour are considered when the conclusions are drawn.

It is important to remember that challenges to dietary improvements in Australia are generally due to the combined impact of a range of factors. For example, a person who lacks cooking skills may be able to make dietary changes if they can afford a healthy cooked-meal delivery service. But if income is also low, these factors together may reduce the ability of the individual to make healthy changes to their food intake. In this sense, a single factor is less likely to impact dietary change in isolation of the other factors.

Relevant factors relate to:

- personal preference
- attitudes and beliefs
- willpower
- food security
- time constraints and convenience
- education, nutrition knowledge and cooking skills
- family, culture, society and religion
- food marketing
- health and wellbeing.

In the following example, conclusions are drawn relating to the ability of Clive to change his food intake.

Clive is 82[10] and has been married to Margot for over 50 years. Margot had done all the cooking in their home but recently had a stroke and now lives in long-term residential care. Clive visits Margot every day and has lunch with her in the aged-care facility.[11] He uses Meals on Wheels[12] (a local government initiative where meals are delivered to those who are unable to prepare their own food) for a few dinners per week and makes do with the limited cooking skills he has for the remainder of his meals.[13] Clive's diet is not very nutritious and it has started to impact on his health and wellbeing.

10. Clive is 82 years old, so may have established eating patterns and preferences which can be difficult to alter.

11. Clive consumes a number of meals with his wife in the aged-care facility, which will influence the foods he can access during these times. Clive will probably choose foods that he likes and is familiar with, and this may impact his ability to change his food intake.

12. Clive is relying on a Meals on Wheels service. He may have limited choices in relation to these meals.

13. Clive lacks cooking skills. This can impact his ability to eat healthier foods as he may not know how to prepare them.

Practise the key skill

Veronica is a 22-year-old student who works part time at the local supermarket three nights a week. She goes out with friends on weekends and, as a result, is not home for several meals per week. Veronica's parents are Argentinian and her mother does all of the cooking in their home. In recent months, Veronica has started to put on weight, which has taken her above her healthy weight range. She has been introduced to the Australian Dietary Guidelines but is struggling to make significant changes to her food intake.

5. Discuss the challenges that Veronica may face in trying to change her diet.
6. Identify two factors that may reduce the ability of Veronica to follow Guidelines 2 and 3 of the Australian Dietary Guidelines.

7.9.2 Topic summary

Smoking and the role of health promotion in improving population health

- Smoking is a significant contributor to the overall burden of disease in Australia and affects some population groups disproportionately, including Indigenous Australians, people from low socioeconomic backgrounds and those living outside Australia's major cities.
- A range of interventions have achieved success in reducing smoking rates, including:
  - government laws and policies — smoking bans in public places, advertising bans, health warnings, plain packaging and taxes

- National Tobacco Campaign — implements media campaigns; maintains the Quitnow website; and developed the My QuitBuddy and Quit for you, quit for two apps
- the Quit campaign — implements media campaigns; implements the Quitline, a telephone counselling service and, in some states, an Aboriginal Quitline; developed the QuitCoach website; provides advice to state and territory governments relating to tobacco laws; conducts research into tobacco use and effective quitting strategies; and provides advice to health professionals on intervention approaches.

Road safety and the role of health promotion in improving population health

- Road safety is an issue in Australia as four people are killed and another 90 are seriously injured on Australian roads each day. The social and economic impacts of road trauma are also significant.
- Some population groups are more likely to experience road trauma including males, Indigenous Australians, those living outside Australia's major cities, those from low socioeconomic backgrounds, and young people.
- Effective road safety interventions include:
  - government laws and policies — including speed limits, drink-driving laws and seatbelt laws
  - TAC campaigns including mass media campaigns, public education campaigns and seminars
  - Kids on the Move — a Victorian primary school education campaign
  - Driver Reviver — provides free refreshments at rest stops across the country
  - Black Spot program — works to improve infrastructure to promote safety in high accident areas
  - Prevent Alcohol and Risk-related Trauma in Youth (P.A.R.T.Y.) program — a trauma prevention and health promotion initiative that provides young people with a real experience of a major trauma service
  - the National Road Safety Strategy — works to achieve four key objectives: safe roads, safe speeds, safe vehicles, and safe people. The national strategy is reflected in the Towards Zero strategy in Victoria.

Skin cancer and the role of health promotion in improving population health

- Skin cancer is an issue as Australia has one of the highest rates in the world and many cases are preventable. Skin cancer contributes to many social and economic impacts.
- Males and those working outdoors are more likely to develop skin cancer.
- A range of strategies have been effective in decreasing the rate of skin cancer, including:
  - government laws — solariums were banned in Victoria in 2015
  - policies — most schools and many businesses and local governments have sun protection policies
  - SunSmart campaign — including the Slip, Slop, Slap, Seek, Slide advertising campaign, shade audits and support for health professionals
  - National Skin Cancer Action Week — an initiative of Cancer Council Australia and the Australasian College of Dermatologists that works to raise awareness and prevent skin cancer
  - UV Daily with Sonny Burns — a website that targets outdoor workers, specifically those working in trades, by providing education relating to sun exposure.

Initiatives to address Indigenous health and wellbeing

- Indigenous Australians have significant potential to experience improvements in health and wellbeing and have therefore been a focus of numerous initiatives under the Closing the Gap policy, including:
  - Delivering Deadly Services initiative — trains the healthcare workforce in cultural awareness and employs people from the local Indigenous community to deliver healthcare
  - Learn Earn Legend! — provides mentoring and other support to young Indigenous people on the importance of education, training and employment
  - The 2 Spirits program — works to improve the sexual health and wellbeing of Indigenous gay men and sistergirls through education, prevention, health promotion, and community development activities

    - The Be Deadly, Get Healthy program — operates in the Baw Shire in the Gippsland area of Victoria and provides an initial health and wellbeing assessment and requires participation in regular physical activity sessions
    - Aboriginal Road to Good Health program — a type 2 diabetes prevention program for Indigenous Victorians and their families
    - Aboriginal Quitline — a telephone counselling service that provides confidential support in a culturally sensitive way for Indigenous Australians wanting to quit smoking
    - Feedin' the Mob — a nutrition, physical activity and healthy lifestyle program for Indigenous Australians in the City of Whittlesea, Victoria.
    - Fitzroy Stars — a football club in Melbourne that promotes healthy lifestyles and employment and education opportunities for Indigenous Australians in Melbourne.
- A number of considerations can be used to evaluate the capacity of initiatives to promote Indigenous health and wellbeing, including:
    - actual improvements to health and wellbeing
    - the number of participants taking part in the initiative
    - feedback provided by participants
    - action areas of the Ottawa Charter that are evident
    - whether the initiative is culturally appropriate
    - whether the program has taken the specific needs of the target group into account
    - funding that has been provided to implement the initiative
    - whether the program addresses a significant health issue for Indigenous Australians.

The Australian Dietary Guidelines

- The Australian Dietary Guidelines encourage individuals to maintain a healthy body weight, include adequate amounts of foods from the five food groups, limit the intake of saturated fat, added salt, added sugar and alcohol, support breastfeeding and care for food.
- The number of serves for each food group and the size of a serve are also included in the Australian Dietary Guidelines.
- The Australian Guide to Healthy Eating is a visual representation of Australian Dietary Guidelines 2 and 3, and is intended to be used by consumers to guide their food intake. The guide shows the proportion of foods that should be consumed from each of the five food groups, but does not include serving numbers or sizes.

The work of Nutrition Australia

- Non-government agencies such as Nutrition Australia play an important role in promoting healthy eating. Nutrition Australia advocates for good health and wellbeing by providing a range of services and resources that promote healthy eating, including:
    - Healthy Eating Advisory Service
    - National Nutrition Week
    - the development of educational resources
    - nutrition seminars and workshops
    - webinars developed for health professionals to assist them in promoting healthy eating
    - publication of recipes
    - Healthy Eating Pyramid.

The challenges in bringing about dietary change

- A range of factors contribute to the foods people consume and these can act as challenges to changing one's diet.
- These include personal preferences; attitudes and beliefs; willpower; food security; time constraints and convenience; education, nutrition knowledge and cooking skills; family, culture, society and religion; food marketing and media; and factors relating to health and wellbeing.

Resources

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7.9 Exercise 1 Exam preparation

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Question 1

The Yarning It Up — Don't Smoke It Up journey to quit tobacco project, provided by the East Metropolitan Community and Population Health Service, aims to reduce tobacco-related harm in the adult Aboriginal population of Perth, Western Australia.

The project delivers workplace information sessions to service providers focusing on this program. It also provides workshops sessions to community members. This involves a thorough explanation of the Yarning It Up — Don't Smoke It Up journey to quit tobacco model. The workshops are culturally appropriate; education is presented as a story which allows participants to lead the workshop. The project provides information sessions to community groups, organisations and others working in the tobacco cessation area.

The workshop includes:

- Yarning It Up — Don't Smoke It Up journey to quit model
- triggers and barriers to smoking
- referral process
- supports available to quit.

Source: Edited extract from Australian Indigenous HealthInfoNet.

a. Evaluate the Yarning It Up program in terms of its capacity to improve Indigenous health and wellbeing. **(4 marks)**

b. Identify two action areas of the Ottawa Charter and explain how they are reflected in the Yarning It Up program. **(4 marks)**

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Resources

Interactivities Crossword (int-6876)
Definitions (int-6877)

School-Assessed Coursework Unit 3 AOS 2 Outcome 2

Area of study 2 Promoting health and wellbeing

Outcome 2

Explain changes to public health approaches, analyse improvements in population health over time and evaluate health promotion strategies.

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on Resources

Digital document School-Assessed Coursework 2 (doc-31794)



UNIT 4
HEALTH AND HUMAN DEVELOPMENT IN A GLOBAL CONTEXT

AREA OF STUDY 1

Health and wellbeing in a global context

OUTCOME 1

Analyse similarities and differences in health status and burden of disease globally and the factors that contribute to differences in health and wellbeing

8 Comparing health status and burden of disease across countries 341

9 Sustainability and human development 398

10 Global trends and health and wellbeing 427

AREA OF STUDY 2

Health and the Sustainable Development Goals

OUTCOME 2

Analyse relationships between the SDGs and their role in the promotion of health and human development, and evaluate the effectiveness of global aid programs

11 Sustainable Development Goals and the World Health Organization 454

12 Australian aid and non-government organisations (NGOs) 536

13 Programs addressing the Sustainable Development Goals 585

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8 Comparing health status and burden of disease across countries

8.1 Overview

Key knowledge

- Characteristics of high-, middle- and low-income countries
- Similarities and differences in health status and burden of disease in low-, middle- and high-income countries, including Australia
- Factors that contribute to similarities and differences in health status and burden of disease, including access to safe water; sanitation; poverty; inequality and discrimination (race, religion, sex, sexual orientation and gender identity); and global distribution and marketing of tobacco, alcohol and processed foods

Key skills

- Describe characteristics of high-, middle-, and low-income countries
- Evaluate data to analyse similarities and differences between countries in relation to health status and burden of disease
- Analyse factors that contribute to health status and burden of disease in different countries and discuss their impact on health and wellbeing
- Compare health data and other information to analyse reasons for health inequalities within and between nations

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 8.1 A range of economic, social and environmental characteristics are associated with low-income countries.



KEY TERMS

Acquired immune deficiency syndrome (AIDS) the most advanced stage of HIV infection
Communicable diseases infectious diseases which are transmitted from the environment; including through air, water, food and other infected organisms (including other humans)
Discrimination when a person or group of people are treated differently than other people, often a result of factors such as race, religion, sex, sexual orientation and gender identity.
Double burden of disease when conditions associated with both poverty and wealth exist side-by -side in one community, such as undernutrition and obesity
Extreme poverty living on less than US$1.90 per day
Gender equality when males and females have the same opportunities in society in relation to the goods and services available
Globalisation the process whereby boundaries between countries are reduced or eliminated allowing individuals, groups and companies to act on a global scale. It can be described as transforming the different societies of the world into one global society. A reduction in barriers to trade, communication and transport contributes to this process.
Gross Domestic Product (GDP) a measure that reflects the economic state of a country. GDP is the value of all goods and services produced in a country in a 12-month period.
Gross National Income (GNI) the total value of goods and services a country's citizens produce, including the value of income earned by citizens who may be working in an overseas country
Human immunodeficiency virus (HIV) an infection that results in the gradual depletion and weakening of the immune system, resulting in increased susceptibility to other infections such as pneumonia and tuberculosis
Human rights relates to the freedoms and conditions to which every person is entitled
Latrine a simple communal toilet facility, often a trench dug in the ground or a pit
Malaria a communicable disease that is transmitted via infected mosquitoes
Marketing the activities of a company associated with selling a product or service, including advertising, selling and delivering products to people
Non-communicable diseases conditions that are usually long lasting, and generally progress slowly. Non-communicable diseases are not spread through the environment and include cardiovascular disease, cancer, respiratory diseases and diabetes.
Primary production the process of producing natural products for human use such as plants and animals
Subsistence farming self-sufficient farming carried out by individuals to provide food for themselves and their family
Urban slums a settlement, neighbourhood or region comprised of housing that does not provide the essential conditions required to live a healthy life

on Resources

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8.2 Economic characteristics of high-, middle- and low-income countries

KEY CONCEPT Understanding the economic characteristics of high-, middle- and low-income countries

Classifying countries into groups allows countries that experience similar characteristics to be grouped together for the purpose of guiding policies and interventions that may improve the level of health and wellbeing experienced. Successful strategies used in one country may be built upon and applied to other, similar countries to promote trade, increase incomes and improve health and wellbeing.

8.2.1 Classifying countries

Numerous systems have been developed to classify countries over time. More recently, one of the main ways to group countries has been to classify them as either developed or developing. Developed countries were considered to have a high level of economic development — including a range of industries, trading on the global market and high average incomes — and were not solely reliant on **primary production** such as mining and farming. Developing countries, on the other hand, had a low level of economic development and relied largely on primary production and **subsistence farming**.

FIGURE 8.2 Chad is classified as a low-income country and largely relies on subsistence farming.



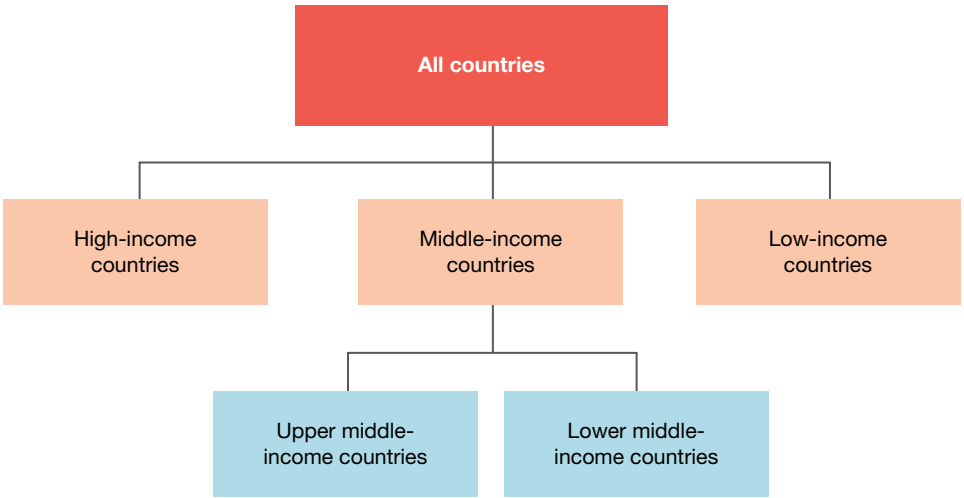
Although still used in some instances, this system of classification is now seen as outdated as it is quite subjective and agreement could not be made on the specific criteria that should be met to classify a country as either developed or developing. As a result, a more modern system of classifying countries was developed by the World Bank and uses a country's **Gross National Income (GNI)** per capita, or average income, to classify countries into one of three main groups:

- high-income
- middle-income
- low-income.

Middle-income countries are often broken down into two further groups:

- upper middle income
- lower middle income (see figure 8.3)

FIGURE 8.3 All countries can be classified into one of three categories. Middle-income countries are sometimes broken down into a further two groups.



The income thresholds, or GNI per capita for each group, are updated on 1 July each year, to take into account changes in average incomes in the previous year. As a result, countries can change groupings from one year to the next. The thresholds are adjusted according to criteria set by the World Bank and not by dividing the countries into equal groups, which means that the income groups do not contain the same number of countries.

The figures shown in table 8.1 are for the 2018–19 financial year.

It is important to remember that the World Bank system of classifying countries uses average incomes for each country and therefore doesn't acknowledge the variations that are experienced within any one country or between two countries in the same group. For example, China is classified as upper middle income but average incomes vary considerably across China and some regions would be classified as low income if they were independent of the rest of the country. Fiji, a Pacific Island country, is another upper middle-income country but is quite different from China in relation to industry, population and culture.

Although variations exist between and within countries in the same groupings, there are identifiable characteristics that are common to each type of country.

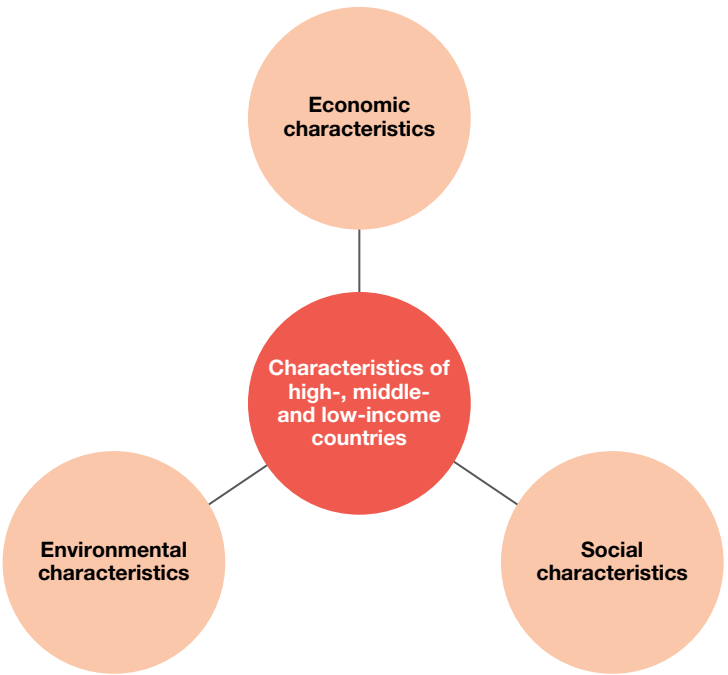
TABLE 8.1 Income thresholds and example countries for the World Bank income groupings classification system

	GNI per capita range	Examples of countries in this grouping	Number of countries in this group
High income	$12 056 or more	Australia, Canada, Chile, Greece, Ireland, Japan, USA, United Kingdom	81
Upper middle income	$3896–$12 055	China, Cuba, Fiji, Mexico, South Africa, Turkey, Russian Federation	56
Lower middle income	$996–$3895	Cambodia, India, Indonesia, Pakistan, Papua New Guinea	47
Low income	$995 or less	Chad, Nepal, Zimbabwe, Uganda, Rwanda, South Sudan	34

8.2.2 Characteristics of high-, middle- and low-income countries

The characteristics of high-, middle- and low-income countries can be classified into three categories, as shown in figure 8.4. However, variations occur between and within all countries.

FIGURE 8.4 Characteristics of high-, middle- and low-income countries



The characteristics discussed here (economic characteristics in this subtopic; social and environmental characteristics in subtopic 8.3) are not necessarily common to all high-, middle- or low-income countries, but they represent differences that are often experienced between the three groups. The extent of these differences will vary depending on which countries are being compared.

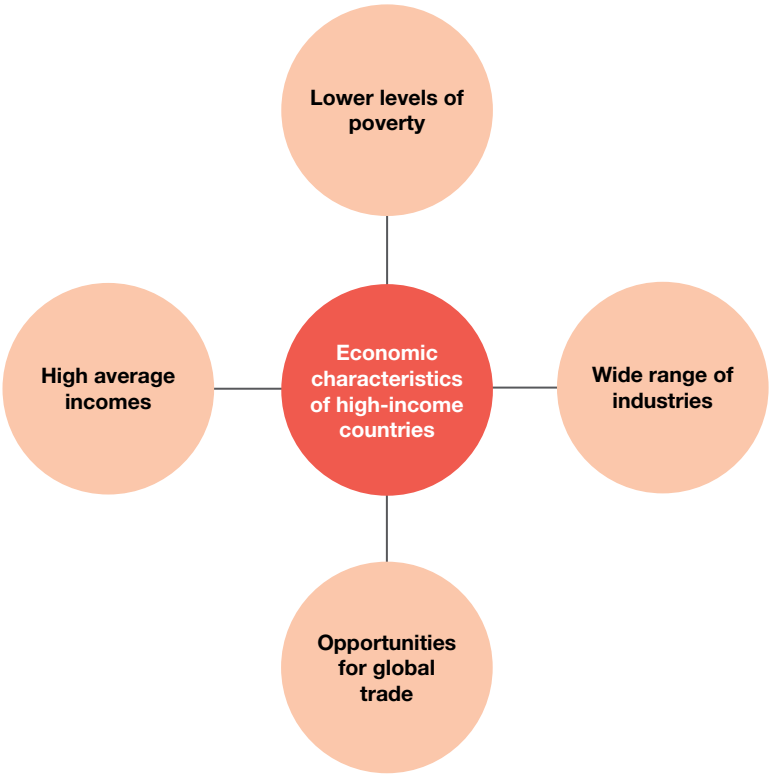
The economic, social and environmental characteristics are often related and affect each other. For example, a country with adequate infrastructure (environmental) is more likely to trade on the global market which can contribute to high average incomes (economic). High average incomes mean that governments and individuals have more money to invest in education (social). Understanding the relationships between the factors can make it easier to identify a range of characteristics common to each income group.

Economic characteristics

A range of factors relating to the financial or economic state of a country can influence the opportunities and resources that are available for its citizens. 'Poverty' is a term commonly used to describe the lack of access to resources, often as the result of a lack of access to money. Low-income countries and, to a lesser extent, middle-income countries, often have a large proportion of their population living in poverty compared to high-income countries.

There are many reasons for the difference in the levels of poverty experienced between the three groups. They include the industries present in each country, opportunities for global trade and average incomes (see figure 8.5).

FIGURE 8.5 Economic characteristics of high-income countries



High-income countries often have a wide range of industries including mining, processing, manufacturing, education, healthcare, scientific research and technology. Low-income countries, on the other hand, often have a limited range of industries, usually centred on farming and primary production. According to the World Bank, in 2017 around 3 per cent of the workforce in high-income countries worked in agriculture, compared to around a quarter in middle-income countries and up to 70 per cent and higher in many low-income countries. This reduces the ability of low-income countries to trade on the global market, as they may not be able to generate goods that other countries require. Middle-income countries often reflect aspects of both high- and low-income countries in relation to trade and many are in a transition period, experiencing increasing trade opportunities and growing economies.

FIGURE 8.6 Adequate infrastructure like the shipping port in Melbourne assists in promoting economic development by contributing to increased global trade.

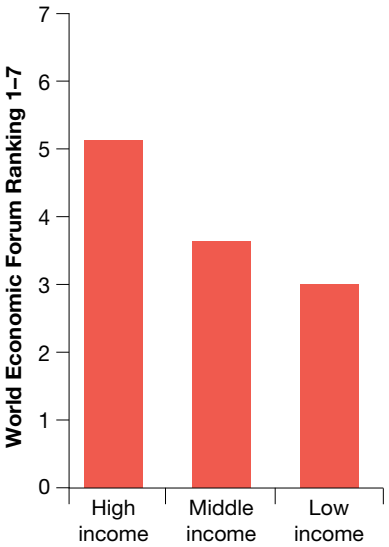


Most industries experience highs and lows in relation to production and demand. Having a range of industries increases the probability that at least some of these industries will experience positive production and trade trends at any one time. If a country's industries revolve around one resource (such as food production), events such as drought can have a significant impact on this industry — if there are no other industries to take their place on the global market, trade can be affected.

Global trade is also affected by infrastructure (such as roads, ports and airports) and knowledge and experience, which assist in buying from and selling to other countries around the world. High-income countries generally have access to these resources, so they can transport goods from the place of production to an overseas destination, and benefit most from trading opportunities as a result. Many middle-income countries are in the process of building infrastructure and developing trading links around the world. Low-income countries often lack the infrastructure (see figure 8.7), knowledge and production capabilities to produce a range of goods and services to trade on a global scale (see figure 8.8). This prevents the economies of low-income countries from growing and contributes to the low average incomes they experience.

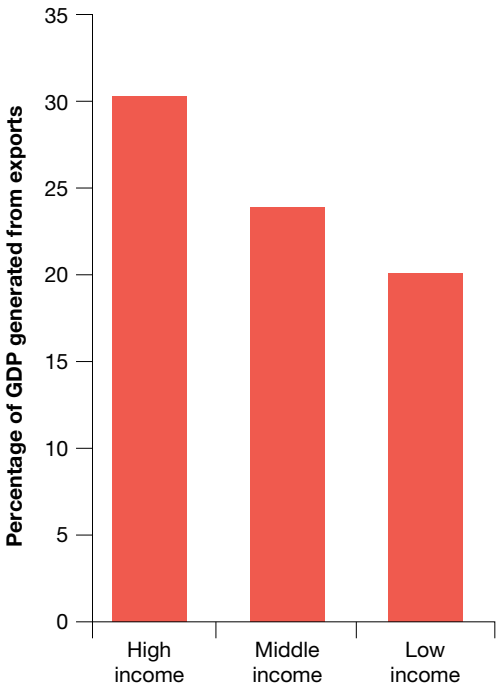
The level of poverty can be expressed as the proportion of those with incomes of less than US$1.90 per day, known as **extreme poverty**. Low- and middle-income countries experience a greater proportion of the population living in extreme poverty than high-income countries (see figure 8.9).

FIGURE 8.7 Quality of port infrastructure, World Economic Forum Ranking 1–7 (1 = extremely underdeveloped to 7 = well developed and efficient by international standards)



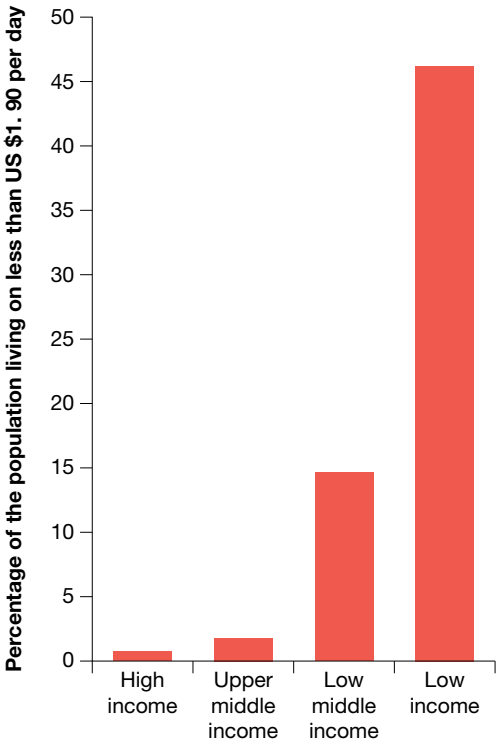
Source: Adapted from http://data.worldbank.org/indicator/IQ.WEF.PORT.XQ?view=chart.

FIGURE 8.8 The proportion of GDP generated by the export of goods and services, 2016–17



Source: Adapted from http://data.worldbank.org/indicator/NE.EXP.GNFS.ZS?view=chart.

FIGURE 8.9 Proportion of the population living on less than US$1.90 a day (PPP)



Source: Adapted from http://povertydata.worldbank.org/poverty/category/.

PPP refers to 'purchasing power parity', which basically provides a way to compare countries that have different currencies and costs of living. PPP takes a range of factors into account, such as average income and the cost of living, to provide a standard comparable currency. PPP is often expressed in US dollars (US$) or as international dollars (PPP$), which is a theoretical currency.

EXAM TIP

There are variations within and between all types of countries and you should avoid making definite statements that are not technically correct. For example, to say that 'people in low income countries live on less than US$1.90 per day' implies that all people in low-income countries live in extreme poverty, which is not true. Instead, say that 'people in low-income countries are more likely to live on less than US$1.90 per day than those in high-income countries' as this is statement is true and will be eligible for marks.

Gross National Income (GNI) per capita is the measure used to categorise countries according to the income groupings used by the World Bank. As a result, GNI per capita increases from low- to middle-income and from middle to high-income countries. Average income can also be measured in relation to **Gross Domestic Product (GDP)** per capita. This measure is similar to GNI per capita, but is not adjusted to take into account the income earned by foreign citizens or the income earned by citizens working in other countries. As a result, GNI per capita is being used more as an accurate indicator of the average income of a country. Regardless of the measure used, lower incomes in low- and middle-income countries have an impact on many aspects of life, such as access to education, healthcare, housing, clean water and food. All of these factors have an impact on quality of life and health status.

Classifying a country as high, middle or low income only takes economic indicators into account, and these do not necessarily reflect the overall quality of life experienced. In addition to economic characteristics, social and environmental characteristics must be taken into consideration.

8.2 Exercise 1 TEST your knowledge

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1. (a) Briefly explain the World Bank's income grouping classification system.
   (b) Explain why the income grouping system is more reliable than classifying countries as either 'developed' or 'developing'.
2. Outline three economic characteristics common among high-income countries compared to low- and middle-income countries.
3. Explain reasons for the lower level of global trade in most low- and middle-income countries compared to high-income countries.
4. Explain how adequate infrastructure can assist in trading on the global market in middle-income countries.
5. Identify the measure that reflects extreme poverty.

8.2 Exercise 2 APPLY your knowledge

1. Explain how having a diverse range of industries could assist in reducing poverty.
2. Discuss two ways that high-income countries could assist low-income countries in breaking the cycle of poverty.
3. Use data from this subtopic to compare the following between high-, middle- and low-income countries:
   (a) quality of infrastructure promoting trade
   (b) proportion of people living on less than US$1.90 per day.

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8.2 Exercise 3 studyON: Past VCAA exam questions online only

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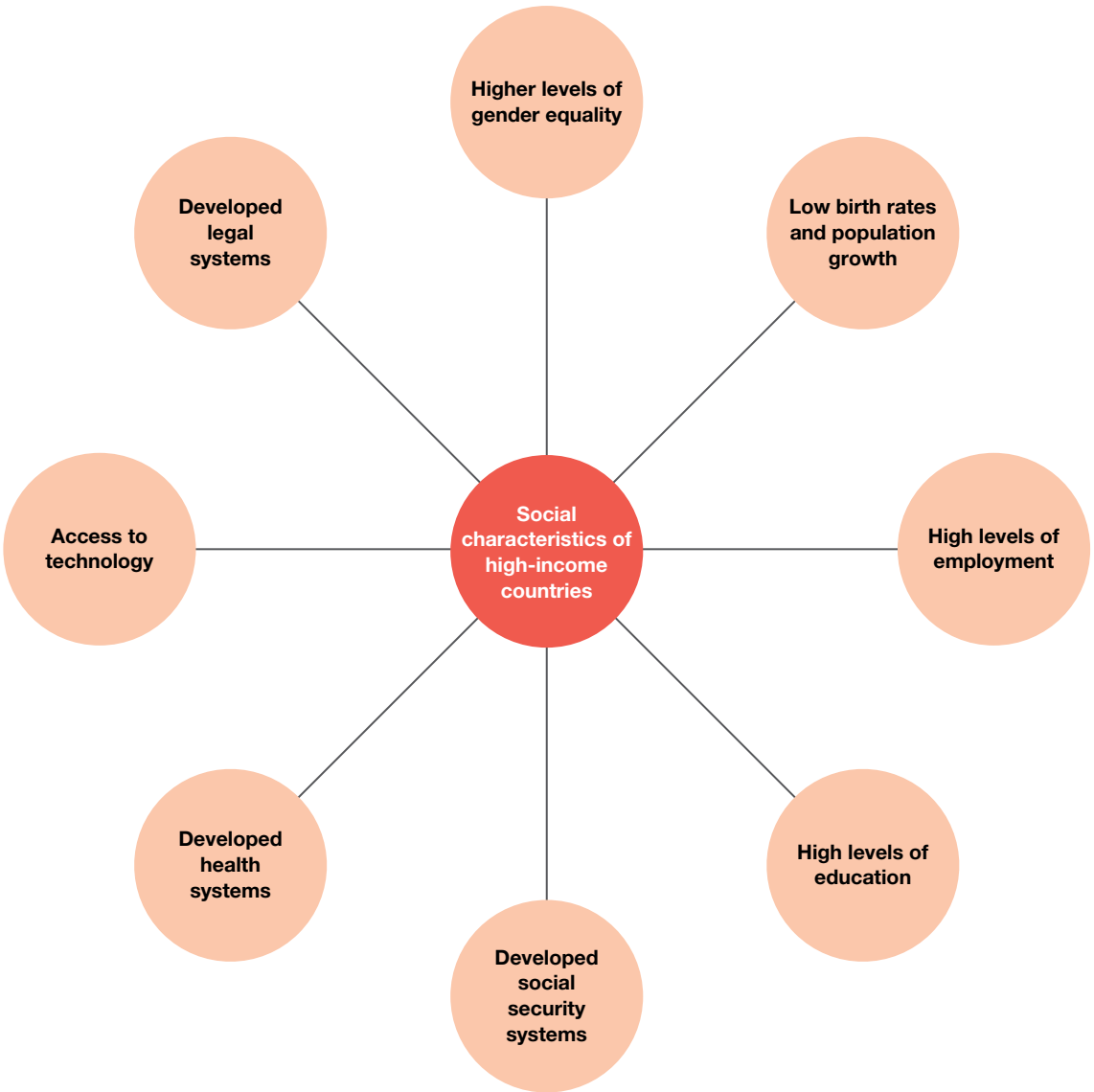
8.3 Social and environmental characteristics of high-, middle- and low-income countries

KEY CONCEPT Understanding the social and environmental characteristics of high-, middle- and low-income countries

8.3.1 Social characteristics

There are many social factors associated with high-, middle- and low-income countries. The social factors that are characteristic of high-income countries are summarised in figure 8.10.

FIGURE 8.10 Social characteristics common among high-income countries



Gender equality

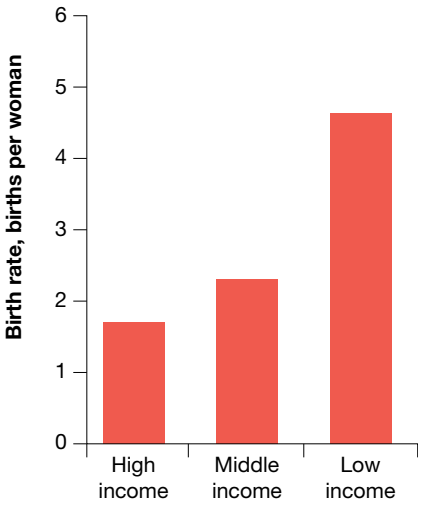
High-income countries often experience relatively high levels of **gender equality**. In these countries, both males and females have opportunities and choices in education, employment, community participation, family planning and recreation. In many low-income countries, however, females do not have the same opportunities as males in society. Females may have limited opportunities for education and often work in fields tending crops and/or spend significant time collecting water and preparing meals. Many middle-income countries are benefitting from greater levels of gender equality as more females in paid employment help to reduce levels of poverty and contribute to the country's productivity and economy.

Birth and population rates

Low birth rates (see figure 8.11) and slow rates of population growth (see figure 8.12) are characteristic of many high-income countries compared to middle-income — and especially low-income — countries.

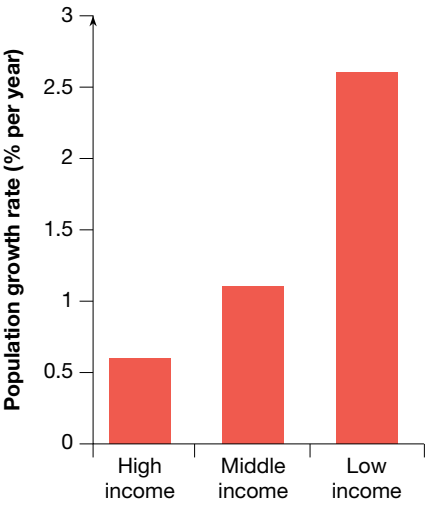
Access to contraception, choice in family planning, career choices, education, gender equality and culture contribute to this difference. High birth rates in many low- and middle-income countries can limit the ability of parents to care for all of their children and provide them with the resources required to live a healthy life. High population growth rates limit the ability of governments to provide services for its citizens such as education, healthcare and social security.

FIGURE 8.11 Birth rate, average number of births per woman, 2016



Source: Adapted from http://data.worldbank.org/indicator/SP.DYN.TFRT.IN?view=chart.

FIGURE 8.12 Population growth rate (% per year) by income grouping, 2017



Source: Adapted from http://data.worldbank.org/indicator/SP.POP.GROW?view=chart.

Education and employment levels

High rates of education and employment are characteristic of most high-income countries. People often have choices about the level of education and the type of career they pursue. Many low-income countries do not have a developed education system, so career options are often limited. In addition, families in low-income countries usually have to pay for their children to attend school, as opposed to middle- and high-income countries, where governments contribute significant funds to provide education opportunities.

Social security systems

High levels of economic development and relatively stable political systems increase the ability of governments in high-income countries to provide social security payments for those in need. Individuals who are unemployed, or unable to work due to illness or disability, are often provided with financial support to assist in promoting their health and wellbeing. Low- and middle-income countries often do not have the means to provide assistance to their citizens, and those who are unemployed or unable to work are driven further into poverty.

Health systems

High-income countries generally have public health systems. People are usually able to access basic healthcare when they need it regardless of their ability to pay. Those in low- and middle-income countries often lack access to suitable healthcare, which affects the level of health and wellbeing they experience.

Access to technology

Technology includes access to communication systems, the internet and medical technologies. It can be used to assist countries in developing their economies, building trade opportunities, furthering education and treating ill health. Technology is more accessible in high-income countries due to a combination of economic resources, infrastructure and education. Low-income countries often lack access to technology, and this impacts on the ability of citizens to gain an education and earn an income.

FIGURE 8.13 Medical technology is more readily available in high-income countries.



Legal systems

Most high-income countries experience strong political and legal systems. Unstable governments and political unrest are characteristic of many low-income and some middle-income countries and increase the risk of civil conflict, which is also more common in low-income countries. A strong legal system is important for ensuring that human rights, such as the right to education and the right to live safely, are upheld. Many low-income countries and to a lesser extent, middle-income countries, lack a strong legal system, and the health and wellbeing of their citizens can be affected as a result.

8.3.2 Environmental characteristics

Characteristics of the environment contribute to the level of health and wellbeing experienced in all countries. Aspects of the environment that are often characteristic of high-, middle- and low-income countries include the accessibility of food, water and sanitation, adequate housing, infrastructure, and carbon dioxide emissions (see figure 8.14).

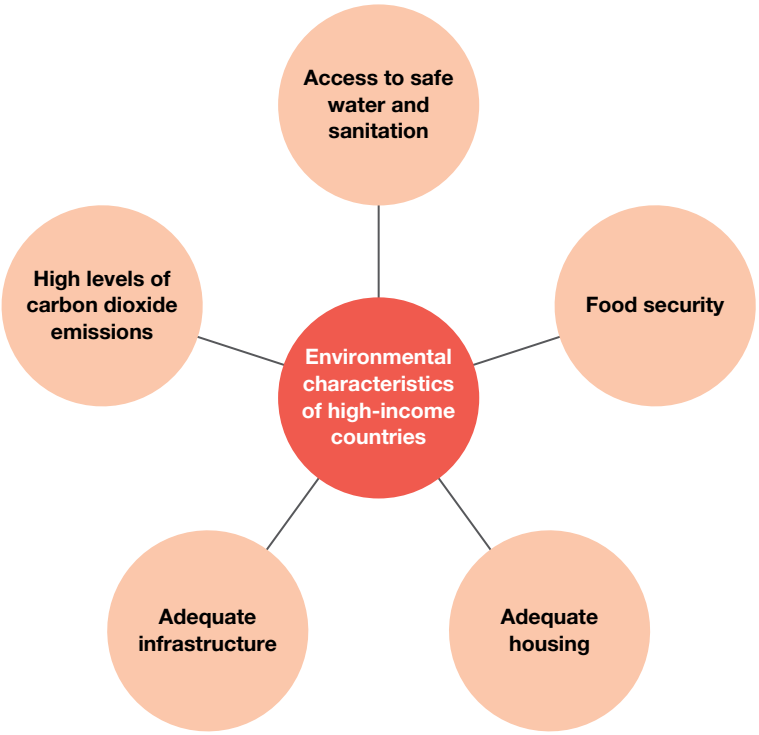
Safe water and sanitation

Safe water and sanitation are characteristics of high-income and many middle-income countries. Access to safe water and sanitation is responsible for a large proportion of the variations in health and wellbeing between the three groups and will be explored in more detail later.

Food security

People in high-income countries generally have access to a quality food supply. Those in low-income countries, however, often lack food security. Natural disasters, such as floods and droughts, tend to have a more pronounced impact on the availability of food for those in low-income countries, as they lack the financial resources to purchase food in emergency situations.

FIGURE 8.14 Environmental characteristics common among high-income countries.



Adequate housing

Compared to high-income countries, many people in low- and middle-income countries lack access to adequate housing. They often live in substandard housing with poor ventilation, lack of heating and cooling, poor resistance to infestation of disease-carrying organisms such as insects, lack of cooking facilities and running water, and poor protection from the elements. In many low- and middle-income countries, **urban slums** are also a common feature of cities compared to high-income countries.

FIGURE 8.15 Urban slums are common in low-income countries.



Adequate infrastructure

Infrastructure is responsible for many differences between high-, middle- and low-income countries. High-income countries usually have adequate roads and transport systems, piped water, sewerage systems, electricity grids and telecommunication systems. People living in low- and middle-income countries often lack access to such facilities, especially in rural and remote areas and urban slums.

Levels of carbon dioxide emissions

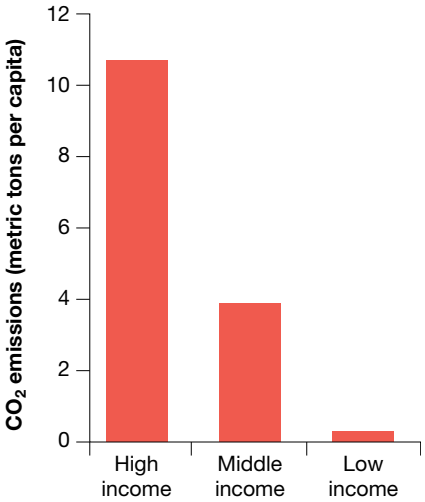
Due to the range of industries in high-income countries, these countries emit greater amounts of carbon dioxide (CO_2) per person into the atmosphere (see figure 8.17). Carbon dioxide emissions have been linked to climate change and the associated effects on sea levels and changing weather patterns. Low- and

middle-income countries are often the most affected by climate change as they lack the economic resources to effectively deal with the associated impacts.

FIGURE 8.16 Adequate infrastructure in high-income countries contributes to resources such as a reliable electricity supply and adequate public transport systems.



FIGURE 8.17 Carbon dioxide emissions in high-, middle- and low-income countries



Source: Adapted from http://data.worldbank.org/indicator/EN.ATM.CO2E.PC.

The economic, social and environmental characteristics of high-, middle- and low-income countries contribute significantly to the differences in health status experienced in each type of country. Many of these factors and their relationships to health status will be explored in more detail later in this topic.

EXAM TIP

Middle-income countries are often in the process of transitioning from low- to high-income and therefore share a range of characteristics common to both low- and high-income countries. For example, most middle-income countries have a proportion of residents living in poverty and a proportion on high average incomes. As a result, discussions about these countries should reflect both the positive and negative aspects of high- and low-income countries. For example, if discussing levels of education in middle-income countries, an answer could include that education levels are generally increasing and many people have sufficient access to education, however, there are still a significant proportion lacking access to adequate educational opportunities.

8.3 Exercise 1 TEST your knowledge

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1. Discuss three social characteristics of middle-income countries.
2. Discuss three environmental characteristics of high-income countries.
3. (a) Explain what is meant by gender equality.
   (b) Explain two ways that gender equality can assist in reducing poverty in low-income countries.
4. Explain two ways that technology can assist a country in transitioning from low income to middle income.
5. Identify the factors that contribute to the difference in birth rates between high- and low-income countries.
6. Outline reasons for differences in the level of education experienced in high- and middle-income countries.

8.3 Exercise 2 APPLY your knowledge

1. Use data from subtopic 8.3 to compare the following between high-, middle- and low-income countries:
   (a) birth rates
   (b) population growth
   (c) carbon dioxide emissions.

2. Outline two ways that economic, social and environmental characteristics in low-income countries are related. Ensure you include a reference to one economic, one social and one environmental characteristic in each response.
3. Draw a concept map that summarises the economic, social and environmental characteristics that are common among high-income countries.

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8.4 Similarities and differences in health status and burden of disease in low-, middle- and high-income countries

KEY CONCEPT Understanding the similarities and differences in health status and burden of disease in low-, middle- and high-income countries

To make detailed judgements about the level of health status and burden of disease experienced in different countries, key indicators such as life expectancy, mortality, morbidity and burden of disease provide valuable data.

There are over 200 countries in the world and health status varies considerably. All graphs and tables will show the data relating to the global average, Australia and the World Bank income groups (including upper and lower middle-income countries where possible). When exploring data relating to each type of country, remember that there are variations within and between countries in each income group.

EXAM TIP

It is important to take note of both similarities and differences when exploring health status and burden of disease in low-, middle- and high-income countries. The differences are often obvious and are reflected in variations in life expectancy and rates of communicable diseases, mortality and DALY. Similarities may be less obvious but include similarities in relation to increasing life expectancy, decreasing under-five and maternal mortality rates and increasing rates of obesity and associated conditions in many countries.

8.4.1 Life expectancy

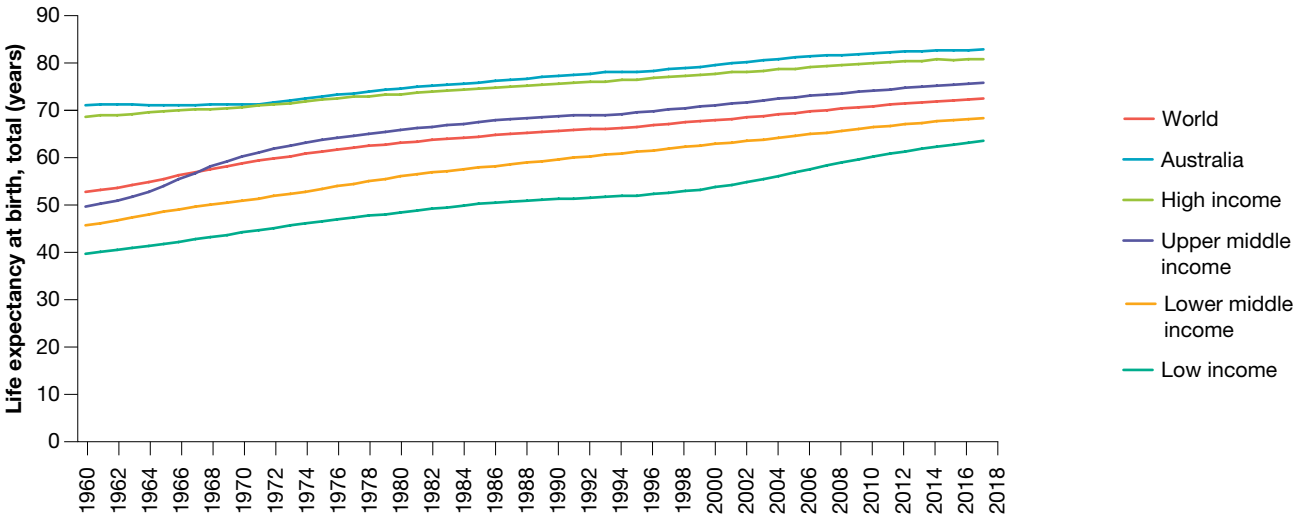
Life expectancy has increased in most countries over time (see figure 8.18). Globally, life expectancy has more than doubled since 1900 with the most significant gains being achieved since 2000.

However, there are occasionally fluctuations in life expectancy within countries. For example, war, conflict and the spread of infectious diseases can have a significant impact on life expectancy in a relatively short period of time. Low- and middle-income countries are more susceptible to such issues and generally experience more severe fluctuations in life expectancy than high-income countries such as Australia. Many African countries, for example, experienced a significant decrease in life expectancy in the 1990s due to the AIDS epidemic.

The life expectancy and health-adjusted life expectancy (HALE) of the World Bank income groups in 2017 are shown in figure 8.19. It can be seen that the lower the average income of the country, the lower the life expectancy and HALE. Although life expectancy and HALE decrease with level of income, a similarity in life expectancy across high-, middle- and low-income countries is that female life expectancy

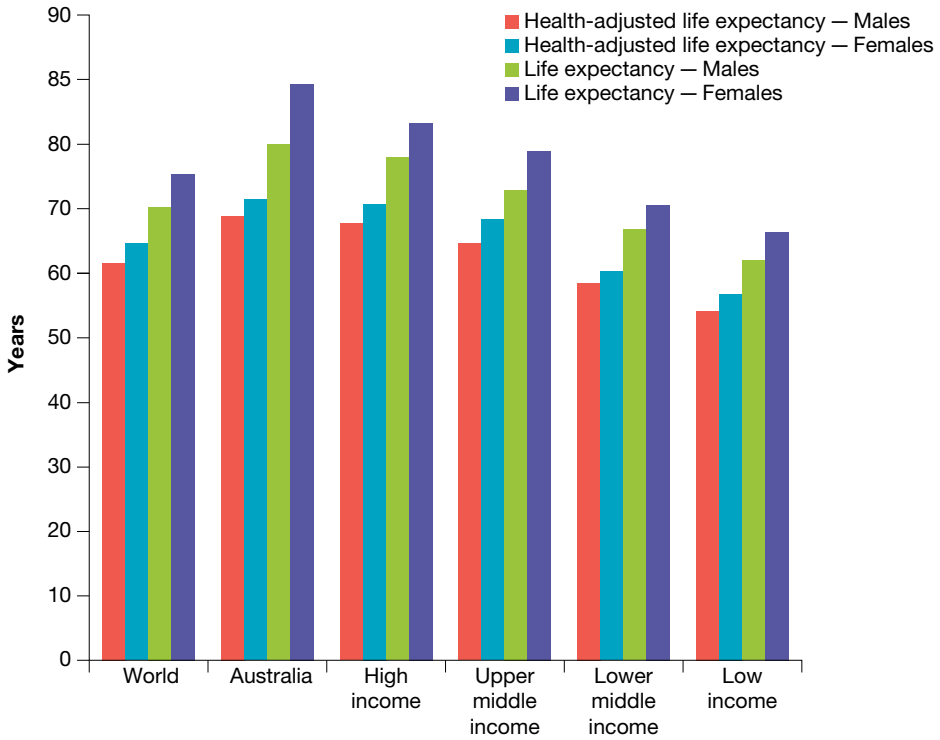
and HALE is higher than males. On average, women live longer than men in every country in the world. Overall, female life expectancy is 75.6 years and male life expectancy is 70.5 years. Globally, female life expectancy at birth passed male life expectancy at birth in the 1970s and in 2017, the difference reached around five years.

FIGURE 8.18 Life expectancy at birth over time — globally, in Australia and in the World Bank income groups



Source: Adapted from http://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=XD&view=chart.

FIGURE 8.19 Health-adjusted life expectancy (HALE) and life expectancy for males and females — globally, in Australia and in the World Bank income groups, 2017



Source: https://vizhub.healthdata.org/gbd-compare/, 2019.

8.4.2 Mortality and morbidity

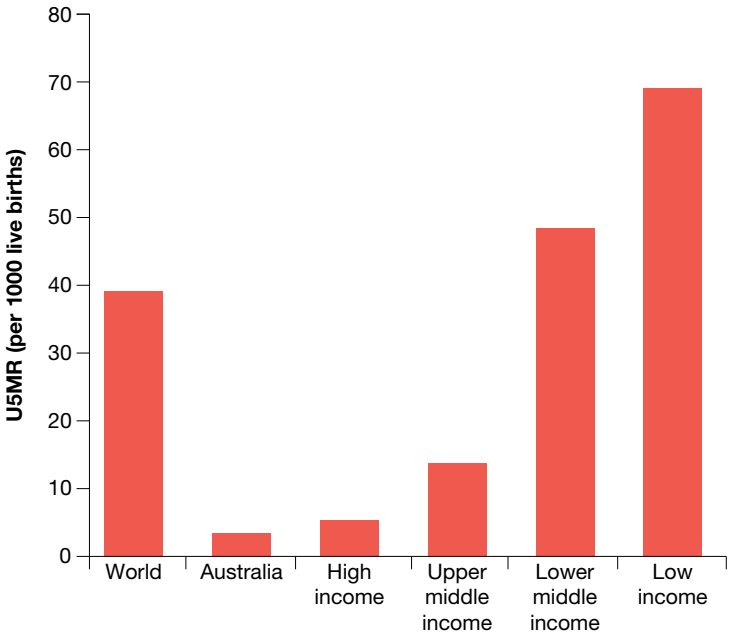
There are huge differences in mortality rates between countries with different income levels. Many factors account for these differences, and these will be discussed in detail later. Mortality and morbidity rates give valuable information not only about the causes of death and illness, but about the resources that might be employed to close the gap between high-, middle- and low-income countries.

Child mortality and morbidity

The under-five mortality rate (U5MR) is one of the most important indicators of the level of health and wellbeing experienced in a country. The survival of a child is reliant on numerous factors. U5MR reports the number of deaths that occur in children under five years of age (per 1000 live births), and is a reflection of the:

- nutritional and health status of mothers
- health literacy of mothers
- level of immunisation available
- availability of maternal and child health services
- income and food availability in the family
- availability of clean water and safe sanitation
- overall safety of the child's environment.

FIGURE 8.20 Under-five mortality rate (U5MR) — globally, in Australia and in the World Bank income groups, 2017



Source: Adapted from http://data.worldbank.org/indicator/SH.DYN.MORT?page=4.

The U5MR varies considerably around the world but has improved in most countries over time. Low-income — and to a lesser extent, middle-income — countries experience a higher U5MR than that in high-income countries like Australia (see figure 8.20).

Undernutrition is an underlying factor contributing to the high rates of morbidity and mortality experienced in low- and middle-income countries. Children who are undernourished have an underdeveloped immune system and struggle to fight off disease as effectively as those who are adequately nourished. As a result, **communicable diseases** (such as diarrhoeal diseases, **malaria**, **human immunodeficiency virus (HIV)** and **acquired immune deficiency syndrome (AIDS)** that cause few deaths in Australia have a huge impact on mortality figures in low- and middle-income countries (see table 8.2).

Australian children are more likely to experience mortality and morbidity due to congenital malformations, premature births and accidental causes such as injuries and poisoning.

Since 1990, the global rate and number of child deaths have been reduced by more than half. Despite this progress, an estimated 5.4 million children under the age of five still died in 2017, equivalent to more than 10 every minute. Around 99 per cent of these deaths occurred in low- and middle-income countries. As a result, the causes of childhood deaths in these countries are prominent when examining global figures.

TABLE 8.2 Under-five mortality rates for selected conditions, per 100 000, 2017

	Diarrhoeal diseases	HIV/AIDS	Malaria	Injuries	Prematurity	Birth asphyxia and birth trauma	Congenital malformations
World	78.4	11.4	52.0	39.7	95.4	78.3	73.7
Australia	0.6	0.1	0	6.9	14.3	11.8	19.5
High income	1.1	0.3	0	10.4	24.0	7.7	24.7
Upper middle income	7.9	4.4	0.4	29.7	48.0	22.1	53.8
Lower middle income	99.7	11.1	50.0	42.4	122.2	103.2	76.1
Low income	178.9	30.9	177.9	66.7	136.0	139.4	129.6

Source: https://vizhub.healthdata.org/gbd-compare/, 2019.

FIGURE 8.21 Deaths due to diseases like malaria are uncommon in Australia because of adequate healthcare and good nutrition. Children contracting infectious disease in low- and middle-income countries are not always as fortunate.

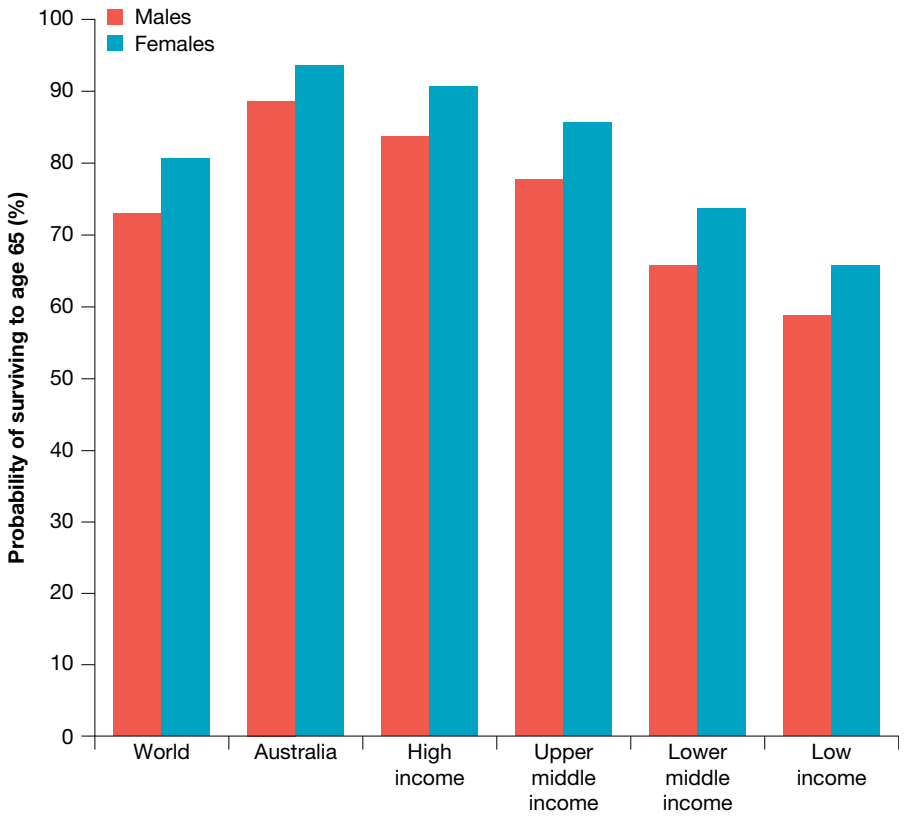


Adult mortality and morbidity

Child mortality and morbidity patterns provide a valuable indicator of the overall health and wellbeing of a country. However, some countries experience low child mortality but high levels of adult mortality. This can be due to the impact of lifestyle factors such as tobacco smoking, excessive alcohol consumption and unsafe sex leading to HIV/AIDS. To ignore adult mortality and morbidity figures would be to ignore an aspect of health status that requires attention in many low-, middle- and high-income countries.

Premature mortality among adults generally increases as average incomes decrease. Figure 8.22 shows the proportion of people who can expect to live to age 65 globally, in Australia and in each of the four income groups. As with child mortality and morbidity, the causes of mortality and morbidity for adults differ depending on the level of income.

FIGURE 8.22 Age-standardised mortality rates, males and females, 2016



Source: Adapted from http://data.worldbank.org/indicator/SP.DYN.TO65.FE.ZS?locations=XM&view=chart.

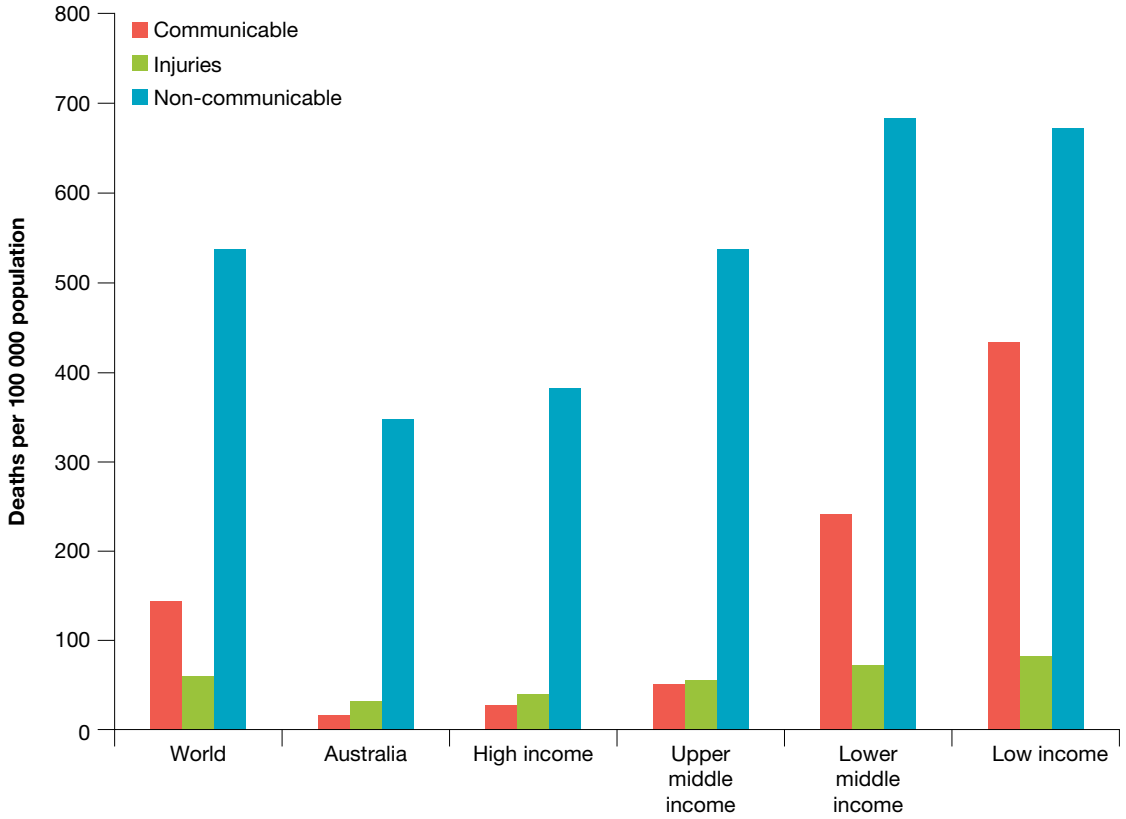
Although communicable diseases such as HIV/AIDS, tuberculosis and influenza contribute to significant differences in morbidity and mortality rates between adults in high-, middle- and low-income countries, **non-communicable diseases**, such as cancer, heart disease and type 2 diabetes, are also high in countries with lower incomes (see figure 8.23) and have increased in line with increasing life expectancies and rising rates of obesity. This creates a '**double burden of disease**' in many countries. It puts an added strain on the relatively basic healthcare available and contributes to poorer health status. When adults in a family become ill, the children may have to take care of the adults and themselves. This adds to the cycle of poverty and ill health.

Other causes of mortality and morbidity for people in low- and middle-income countries include those associated with pregnancy and childbirth, with maternal mortality rates being high compared to those in Australia (see figure 8.24). Many of the problems that pregnant women face in low- and some middle-income countries are associated with the birthing procedure and lack of sufficient and available healthcare; this is a problem not often faced in Australia.

8.4.3 Burden of disease

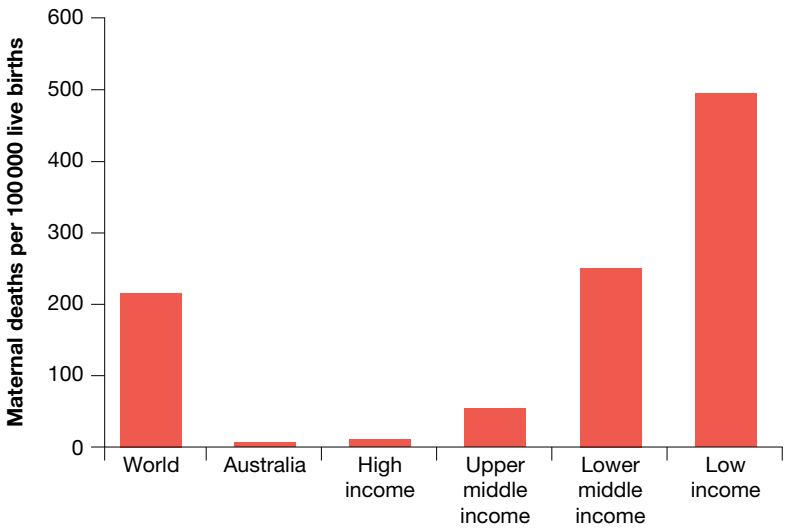
As discussed earlier, the rates of communicable diseases, non-communicable diseases and injuries are higher in middle- and particularly low-income countries when compared to high-income countries like Australia, contributing to higher rates of morbidity and mortality. As a result, low- and middle-income countries experience a greater burden of disease and higher rates of DALY compared to Australia (see figure 8.25).

FIGURE 8.23 Mortality rates for selected conditions — globally, in Australia and in the World Bank income groups, 2017



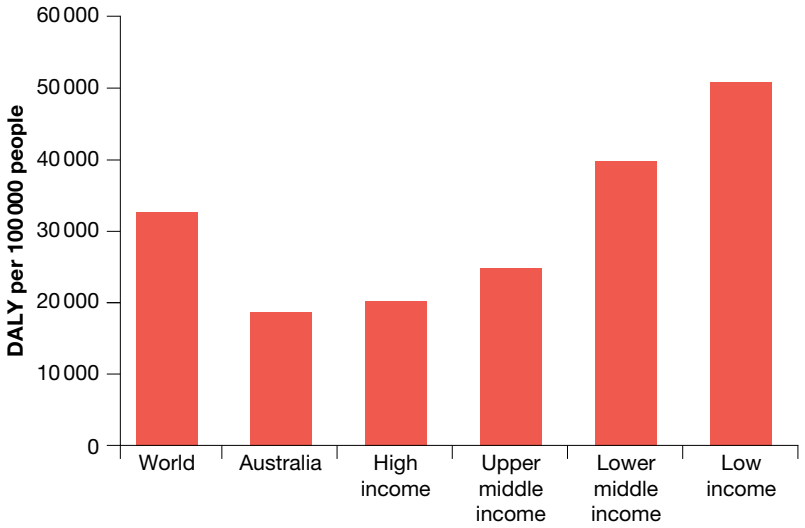
Source: Adapted from http://vizhub.healthdata.org/gbd-compare.

FIGURE 8.24 Maternal mortality ratio (per 100 000 live births), 2017



Source: Adapted from http://data.worldbank.org/indicator/SH.STA.MMRT?locations=RU.

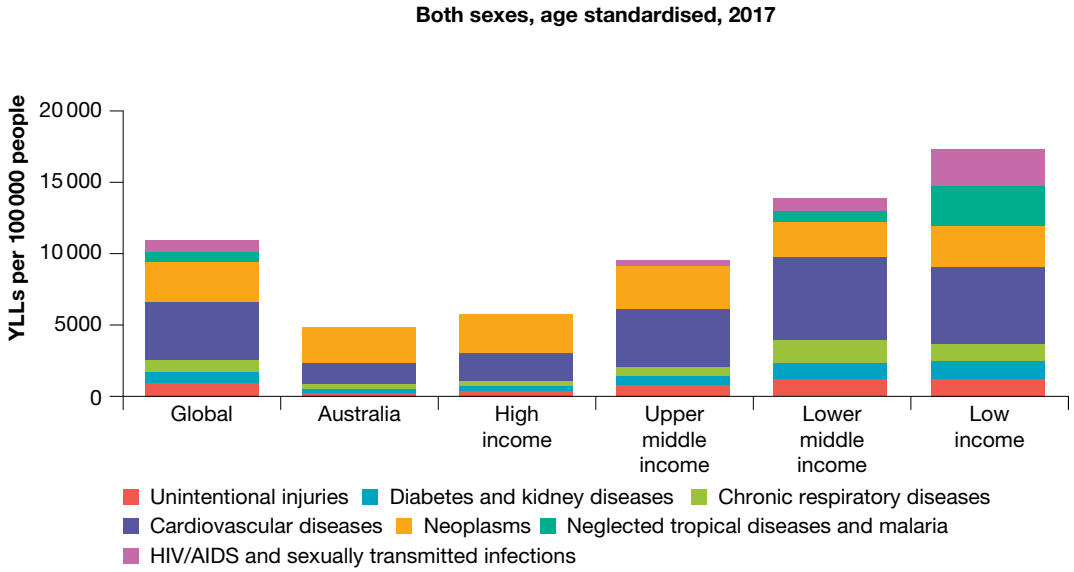
FIGURE 8.25 DALY per 100 000 people, 2017



Source: Adapted from http://vizhub.healthdata.org/gbd-compare.

Years of life lost (YLL) rates for most causes are higher in low- and middle-income countries than in high-income countries, including Australia. Australia's well-developed health system means that many conditions that can cause premature death are often effectively treated, and this can extend life expectancy and reduce the rate of YLL that otherwise might have occurred. Treatment options are often limited in low- and middle-income countries, which can increase the risk of premature death and result in a higher rate of YLL (see figure 8.26).

FIGURE 8.26 YLL rate in selected groups and Australia due to selected causes, 2017

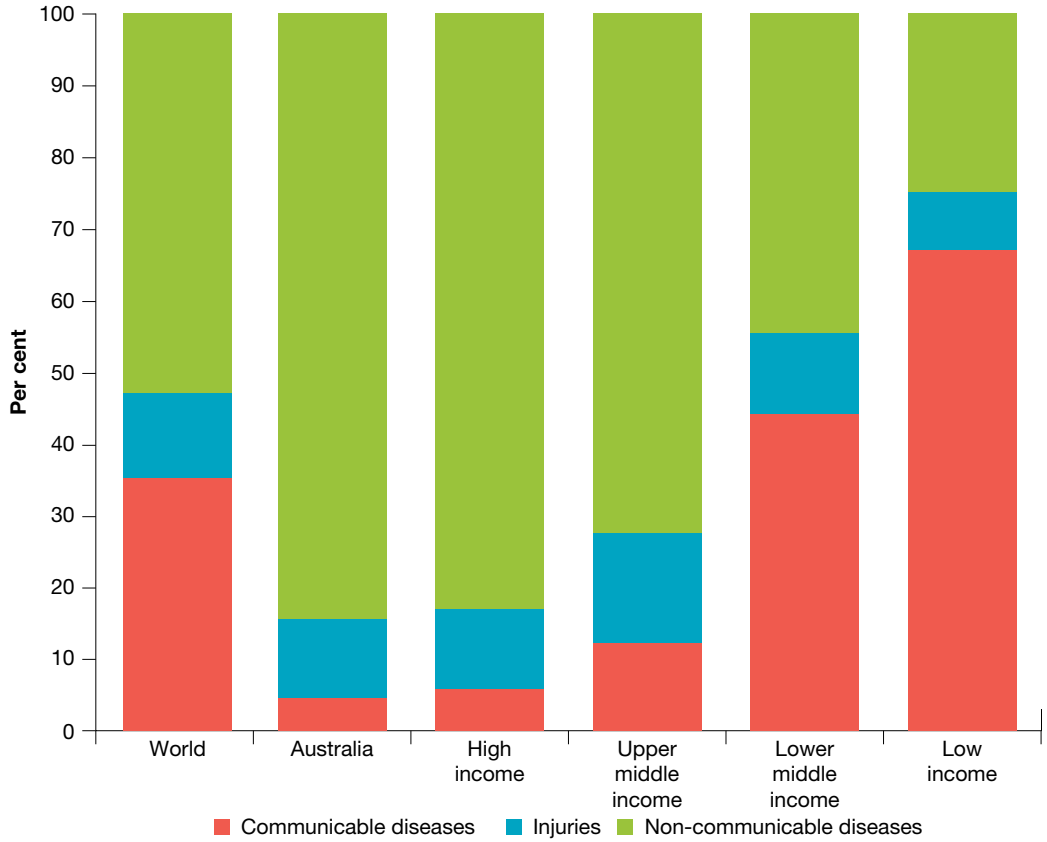


Source: https://vizhub.healthdata.org/gbd-compare/.

When examining the proportion of total YLL contributed by non-communicable diseases such as cancer and cardiovascular disease, it can be seen that these conditions cause a higher proportion of YLL in Australia than in low-income countries (see figure 8.27). It is important to remember, however, that overall YLL rates are significantly higher in low- and middle-income countries. As a result, most low- and

middle-income countries still experience greater rates of YLL due to non-communicable diseases than Australia, but communicable diseases contribute even more YLL and therefore represent a greater proportion of the total.

FIGURE 8.27 Years of life lost to certain conditions as a percentage of the total years of life lost, 2017



Source: https://vizhub.healthdata.org/gbd-compare/.

Being able to treat many conditions in Australia can reduce the rate of YLL but often increases the rate of years lost due to disability (YLD) as people live with a range of diseases for long periods. In low- and middle-income countries, diseases are more likely to cause death, and this contributes to the higher rate of YLL in these countries compared to Australia.

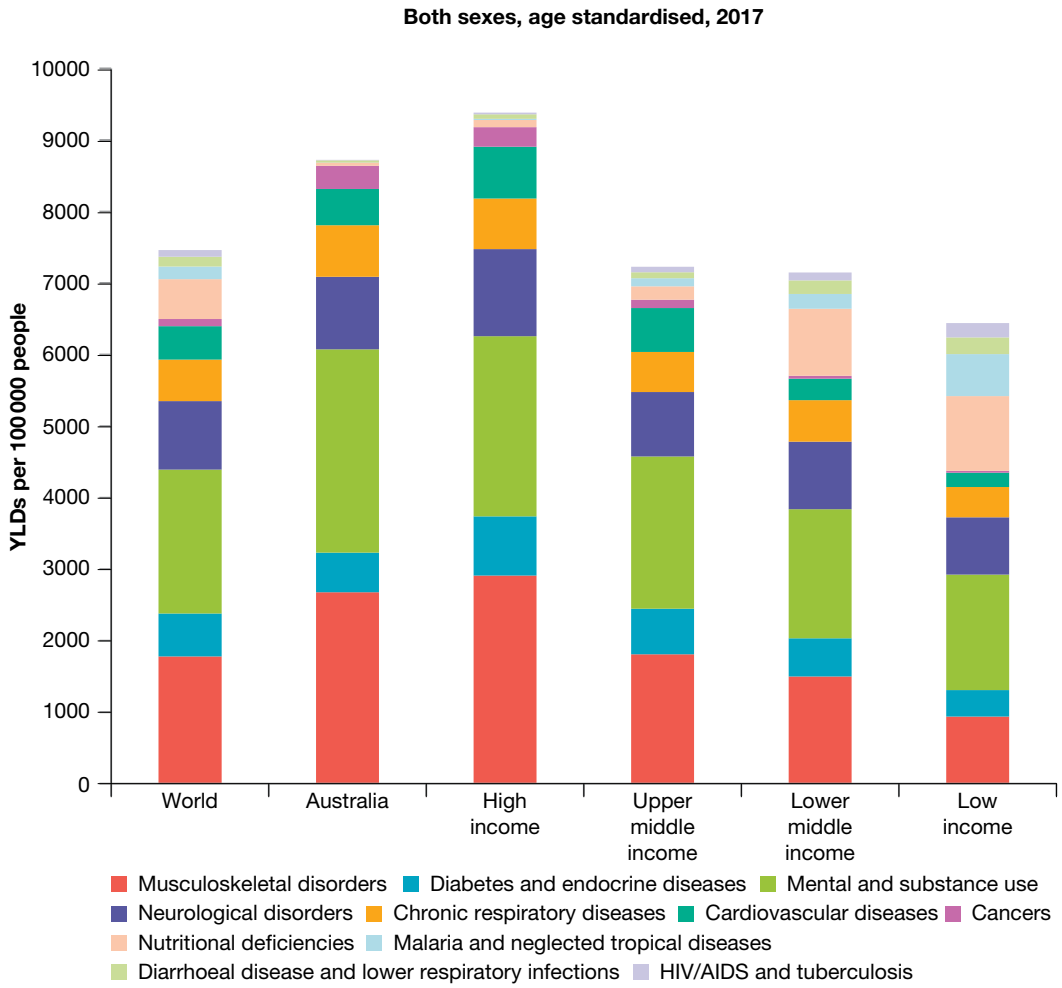
The rate of YLD generally increases with life expectancy. When people live longer, they are more likely to experience chronic non-communicable conditions such as cardiovascular disease, cancer, musculoskeletal conditions including arthritis and osteoporosis, respiratory diseases, and neurological conditions including dementia. As a result of this relationship, the rate of non-communicable diseases has increased in many low- and middle-income countries over time, but has not yet reached the level experienced in Australia because there is still a significant gap in life expectancy between the three types of countries.

Figure 8.28 shows the rate of YLD due to selected conditions in Australia compared to countries in selected income groups.

EXAM TIP

When comparing health status or burden of disease of two income groups, it is important to mention both groups in your response. Making reference to only one group does not demonstrate a comparison and will not receive full marks.

FIGURE 8.28 YLD rate in selected groups and Australia due to selected causes, 2017



Source: https://vizhub.healthdata.org/gbd-compare/.

8.4 Activities

1. Access the **HIV/AIDS** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Malaria** weblink and worksheet in the Resources tab then complete the worksheet.

8.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Using data, outline the general global trend in life expectancy since 1900.
2. Identify one similarity and one difference in life expectancy among the income groups shown in figure 8.18.
3. Compare Australia's life expectancy and health-adjusted life expectancy to low- and middle-income countries.
4. Using data, outline the trend among the income groups evident in figure 8.20.
5. What are the leading causes of mortality in low- and middle-income countries compared to Australia?
6. Explain why undernutrition is an underlying factor in many causes of mortality and morbidity in low- and middle-income countries.
7. Identify one difference and one similarity in mortality rates from non-communicable diseases between Australia and low-income countries from figure 8.23.

8.4 Exercise 2 APPLY your knowledge

1. Suggest two reasons for the differences in U5MR experienced by low- and middle-income countries when compared to Australia.

2. Why do you think non-communicable diseases don't receive a lot of attention in low-income countries where rates are often higher than in Australia?
3. Suggest reasons why communicable diseases are more common and often spread further in low- and middle-income countries compared with Australia.
4. (a) Outline the relationship between average income and rate of DALY as shown in figure 8.25.
   (b) Explain two reasons why this relationship exists.
5. Discuss differences in rates of YLL between Australia and low- and middle-income countries shown in figure 8.26.
6. Identify the leading cause of YLL for each income group shown in figure 8.27.
7. Identify one similarity and one difference between Australia and low-income countries as shown in figure 8.28.
8. Explain why the rate of YLD may be lower in upper middle-income countries compared to Australia as shown in figure 8.28.

studyON

8.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents HIV/AIDS worksheet (doc-32222)
Malaria worksheet (doc-32216)

Weblinks HIV/AIDS
Malaria

8.5 Access to safe water and sanitation as factors affecting health status and burden of disease

KEY CONCEPT Understanding how access to safe water and sanitation contribute to similarities and differences in health status and burden of disease

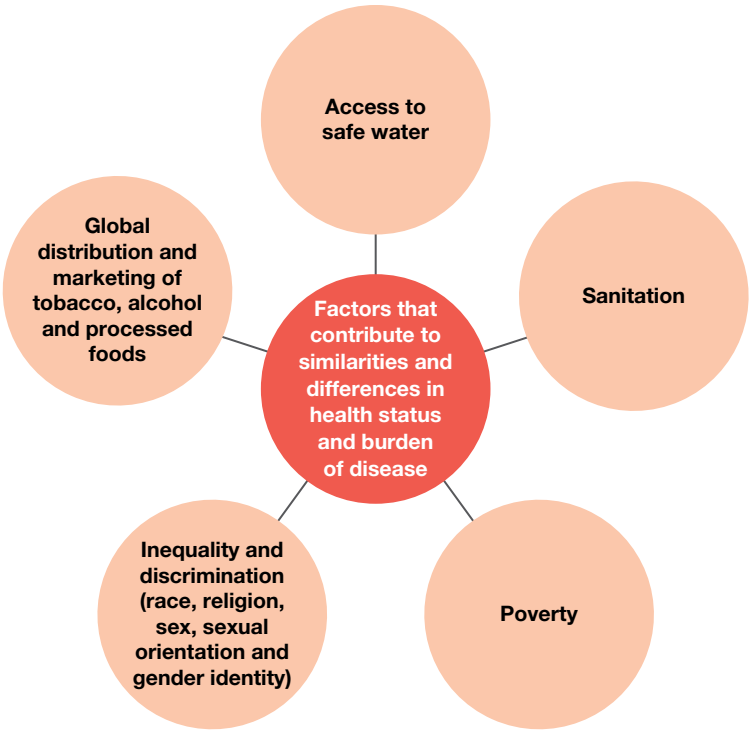
There are many factors that contribute to the similarities and differences in health status and burden of disease experienced in high-, middle- and low-income countries. An understanding of these factors is essential in reducing the inequalities that exist globally.

Although each factor will be considered separately, it is often a combination of factors that impacts on health status and burden of disease. The factors shown in figure 8.29 will be examined in the rest of this topic.

Safe water and sanitation data are often considered together, but the impact of each of these factors will be explored separately where possible.

Unfortunately, many communities that lack access to safe water also suffer from lack of sanitation systems, and this contributes to lower health status and increased burden of disease. People living in rural and remote areas are often more likely to experience lack of access to safe water and sanitation because the infrastructure required to provide these resources is often unavailable.

FIGURE 8.29 Factors that contribute to similarities and differences in health status and burden of disease globally



8.5.1 Access to safe water

Sometimes referred to as 'clean water', safe water refers to water that is not contaminated with disease-causing pathogens such as bacteria and viruses, or chemicals such as lead and mercury. Safe water is required for a number of purposes, including:

FIGURE 8.30 Safe water is essential for human survival.



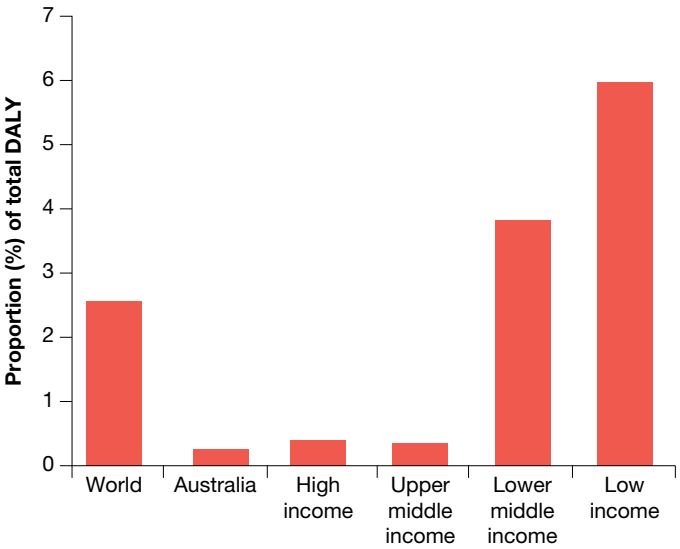
- Consumption — the human body consists of between 55 per cent and 75 per cent water. Water is a significant component of many body tissues and is essential for the optimal functioning of every cell in the body. The average adult loses around 2.5 to 3 litres per day and, as the body can't store water for later use, it must be consumed regularly to ensure survival.
- Food preparation and cooking — clean water is essential to wash food products and remove harmful pathogens that could otherwise lead to illness. Cooking often requires clean water to ensure food items are safe for human consumption.
- Washing and hygiene — clean water is required to maintain high levels of personal hygiene and prevents infection through handwashing, bathing and showering.
- Agriculture and production — clean water is required for the production of food and other products such as clothing and electricity.

How safe water affects health status and burden of disease

The average person requires a minimum of around 50 litres of safe water per day to survive, so a reliable and clean source of water is essential for every human.

In 2017, 663 million people globally, or one in every 10 people, lacked access to safe water. This deficit is responsible for around 3 per cent of total global DALY and just over 1.2 million deaths. A vast majority of the impact is experienced in low- and lower middle-income countries (see figure 8.31).

FIGURE 8.31 Proportion of total DALY attributable to lack of access to safe water



Source: Adapted from http://vizhub.healthdata.org/gbd-compare.

Australia has a well-established and reliable water supply, although interruptions to this supply are sometimes experienced in some remote Indigenous communities and as a result of natural disasters such as floods. However, emergency provisions can generally be supplied when clean tap water is unavailable.

People in low- and middle-countries are at greater risk of the effects of unsafe water as they are less likely to have the infrastructure to supply clean drinking water effectively, especially if they live in rural and remote areas (see figure 8.32). Governments of these countries often lack strict controls on water quality and monitoring, or the money to provide clean water to those who need it.

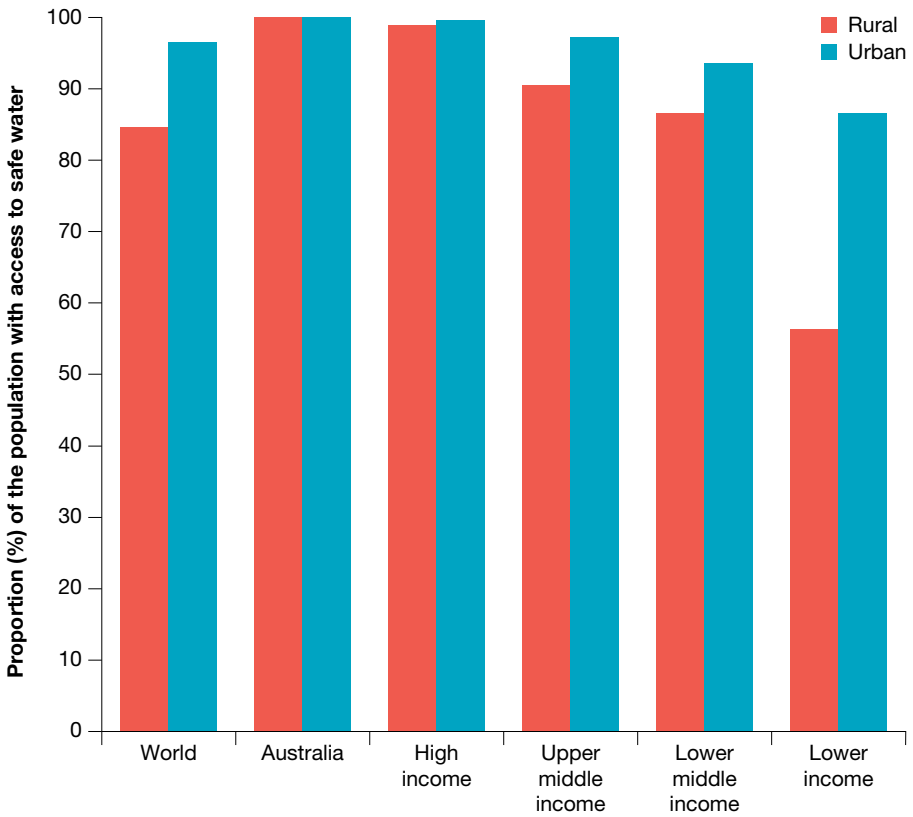
Many diseases, including gastroenteritis, diarrhoea, dysentery and cholera, are waterborne and transmit easily from the water source to the individual. Children are particularly susceptible to the impacts of unsafe water as they are likely to experience repeated infection and account for a high proportion of total deaths from water-related causes, including the following:

- Diarrhoea causes 1.1 million preventable child deaths per year, nearly all in low- and middle-income countries. Diarrhoea can be caused by drinking unsafe water. Bacteria and other microbes present in the water cause disease and illness such as cholera and dysentery. As the body dehydrates because of the diarrhoea, more water is consumed to relieve thirst, creating an often deadly cycle.
- Undernutrition causes 450 000 preventable child deaths per year, with most of these deaths occurring in low- and middle-income countries. Many cases of undernutrition are compounded by repeated bouts of diarrhoea and infections. This reduces the efficient functioning of the immune system, making the individual more susceptible to secondary infections and, in many cases, death.

Lack of access to safe water contributes to hundreds of millions of missed school days each year through a combination of ill health and time spent collecting water, reducing levels of education and the potential to earn a decent income in the future. This contributes to a cycle of poverty that is responsible for many of the differences in burden of disease between high-, middle- and low-income countries.

In communities where water is not available, it is often women who have to trek long distances to collect water and then carry it back. They may have to make this trip many times in one day. This reduces their ability to look after their children and pursue education or paid employment, and contributes significantly to the development of physical ailments such as musculoskeletal conditions. According to the World Health Organization, women and children spend 125 million hours every day collecting water, which translates to $24 billion in lost economic benefits each year. This contributes to the difference in burden of disease in low- and middle-income countries by affecting the economy and reducing the capacity of governments to provide resources such as healthcare, and this in turn increases the rate of morbidity, mortality and the number of DALY experienced.

FIGURE 8.32 Proportion of urban and rural populations with access to safe water (%), 2015



Source: Adapted from http://data.worldbank.org/indicator/SH.H2O.SAFE.UR.ZS.

FIGURE 8.33 Unsafe water is a leading cause of death globally, yet is not a significant issue in most high-income countries, including Australia.



Stagnant water (i.e. water without a current or flow) is required for malaria-carrying mosquitoes and many disease-causing bacteria to breed, and uncontrolled watercourses such as swamps and dams can provide perfect conditions for these organisms to reproduce. These conditions are also significant contributors to the differences in burden of disease between high-, middle- and low-income countries.

8.5.2 Access to sanitation

Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces, but can also refer to the maintenance of hygienic conditions through services such as garbage collection and wastewater disposal. Adequate sanitation requires a flushing toilet or covered **latrine** and the hygienic removal or containment of the waste products.

FIGURE 8.34 People queue to use a toilet in Nigeria.



Globally 2.5 billion, or one in three, people lack access to basic sanitation. Almost one billion of these people defecate in the open, for example in street gutters, behind bushes or into open bodies of water. This waste often seeps into water sources and contaminates the water that people will eventually consume.

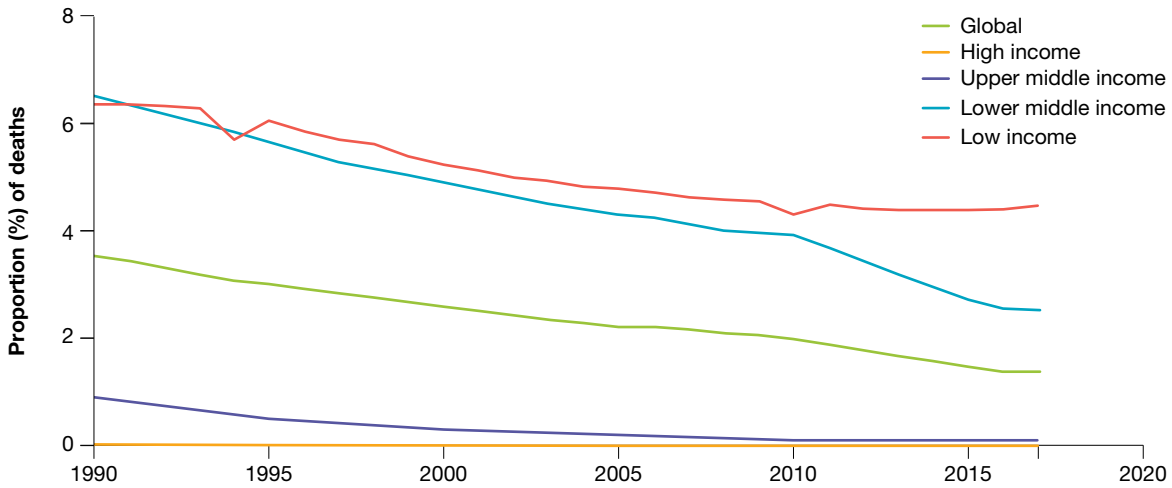
FIGURE 8.35 Many people lack access to adequate sanitation and are forced to relieve themselves into water courses which can contaminate drinking water supplies.



How sanitation affects health status and burden of disease

In 2017, lack of sanitation contributed to over 775 000 deaths, or around 2 per cent of all deaths globally (see figure 8.36).

FIGURE 8.36 Proportion of total deaths attributable to lack of adequate sanitation



Source: Adapted from http://vizhub.healthdata.org/gbd-compare.

Inadequate sanitation is one of the main causes of contaminated water supplies in low- and middle-income countries and leads to an increased rate of DALY from infectious diseases such as diarrhoea, cholera and typhoid. As many as one in three people globally are infected with intestinal worms including hookworm, roundworm and whipworm. These infections occur as a result of soil contaminated with faeces. Adequate sanitation could entirely prevent this cause of death.

Because few schools in low- and middle-income countries have toilets, girls often don't attend, especially when they are menstruating. Sometimes schools have toilets but they are not segregated, and this also acts as a barrier to girls attending school. The majority of the 121 million children and youth currently not enrolled in school worldwide are female, with inadequate sanitation contributing to this trend.

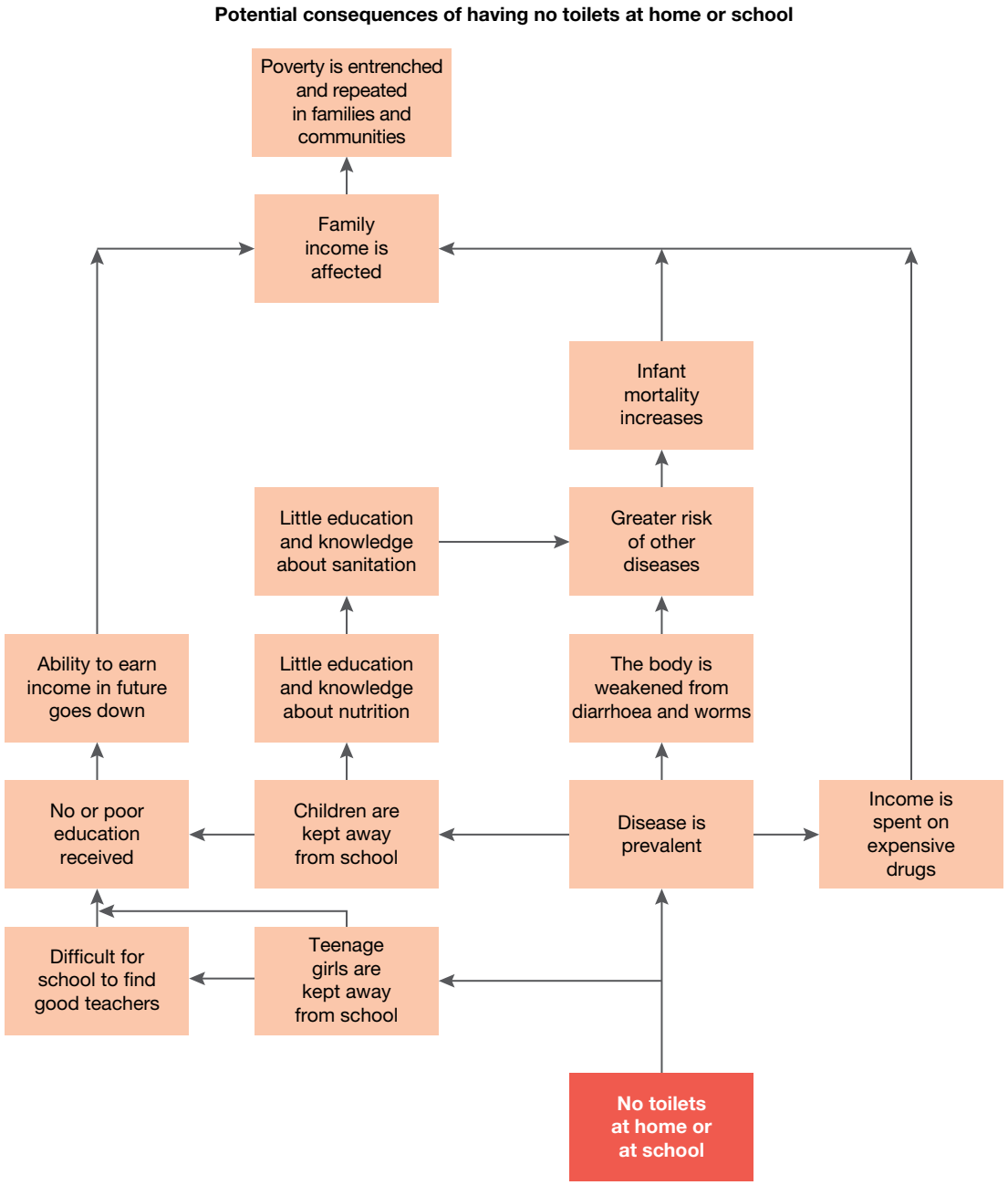
Without private toilets, many cultures expect girls to wait until it is dark before they can relieve themselves. This exposes them to the danger of harassment, assault, animal attacks, discomfort, loss of dignity and sometimes illness. According to WaterAid, women and girls living without a toilet spend 266 million hours each day finding a place to relieve themselves. Nearly all of them live in low- and middle-income countries. This reduces their ability to receive an education or meaningful employment, driving them further into poverty (see figure 8.37) and contributing to the differences in burden of disease between low-middle- and high-income countries.

Repeated infections caused by inadequate sanitation require medical treatment. If treatment is available, the associated costs are often the responsibility of the individual or their family in low- and middle-income countries. These costs drain the family income further and make it more difficult to break the poverty cycle.

8.5 Activities

1. Access the **Water** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Sanitation in India** weblink and worksheet in the Resources tab then complete the worksheet.

FIGURE 8.37 The many impacts of inadequate sanitation



Source: Adapted from WaterAid, *The state of the world's toilets 2007: report 2*.

8.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) What is meant by 'safe water'?
   (b) Explain three reasons why safe water is essential for human life.
2. Discuss reasons why lack of clean water is generally not an issue in Australia.
3. Explain why children are particularly susceptible to the impacts of unsafe water.

4. Explain how lack of safe water contributes to poverty in low- and middle-income countries.
5. (a) What is sanitation?
   (b) Explain why a lack of sanitation often has greater impacts on females compared to males.
6. How can unregulated watercourses lead to increased rates of malaria infection?
7. List five conditions that can be caused by unsafe water and sanitation.

8.5 Exercise 2 APPLY your knowledge

1. Discuss how access to safe water contributes to similarities and/or differences in burden of disease between high-, middle- and low-income countries.
2. Using data, discuss the difference in the proportion of deaths attributable to lack of sanitation between high-, middle- and low-income countries.
3. Discuss two ways that inadequate sanitation impairs family incomes and increases the risk of poverty. (You can refer to figure 8.37 for this.)
4. Explain how having access to clean water can enhance the lives of those who currently lack it.

studyON

8.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Water worksheet (doc-32217)
Sanitation in India worksheet (doc-32218)

Weblink Water
Sanitation in India

8.6 Poverty as a factor affecting health status and burden of disease

KEY CONCEPT Understanding how poverty contribute to similarities and differences in health status and burden of disease

Poverty refers to deprivation. This deprivation often stems from lack of income but presents as a lack of material resources such as food, shelter, clean water and healthcare; and deprivation of intangible resources such as social inclusion, opportunities for education and decision making.

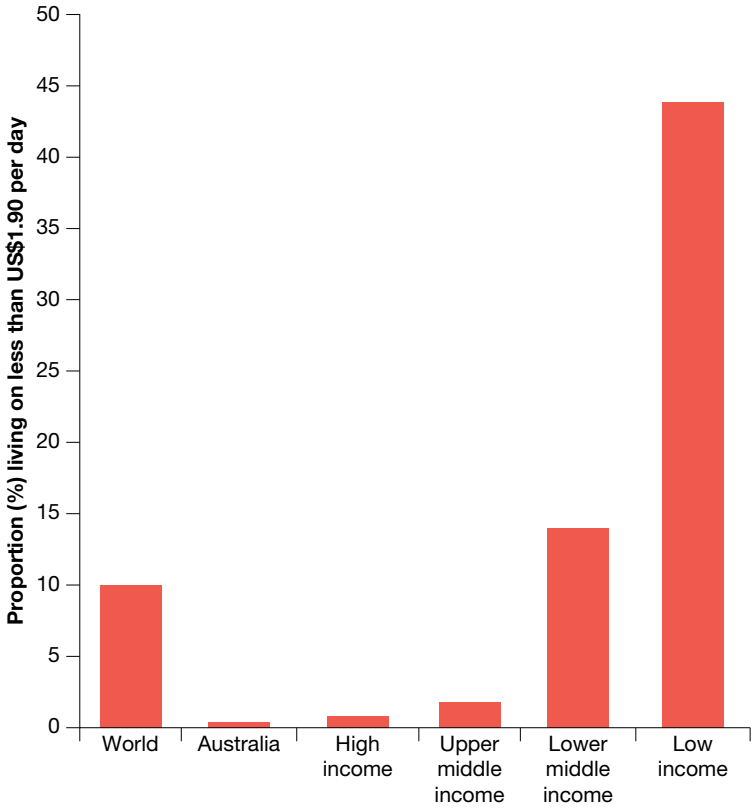
8.6.1 What is poverty?

From an individual perspective, poverty is generally defined in terms of income and is measured in a number of different ways:

- *Those living on less than a certain amount per day (often US$1.90 a day)*. This is referred to as absolute poverty or extreme poverty (see figure 8.38).
- *Those living on less than 50 per cent of their country's average income*. This is referred to as relative poverty.

Although rates of extreme poverty are low in Australia, there are a number of people living in relative poverty, particularly those in low socioeconomic groups. The variations in health status that this contributes to are explored in subtopic 4.7.

FIGURE 8.38 Proportion living on less than US$1.90 per day, 2015 (2011 PPP) (% of population)



Source: World Bank, 2017.

8.6.2 How poverty affects health status and burden of disease

However it is measured, poverty contributes to differences in burden of disease by reducing access to a range of resource (see figure 8.39).

Poverty and government services, social protection measures and infrastructure

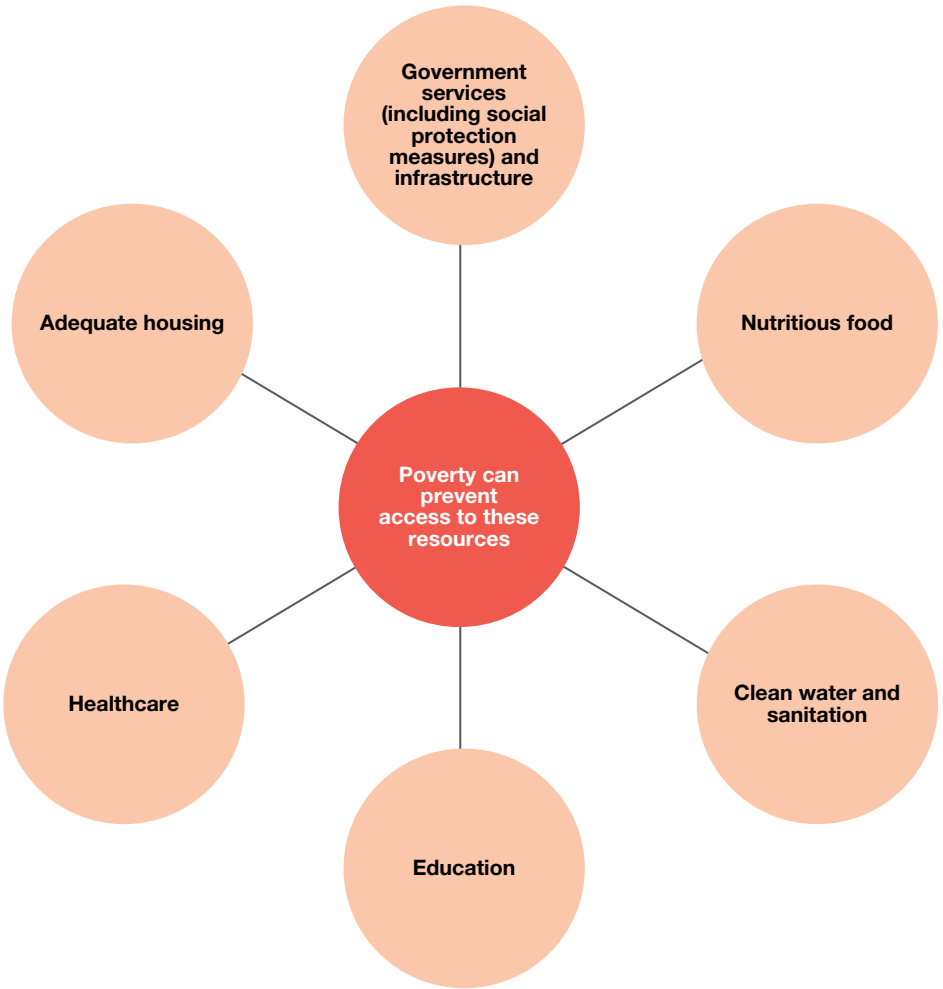
Recall that Gross National Income (GNI) is the total value of goods and services a country's citizens produce, including the value of income earned by citizens who may be working in an overseas country. It is a reflection of the wealth of a country and indicates how much money the government is able to spend on services and infrastructure.

The level of GNI affects the government's ability to provide access to clean water, sanitation, health services, public education and social protection measures (such as pensions, welfare and disability payments). The more money the government generates through taxation and investment, the greater the opportunity it has to provide these resources to its citizens.

However, the GNI of a country does not determine how the wealth is distributed. In many countries, it is common for a few people to control most of the wealth, leaving a majority of the country with living standards well below the wealthy few. This divide in wealth means that low- and middle-income countries experience the concerns associated with poverty, such as high rates of communicable diseases and higher rates of child and adult mortality, which most high-income countries do not experience. Yet they are also

likely to experience issues and diseases associated with wealth which are also common in high-income countries, such as obesity, diabetes and cardiovascular disease. Experiencing issues and diseases associated with both poverty and wealth in one country is referred to as a 'double burden of disease'.

FIGURE 8.39 Poverty reduces access to a range of resources that contribute to differences in burden of disease between high-, middle- and low-income countries.



In high-income countries such as Australia, higher average incomes mean that the variation in how wealth is distributed has a smaller impact than in low- and middle-income countries.

GNI per capita (or per person), in Australia and the World Bank income groups, is shown in figure 8.40.

Poverty and nutritious food

Undernutrition is often the result of an inability to afford nutritious foods. Undernutrition decreases immune function, which increases the risk of infection and premature death, especially among children. Pregnant women who cannot access nutritious foods are more likely to die as a result of their pregnancy and have babies who are more susceptible to premature mortality due to underdeveloped body systems.

Poverty and access to clean water and sanitation

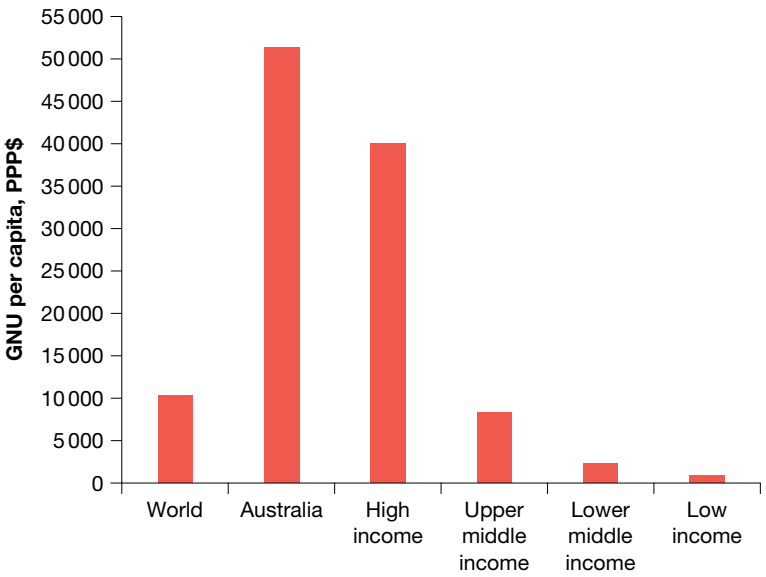
Poverty also restricts the ability of governments to provide resources such as clean water and sanitation. This further increases the risk of infectious diseases including diarrhoeal disease, which is a leading cause of death among children in low- and middle-income countries.

Poverty and education

Reduced access to education results in lower literacy rates. This reduces opportunities for employment, perpetuating the cycle of poverty and the associated impacts such as limited access to food, water and healthcare, which contributes to higher rates of morbidity and premature mortality. Lower literacy rates result in lower levels of health literacy, which is a risk factor for ill health and premature mortality from conditions associated with poverty such as HIV/AIDS. In low- and middle-income countries, many governments do not have the funds available to provide education for their people. This means it is often only the wealthy who can afford to pay for their children to be educated. As a result, employment prospects are lower, and the cycle of poverty and poor health and wellbeing is likely to continue (see figure 8.41).

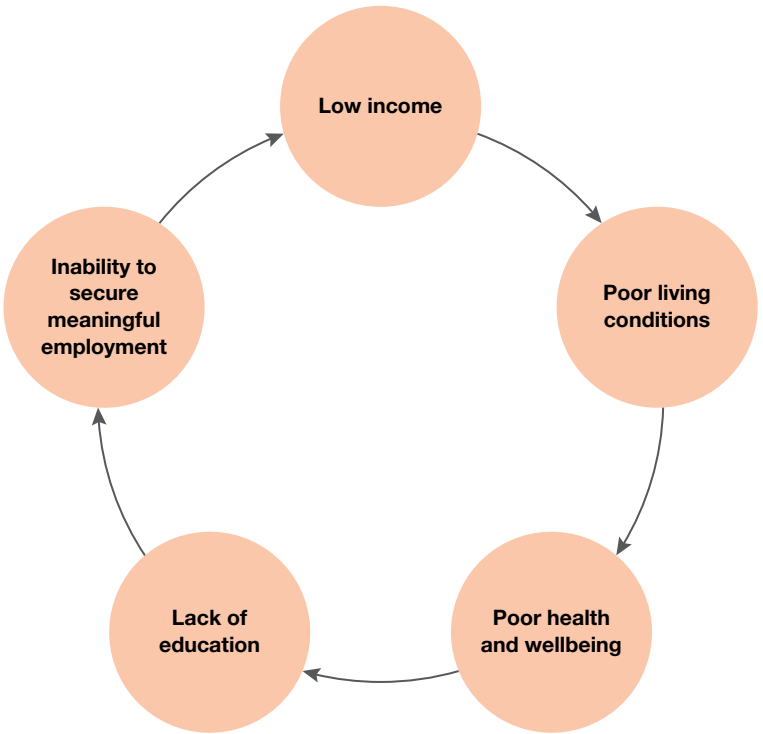
It is compulsory for all Australian children between the ages of six and 15 or 16 (depending on the state or territory) to be enrolled in school. Many of the expenses required to run the education system are met by the government through tax revenue. This allows people from all socioeconomic status groups the opportunity to educate their children, contributing to higher health status and lower burden of disease in Australia.

FIGURE 8.40 GNI per capita, (current US$)



Source: https://data.worldbank.org/indicator/NY.GNP.PCAP.CD.

FIGURE 8.41 The cycle of poverty can be broken with education, but education often requires payment.



Poverty and healthcare

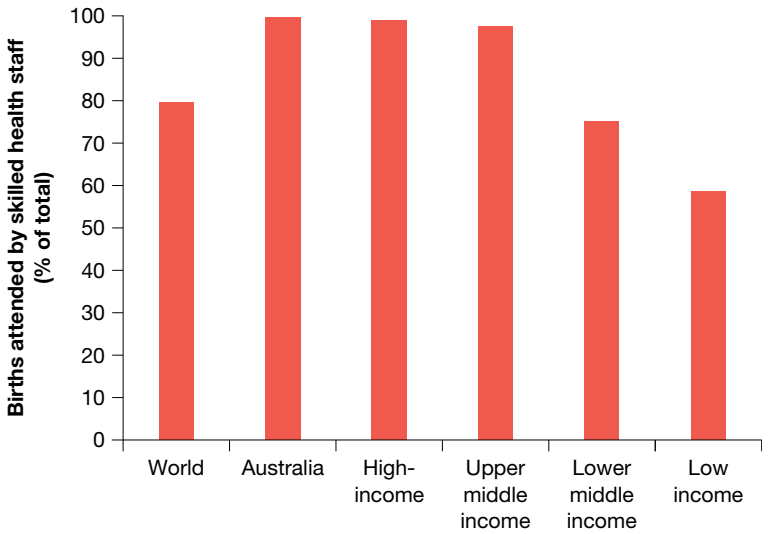
Poverty usually results in the inability of individuals, including children and pregnant women, to afford healthcare. Medicare and the Pharmaceutical Benefits Scheme ensures all Australians have access to a range of health professionals and services such as doctors, hospitals and essential medicines (figure 8.42). Few countries have a universal healthcare scheme such as Medicare, so only those who can afford to pay for healthcare can receive treatment. As a result, children in low- and middle-income countries are much more likely to die from conditions that are often easily treatable in high-income countries like Australia.

FIGURE 8.42 Australia's health system, including Medicare and public hospitals, increase access to health services regardless of an individual's ability to pay.



According to the WHO, more than 280 000 women die each year from preventable complications during pregnancy or childbirth, and most of these deaths occur in low- and middle-income countries. In Australia, most women can access maternal healthcare through Medicare, regardless of their ability to pay (see figure 8.43).

FIGURE 8.43 Percentage of births attended by skilled health personnel, 2015



Source: Adapted from https://data.worldbank.org/indicator/SH.STA.BRTC.ZSc08f043.

Poverty and housing

For many people, more time is spent in the home than anywhere else. In many populations, especially in low- and middle-income countries, poverty means that many people live in inadequate housing which contributes to ill health.

Many houses rely on solid fuels such as coal and wood for indoor heating but do not have adequate ventilation, such as chimneys, and therefore have high levels of indoor air pollution (figure 8.44). As a result, the World Health Organization has listed indoor air pollution as the eighth most important risk factor and says it is responsible for 2.7 per cent of the global burden of disease. Indoor air pollution has been shown to increase the risk of pneumonia among children under five years, and chronic respiratory disease and lung cancer among adults over 30. Women and children are often most at risk of indoor pollution as they are exposed to it for longer periods of time. People in high-income countries generally rely on cleaner methods of energy production and therefore experience lower levels of illness and death due to indoor pollution.

FIGURE 8.44 Cooking indoors without adequate ventilation contributes to indoor air pollution but is the only option for millions of people living in poverty.



Adequate housing can reduce the risk of infectious diseases such as malaria by reducing exposure to the mosquitoes that spread it. Low-income countries often lack adequate protection from such risks compared to high-income countries.

A reliable electricity supply increases the ability of families to promote health and wellbeing and break the cycle of poverty by increasing opportunities for education, healthy food intake, access to technology and temperature control.

Many communities live in areas that are subject to extreme temperatures. If there is a lack of insulation and/or heating and cooling, there is an increased risk of death from pre-existing conditions (such as heart conditions) as the body attempts to maintain body temperature. The type of heating (such as solid fuels) can also increase the risk of respiratory diseases.

8.6 Activity

Access the **Poverty** weblink and worksheet in the Resources tab then complete the worksheet.

8.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) What is meant by 'poverty'.
   (b) Explain two ways that poverty can be measured.
2. Explain how housing contributes to variations in burden of disease between Australia and low-income countries.
3. Briefly explain how adequate housing can promote health status.
4. Briefly explain the cycle of poverty.
5. Outline two ways that education can impact health status.

8.6 Exercise 2 APPLY your knowledge

1. (a) Using figure 8.38, discuss the difference in the levels of poverty between high-, middle- and low-income countries.
   (b) Explain three ways this difference can contribute to differences in burden of disease.

2. (a) Identify two groups within Australia that are more likely to experience poverty than the rest of the population. (You may need to refer to topic 4.)
   (b) Outline two similarities between the groups identified in part (a) and those living in low- and middle-income countries.
3. Explain two ways that poverty can increase the risk of infectious diseases such as malaria, HIV/AIDS and/or diarrhoeal disease.

studyON

8.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Poverty worksheet (doc-32219)
Weblink Poverty

8.7 Inequality and discrimination as factors affecting health status and burden of disease

KEY CONCEPT Understanding how inequality and discrimination contribute to similarities and differences in health status and burden of disease

Equality and freedom from **discrimination** are basic **human rights**. According to the United Nations Universal Declaration of Human Rights:

- All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.
- Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.

Unfortunately, not all people have their human rights upheld, and discrimination against specific groups contributes to inequalities in health status and burden of disease compared to other population groups.

As average incomes and living conditions have improved, so too has health status. Yet this increase in income, living conditions and health status has not occurred universally among all countries and between all population groups within countries.

Inequality in health status often occurs as a result of an inability to access resources such as education, employment and healthcare. Quite often, discrimination is the reason these resources remain out of reach for many. Groups who are discriminated against experience inequality in relation to a range of outcomes, including:

- having higher rates of depression and anxiety
- having higher rates of premature death, including under-five mortality
- being more likely to be the victim of intentional violence.

FIGURE 8.45 Human rights are universal, meaning every person is entitled to certain conditions and treatment. Unfortunately, not everyone has their rights upheld.



Although many countries, including Australia, have implemented laws to make discrimination illegal, many minority groups still experience discrimination and inequalities in health status around the world, including:

- those from minority racial groups, including indigenous peoples and migrants
- those from minority religious groups
- females
- homosexuals and bisexuals
- those who identify as a gender different from the sex assigned to them at birth.

8.7.1 Race and its affect on health status and burden of disease

According to the Australia Human Rights Commission, 'racial discrimination is when a person is treated less favourably than another person in a similar situation because of their race, colour, descent, national or ethnic origin or immigrant status'.

Racial discrimination occurs around the world and often results in social exclusion, preventing millions of people from participating in the society in which they live in relation to education, access to healthcare, community participation, employment and housing.

FIGURE 8.46 Discrimination contributes significantly to the poorer health status experienced by indigenous populations worldwide, including in Australia.



Indigenous peoples and ethnic minorities are two groups who are often discriminated against due to their race. According to the WHO, 'in almost every country in the world, minorities and indigenous peoples are among the poorest and most vulnerable of groups, suffer greater ill health and receive poorer quality healthcare than other segments of the population. More often than not, this ill health and poorer healthcare are the result of poverty and discrimination'.

According to the *State of the World's Indigenous Peoples* (UN, 2009):

- Indigenous people suffer higher rates of ill health and disability, and have dramatically shorter life expectancy than other groups living in the same countries.
- Discrimination, racism and a lack of cultural understanding and sensitivity prevent access to healthcare for many indigenous people. Many health systems do not reflect the social and cultural practices and beliefs of indigenous peoples.
- The world's 370 million indigenous peoples are among the world's most marginalised people, and are often isolated politically and socially within the countries where they reside by the geographical location of their communities, and their separate histories, cultures, languages and traditions.
- Indigenous peoples are often among the poorest in the world, and the poverty gap between indigenous and non-indigenous groups is increasing in many countries around the world. This influences indigenous peoples' quality of life and their right to optimal health and wellbeing.

FIGURE 8.47 Displaced persons often have no choice but to live in refugee camps where they rely on others for the provision of basic resources such as food and water.



According to DeLaet et al. (2015), racial minorities experience worse physical and mental health and wellbeing in terms of morbidity and mortality in all geographic regions in which such comparative data are available. According to Donna Ah Chee, from the Central Australian Aboriginal Congress (CAAC), 'as a life stressor, racism directly and negatively affects the cardiovascular system causing high blood pressure/hypertension and heart disease. It seriously affects mental health and wellbeing causing depression, anxiety and other psychological and psychiatric disorders and racism contributes to low birth weight of newborns, as well as premature birth'.

In some cases, victims of racial discrimination become displaced from their homes as they are forced to flee and live in foreign countries as refugees or become displaced in their own country. Displacement has a flow-on effect as this new living environment may lack food and water, educational opportunities for children, employment opportunities for adults, and healthcare. The number of people displaced from their homes has increased dramatically in recent years, contributing to higher rates of illness and premature death among these groups.

8.7.2 Religion and its affect on health status and burden of disease

Every day, many members of religious or belief communities face discrimination based on their religion or belief. This often results in an inability to realise their human rights and participate in the community in which they live in terms of accessing public education, health services and employment. In extreme cases, some people are arrested or killed due to their religious beliefs.

As in many other countries, religious minorities have faced discrimination in Australia. Muslim and Jewish Australians have been particularly targeted by acts of discrimination including being sworn at, spat on, told they do not 'belong' in Australia and denied jobs.

FIGURE 8.48 Globally, millions of people experience discrimination due to their religious beliefs.



According to VicHealth, religious discrimination has been shown to contribute to increased rates of:

- anxiety
- depression
- psychiatric disorders
- stress
- decreased life satisfaction
- self-rated poor health status
- tobacco smoking
- alcohol abuse
- drug use.

These outcomes and risk factors contribute to the higher rates of burden of disease experienced by those who are victims of racial discrimination across the world.

8.7.3 Sex and its affect on health status and burden of disease

Sex refers to the physiological characteristics, including the DNA and sex organs, present in an individual at birth. In most cases, people are born as either male or female, although some people are born with a combination of both male and female characteristics, referred to as 'intersex'.

FIGURE 8.49 Females are often responsible for laborious jobs, such as collecting water, which can cause back and neck injuries impacting on physical health and wellbeing.



When women have the same power and control over their lives as men do, their health status improves. In a global context, however, females often have less power and less control over resources than males. This in turn typically leads to disadvantage in the economic, political, social, educational and health domains. Women in Australia generally have the same opportunities for education, employment and community participation as men do, which increases the health status experienced by women in Australia.

There are also differences between the sexes that negatively affect men, such as the higher levels of risk taking, higher rates of smoking and higher levels of violence. On a global scale, however, sex inequalities impact women's health status more severely than they do men's.

When financial resources are limited, they are often allocated to areas deemed to be of greatest importance. The lower status of women in many low- and middle-income countries can mean they often

miss out on opportunities for education and employment. This helps explain the fact that two-thirds of the 775 million people in the world who lack basic literacy skills are female (UN, 2017). Consequently, many women work in jobs that are often badly paid, dangerous and laborious, which directly puts their health and wellbeing at risk. Prostitution is an example of this, as it raises the levels of HIV/AIDS infections. Globally, women earn 24 per cent less than men, and up to 75 per cent of female employees work in informal jobs that are not protected under law in low- and middle-income countries.

Women who are educated, however, are more likely to have healthier children. They are also more likely to adopt health-promoting behaviours such as having their children immunised and implementing methods to reduce the transmission of infectious diseases such as malaria and diarrhoeal disease. Educated women also tend to have fewer children. This means that the children they do have generally have greater opportunities and better access to resources such as education, food and healthcare, contributing to higher levels of health status and lower burden of disease.

FIGURE 8.50 Educated girls have a greater ability to escape poverty.



Globally, females have less say in decisions affecting their lives than males. Societal norms in many countries make men the sole decision makers. This can affect the role that women play in society and also their health and wellbeing. For example, one study on the impact of a cyclone in Bangladesh noted that many women perished with their children at home as they had to wait for their husbands to return and make an evacuation decision.

In many countries, women are expected to abide by their father's or husband's decisions. Violence may result if the woman challenges the man's authority. It may be socially acceptable for a man to have more than one sexual partner and he may not use protection with any of them. His wife may face an increased risk of contracting sexually transmissible infections (including HIV/AIDS) but not be in a position to protect herself. Women may also be the last fed and so may not receive enough nutrients, leading to malnourishment. Adequate nourishment is a basic need to prevent ill health and premature mortality.

Women also lack influence on a national scale in many countries. Women hold an average 3 per cent of seats in national parliaments in Pacific island countries, and an average of 10 per cent of seats in western Asia. The lack of input that women have in governments can contribute to women having little say in the issues that affect their health and wellbeing, such as male perpetrated violence (see the following case study on domestic violence in Papua New Guinea).

CASE STUDY

Violence against women in PNG an 'emergency', says Human Rights Watch

Pacific Beat

By Jemima Garrett, wires

Updated 18 Jan 2018, 7:01pm

The Papua New Guinea government is failing to protect victims of family violence, according to a new report by Human Rights Watch.

The report, titled Bashed Up: Family Violence in PNG, found that women are left unprotected, even when they have gone to great lengths to seek help.

It accused the government of neglecting survivors' needs for safety, services and justice, and found women often had no choice but to live with abusive partners.

More than two thirds of PNG women have experienced family violence. In some parts of the country, 80 per cent of men admit they have been responsible for sexual violence against their partner.

Two years ago the PNG government passed the Family Protection Act which set new penalties for family violence and was designed to protect and assist victims.

But Human Rights Watch (HRW) Australia director Elaine Pearson says the situation on the ground is still dire.

"We spoke to woman after woman who told us really harrowing accounts of how they'd been attacked by their husbands, sometimes with knives (or) burnt with hot sticks," she told Pacific Beat.

"After these attacks they'd gone to the police, but there were remarkably similar stories from women about the lack of responsiveness of police.

"Too often police were simply ignoring their claims or telling them they should go back to their husbands because there really weren't any other options."

Women told to 'solve it at home'

The report found that police and prosecutors rarely pursue criminal charges against perpetrators, even in the most serious cases of rape or murder.

We spoke to woman after woman who told us really harrowing accounts ... Too often police were simply ignoring their claims or telling them they should go back to their husbands.

One woman interviewed for the HRW report suffered multiple broken bones and went to police 17 times asking for the arrest of her husband, but they refused.

Monica Paulus, co-founder of the Highlands Women Human Rights Defenders movement, says women often encounter resistance from police, especially if the offender is a powerful member of the local community.

"Police will tell them 'go back and solve it at home'," she said.

"Most times if it's a very senior person then that's what the response will be. They look at the status of the man who is involved as the perpetrator."

Ms Paulus said women trying to escape violence were also battling poverty, traditions that tie them to their husband's families, and a lack of safe houses.

She said women who wanted to pursue their cases in village courts also had to pay several fees and were often saddled with paying for medical reports documenting their injuries. Often cases dragged on for so long, women gave up.

Accusations of sorcery could be raised against a woman, particularly if the husband wanted to remarry, said Ms Paulus.

"Sorcery accusations all too often become a form of family violence, with abusive husbands threatening or using sorcery accusations to silence and control women," the report said.

More support services needed

In recent years there has been more training for police and 14 family and sexual violence units have been set up in police stations, partly-funded by the Australian government.

But Ms Pearson said more needs to be done.

"We hope the government takes this report seriously and the government will implement regulations for the Family Protection Act," she said.

"We would like police officers to start issuing protection orders as a matter of course rather than as an exception."

She also called for Port Moresby to fund more support services for women fleeing domestic violence.

Source: https://www.abc.net.au/news/2018-01-08/violence-against-women-in-png-an-emergency-watchdog/9283286.

Case study review

1. Outline reasons for women staying with abusive partners in Papua New Guinea.
2. In 2017, there were no women in the government of Papua New Guinea. Explain how having women represented in the government could improve health status among women in Papua New Guinea.
3. Explain how inequality and discrimination based on sex contributes to poverty in countries like Papua New Guinea.

Of the 280 000 women who die each year from complications during pregnancy, 99 per cent are in low- and middle-income countries. Women are often neglected with regard to healthcare and other services and essential supplies, and this increases mortality rates.

The next sections explore the impact of two particularly significant issues for females in low- and middle-income countries; forced marriage and female genital mutilation.

Forced marriage

Forced marriage occurs when one or both of the parties is married against his or her will. Forced marriage is considered a violation of human rights and viewed by some as a form of slavery.

Although outlawed in many countries, forced marriage still occurs and can have devastating consequences for those involved, particularly females. Over 13 million girls under the age of 18 are estimated to be forced into marriage each year, quite often with much older men.

When girls are forced into marriage, they are often withdrawn from school and regularly become pregnant before their bodies are adequately developed to deal with pregnancy and childbirth. As a result, pregnant girls are more likely to experience conditions such as obstetric fistula (see the following boxed text on this condition) and other complications such as excessive bleeding, due to their pregnancy. Although not as common in high-income countries, maternal mortality is a leading cause of death for females aged 15–19 in low- and middle-income countries.

Obstetric fistula is caused by prolonged obstructed labour when a female will spend days in labour without any medical help or pain relief. If the female survives this ordeal, the baby will be stillborn and the internal injuries sustained by the mother can cause internal holes in the vaginal walls, bladder and rectum. This causes the female to develop urinary incontinence and sometimes bowel incontinence as well.

Many fistula survivors are abandoned by their husbands, rejected by their society and forced to live a life of shame and despair. They may spend the rest of their lives as destitute outcasts unless they can access healthcare to repair the damage.

Child brides face a higher risk of contracting HIV/AIDS because they often marry older men with greater sexual experience. For example, girls aged 15–19 are two to six times more likely to contract HIV/AIDS than boys of the same age in sub-Saharan Africa.

Child brides are less likely to be educated and more likely to live in poverty, further increasing the risk of numerous impacts on health and wellbeing and health status.

Female genital mutilation

Female genital mutilation (FGM) describes procedures that intentionally alter or cause injury to the female genital organs for non-medical reasons. Knives, scissors, scalpels, pieces of glass or razor blades are used to cut or remove tissue such as the clitoris from the genitals. FGM is carried out in over 25 countries around the world on girls between infancy and the age of 15. In some countries such as Somalia, Egypt and Gambia, up to 90 per cent of females have been subjected to FGM.

FGM is often carried out in the name of cultural or religion, but no religion specifies that this procedure should occur.

UNICEF estimates that over 200 million females live with FGM and up to 3 million girls are thought to be subjected to this practice each year. Having no benefit for women or girls, FGM can cause severe pain, excessive bleeding (haemorrhage), infections, shock, psychological problems and death.

8.7.4 Sexual orientation and its affect on health status and burden of disease

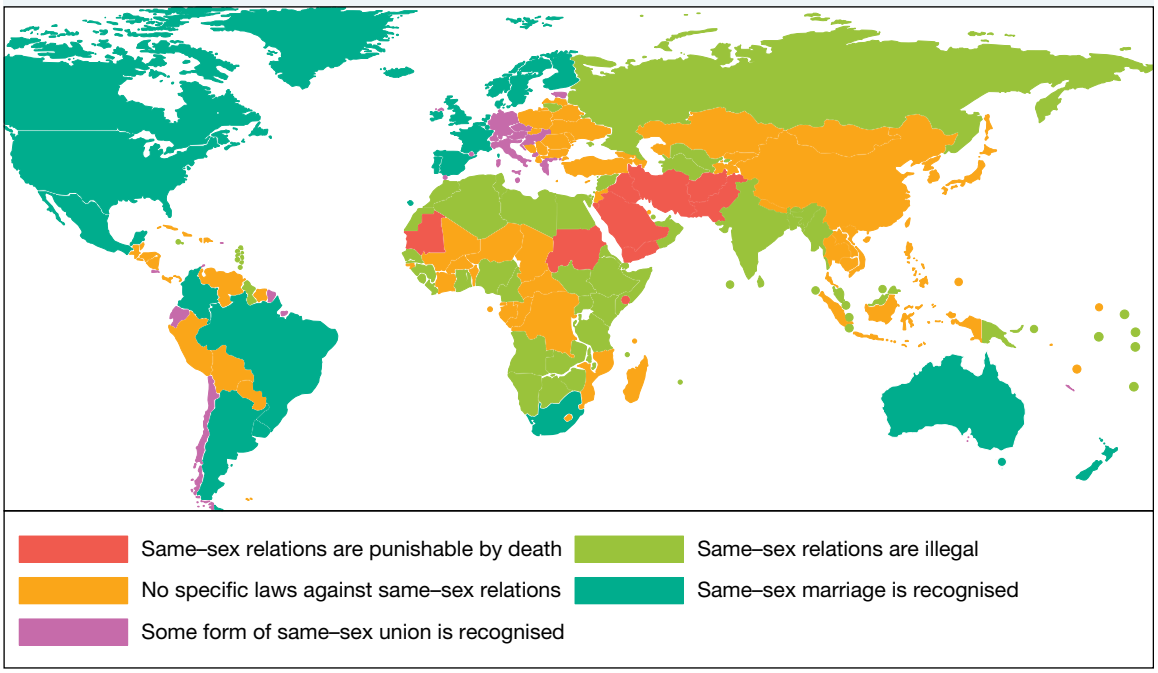
Sexual orientation describes the sex that an individual is sexually and romantically attracted to. It is also associated with discrimination and inequality around the world.

Classifications of sexual orientation include heterosexual (those attracted to members of the opposite sex); homosexual — usually described as gay (males who are attracted to males) or lesbian (females who are attracted to females); bisexual (attracted to both sexes); or asexual (not attracted to either sex).

Those who do not identify as heterosexual are often subjected to discrimination, including being:

- refused jobs
- refused opportunities for education
- refused healthcare
- subjected to sexual assault
- subjected to physical beatings
- subjected to criminal proceedings
- subjected to the death penalty (see figure 8.51).

FIGURE 8.51 Legal status relating to sexual orientation and acts

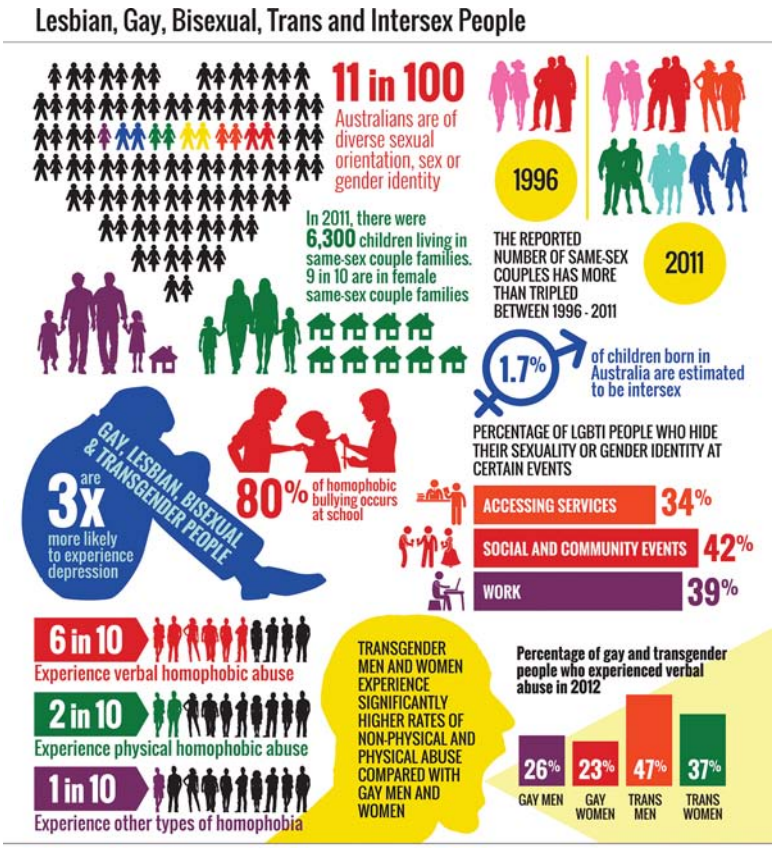


Source: Data source from International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA) 2017, *State sponsored homophobia 2017: a world survey of sexual orientation laws: criminalisation, protection and recognition*, p. 193.

8.7.5 Gender identity and its affect on health status and burden of disease

Gender identity describes how individuals perceive themselves as male, female, a blend of both, or neither. One's gender identity can be the same or different from the sex assigned at birth. People can be cisgender (a person whose gender identity is consistent with the sex assigned to them at birth), transgender (a person who identifies with the opposite sex to that assigned to them at birth) or gender non-conforming individuals (individuals who do not identify as either gender, or identify with a combination of both male and female genders).

FIGURE 8.52 Infographic relating to sexual orientation and gender identity



Source: © Australian Human Rights Commission 2019.

Individuals who are transgender or gender non-conforming are at higher risk of discrimination in most societies and experience:

- higher rates of mental disorders
- higher rates of physical and sexual assault
- increased rates of self-harm including suicide.

Gender identity should not be confused with sexual orientation. Sexual orientation refers to the sex that an individual is sexually and romantically attracted to, while gender identity describes how individuals perceive themselves.

8.7 Activity

Access the **Girl effect** weblink and worksheet in the Resources tab then complete the worksheet.

8.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Briefly explain the difference between 'discrimination' and 'inequalities in health status'.
2. (a) What is meant by 'human rights'?
   (b) Identify four groups who experience discrimination globally.
3. (a) Explain what is meant by 'racial discrimination'.
   (b) Discuss how racial discrimination can impact on burden of disease.

4. Explain what is meant by 'displacement'.
5. Outline the impacts that religious discrimination can have on health and wellbeing and health status.
6. Explain the difference between sexual orientation and gender identity.
7. Explain how gender equality impacts burden of disease in Australia compared to low-income countries.
8. Use figure 8.52 to answer the following questions.
   (a) What proportion of Australians are thought to be of diverse sexual orientation or gender identity?
   (b) What change was there in the number of same-sex couples between 1996 and 2011?
   (c) What proportion of LGBTI (lesbian, gay, bisexual, transgender and intersex) had hidden their sexuality or gender identity when accessing services? How could this impact on health and wellbeing?
   (d) How much more likely are gay, lesbian, bisexual, transgender people to experience depression?
   (e) What types and rates of abuse are experienced by those with diverse sexual orientation or gender identity?

8.7 Exercise 2 APPLY your knowledge

1. Explain two ways that displacement of people from their homes can impact:
   (a) health and wellbeing
   (b) health status
   (c) burden of disease.
2. Do you think the status of women in Australia is the same as it is for men? Explain.
3. Explain how sexual orientation and gender identity can contribute to variations in health status within countries.

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8.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Girl effect worksheet (doc-32220)
Weblink Girl effect

8.8 Global distribution and marketing of tobacco, alcohol and processed foods as factors affecting health status and burden of disease

KEY CONCEPT Understanding how the global distribution and marketing of tobacco, alcohol and processed foods contribute to similarities and differences in health status and burden of disease

Improving technology has led to a decrease in barriers to communication, trade, transport and other forms of contact. The result has been increased **globalisation**. Globalisation makes it easier for companies to distribute, market and sell their services and products in all corners of the globe. While some services and products can enhance health status, including certain pharmaceuticals and improved farming techniques, others can be detrimental to health status, including tobacco, alcohol and processed foods.

8.8.1 Tobacco

In recent decades, many tobacco manufacturers have been targeting low- and middle-income countries in an attempt to make up lost revenue experienced in high-income countries. The laws, taxes, regulations and public awareness campaigns that operate in many high-income countries such as Australia are often non-existent in low- and middle-income countries. As smoking rates have decreased in many high-income countries as a result of these interventions, distribution and **marketing** has increased in low- and middle-income countries in an attempt to increase global sales.

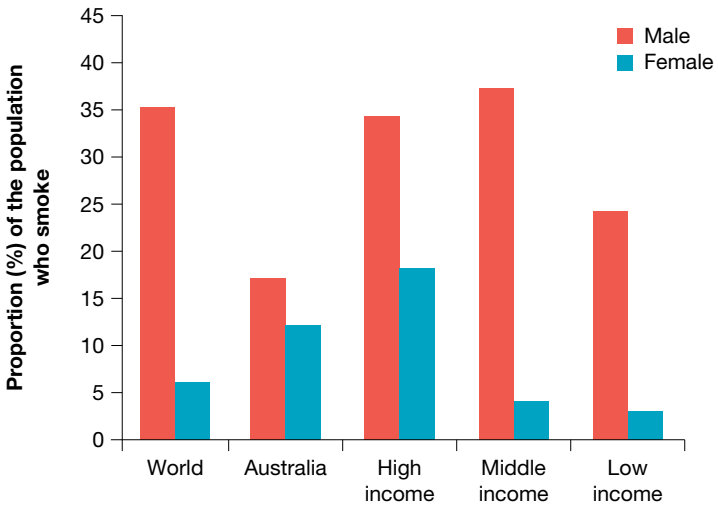
FIGURE 8.53 Tobacco companies have targeted low- and middle-income countries, leading to an increase in tobacco use among populations in these countries.



According to the WHO, tobacco use is growing fastest in low-income countries — 80 per cent of the world's 1.1 billion smokers now live in low- and middle-income countries. It has been estimated that more than 80 per cent of the world's tobacco-related deaths will be in low- and middle-income countries by 2030 (*WHO Report on the Global Tobacco Epidemic*, 2008).

In India, almost one-quarter of deaths among middle-aged men are caused by smoking. In addition, it has been predicted that as many as 100 million Chinese men currently under 30 years of age will die from tobacco use. The increasing rates of women smoking in low- and middle-income countries is also a concerning trend. In the past, smoking has traditionally been considered a male activity. As a result, tobacco companies have invested heavily, trying to tap into the female market through advertising and promotion. Children have also been influenced by advertising campaigns in low- and middle-income countries, and rates of children who smoke have increased. The ability to purchase single cigarettes in many low- and middle-income countries has contributed to this trend because it makes the purchase of tobacco more affordable for those living in poverty.

FIGURE 8.54 Prevalence of tobacco use for those aged 15 and over, 2017



Source: WHO report on the global tobacco epidemic, 2017: monitoring tobacco use and prevention policies. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.

Low- and middle-income countries often have rapid population growth and developing economies, which brings new wealth and a desire to be more like western cultures. These factors, as well as lack of education, tobacco industry distribution and marketing, and lack of health promotion interventions, are leading to an increase in both the rate of smoking and number of smokers in low- and middle-income countries.

In Australia, interventions by governments and non-government organisations, including advertising and packaging laws, increased taxation on cigarettes, and laws restricting smoking in public places, have led to a decrease in smoking rates. Despite these improvements, as in many low- and middle-income countries, tobacco smoking is still a major concern in Australia (see figure 8.54).

Global distribution and marketing of tobacco and its affect on health status and burden of disease

Higher rates of smoking in low- and middle-income countries is contributing to an increased burden of disease, particularly an increase in premature death. Many of these are the result of cancer, cardiovascular disease and respiratory conditions associated with smoking.

Tobacco smoking can also affect health status and burden of disease in low- and middle-income countries indirectly. As financial resources are often scarce, money that is spent on tobacco may leave less money available to spend on food, clothing, education and basic healthcare. This increases the risk of conditions that are not necessarily caused by tobacco use itself, such as infectious diseases.

FIGURE 8.55 As many as 100 million Chinese men currently under 30 will die from tobacco use.



8.8.2 Alcohol

Global alcohol consumption has increased in recent decades, with most or all of this increase occurring in low- and middle-income countries (*World Health Report*, 2002). Like tobacco companies, alcohol manufacturers are increasingly marketing their products towards people in low- and middle-income countries. Many alcohol producers would have neglected this market in the past, but low- and middle-income countries now provide them with an additional source of income. Alcohol use is associated with about 3.5 per cent of global deaths and the impact of alcohol use will increase in low- and middle-income countries if this trend continues.

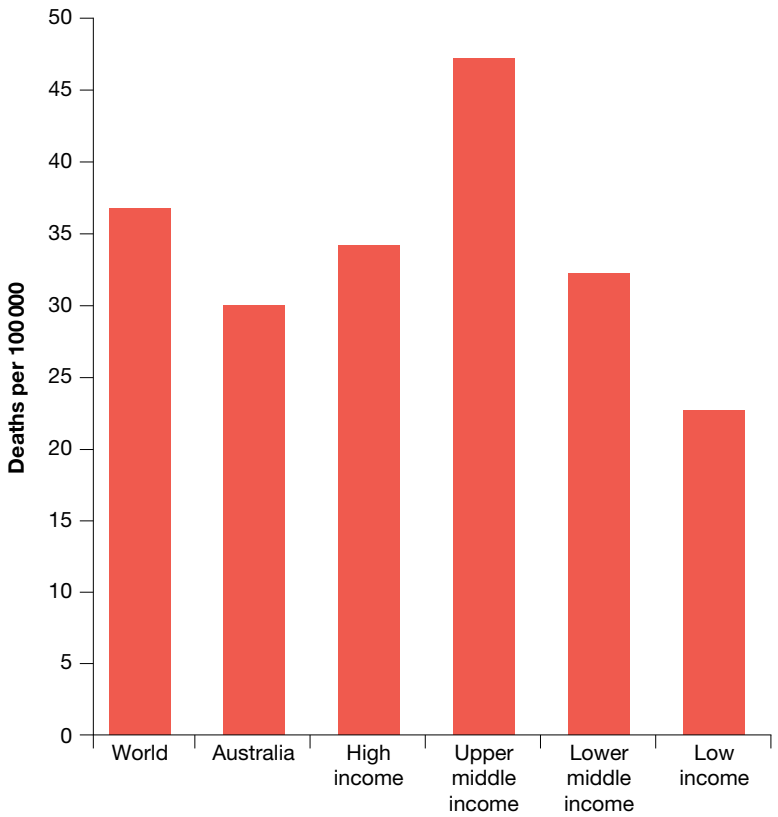
As in many low- and middle-income countries, alcohol consumption is a significant concern in Australia (see figure 8.56). This is despite education and public awareness campaigns relating to alcohol misuse. However, accessibility of healthcare in Australia may reduce the measurable impact of alcohol misuse compared with that in low- and middle-income countries.

Global distribution and marketing of alcohol and its affect on health status and burden of disease

Low- and middle-income countries experiencing an increase in alcohol consumption are often those that have no cultural relationship with alcohol consumption and lack the resources to educate the population about alcohol, or to control alcohol consumption and care for those suffering the negative effects associated with excessive drinking, such as liver disease, cardiovascular disease and cancer. Alcohol misuse can dominate people's lives, which decreases the opportunities for them to lead healthy lives.

As for tobacco, if an individual's limited income is spent on alcohol, there may be less available to spend on food, clothing, shelter and healthcare. This directly impacts on the standard of living and increases the burden of disease.

FIGURE 8.56 Mortality rate per 100 000 due to alcohol consumption, 2017



Source: https://vizhub.healthdata.org/gbd-compare/.

8.8.3 Processed foods

Processed foods relate to any food items that have been deliberately changed before being made available to eat. Food processing can be as basic as drying or freezing a food to maintain freshness, or as complex as creating a food item from a range of ingredients such as a jar of pasta sauce, a cake mix or a microwave meal. Many processed foods are healthy and safe to consume on a regular basis, such as canned fruit and frozen vegetables. Others contain significant amounts of added salt, sugar and/or fat and should be consumed only sometimes and in small amounts, such as frozen pizzas, fast food hamburgers and French fries.

It is generally the unhealthier processed foods that are actively marketed to consumers and contribute to a range of negative health outcomes.

Global distribution and marketing of processed food and its affect on health status and burden of disease

Companies producing processed foods have been marketing their products in low- and middle-income countries for years. Increasing incomes, and the migration of many people from rural areas to major cities, has increased access to processed foods, while the marketing of these products has increased their consumption in many low- and middle-income countries. As a result, many people have neglected their traditional diets, which are often low in fat, for westernised foods. These are often high in fat, salt and/or sugar and contribute to a more energy-dense diet (see table 8.3). This is contributing to an increased incidence of lifestyle diseases such as obesity, hypertension and cardiovascular disease.

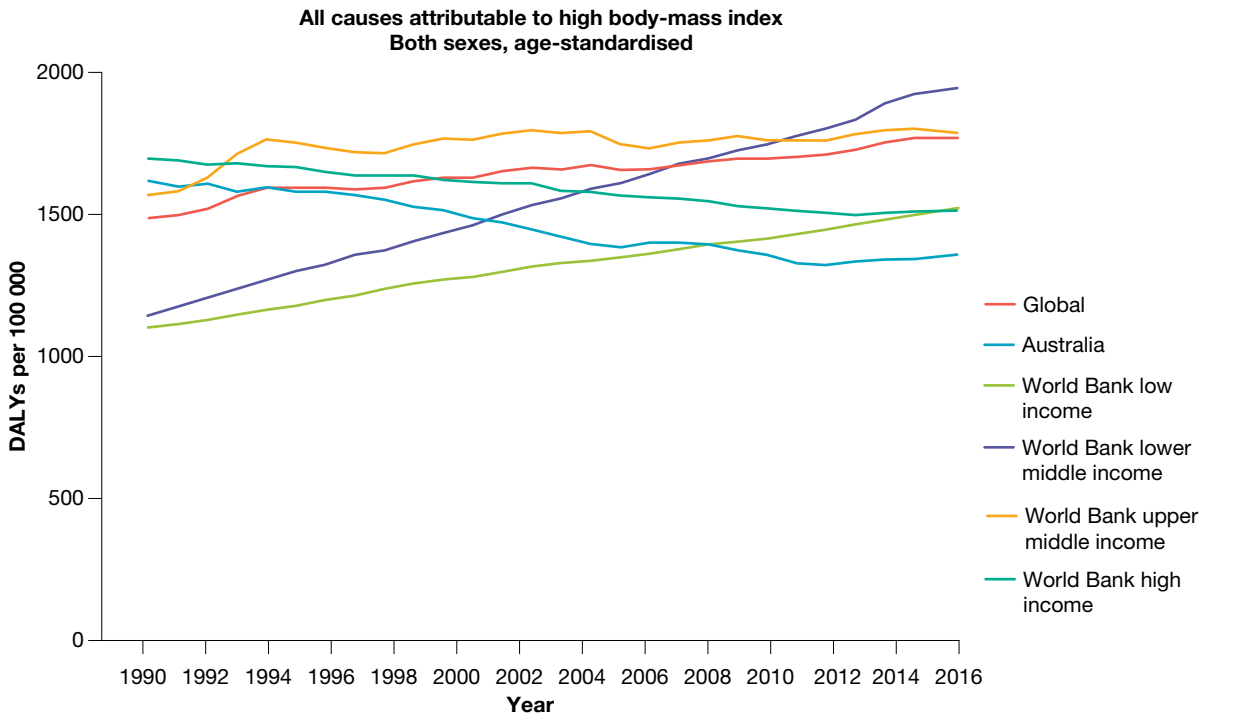
Processed foods have been marketed in Australia for many years and have contributed to the high rates of overweight, obesity and related conditions such as cardiovascular disease and type 2 diabetes experienced

in this country. According to the WHO, these causes of burden of disease are on the rise in low- and middle-income countries (see figure 8.57). The rates of obesity among people of high socioeconomic status in Brazil and India are now comparable with the United States and Australia. Higher rates of obesity will result in higher rates of the associated conditions including cardiovascular disease, hypertension and diabetes. The WHO predicts the incidence of stroke deaths will double in the low- and middle-income countries over the next 20 years. China is already experiencing the effects of Westernised diets, with more than one million people dying of stroke each year. High salt intake is thought to be largely responsible for this trend.

TABLE 8.3 Global and regional per capita food consumption (kJ per capita per day), actual and estimated

Region	1964–66	1974–76	1984–86	1997–99	2015	2030
World	9 865	10 188	11 109	11 728	12 301	12 761
Low- and middle-income countries	8 594	9 004	10 251	11 217	11 924	12 468
High-income countries	12 330	12 824	13 414	14 142	14 403	14 644

FIGURE 8.57 DALY per 100 000 people due to high body mass index over time



Source: Adapted from http://vizhub.healthdata.org/gbd-compare.

Many low- and middle-income countries now face a 'double burden' of disease. They are still experiencing high rates of undernutrition and other conditions associated with poverty such as infectious diseases in addition to increasing rates of conditions associated with wealth such as obesity and cardiovascular disease. Quite often, the effects of obesity and undernutrition exist side by side in the same community. Chronic disease associated with a high intake of processed foods also impacts health status. For example, people with diabetes or cardiovascular disease may not be able to earn an income, which reduces

their standard of living and may further increase their risk of chronic illness and premature death. Under-resourced health systems in many low- and middle-income countries mean that treatment for conditions related to obesity may not be available, further contributing to mortality rates that are already higher than those in high-income countries.

FIGURE 8.58 Many companies have been marketing their products in low- and middle-income countries for years, contributing to a range of impacts on health status.



8.8 Activity

Access the **Tobacco marketing** weblink and worksheet in the Resources tab then complete the worksheet.

8.8 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) Explain what is meant by the term 'globalisation'.
   (b) With a partner, brainstorm ways that globalisation could improve health status in low- and middle-income countries.
2. Explain the term 'global marketing'.
3. Outline three reasons for increasing rates of tobacco use in low- and middle-income countries.
4. Explain why tobacco companies have been specifically targeting low- and middle-income countries.
5. Discuss how excessive alcohol consumption could impact the burden of disease in Australia.
6. (a) According to figure 8.56, which income group has the highest rate of deaths per 100 00 attributable to alcohol consumption?
   (b) Suggest reasons that might account for the higher rate of death attributable to alcohol consumption in these countries.
7. (a) Explain what is meant by 'processed foods'.
   (b) Are all processed foods unhealthy? Explain.

8. (a) Graph the energy intake for the world, high-income countries and low- and middle-income countries using the data from table 8.3.
   (b) Describe two trends from your graph.
   (c) Suggest reasons for the trends identified in part (b).
   (d) Explain how these trends could impact on health status and burden of disease in both high-income and low- and middle-income countries.

8.7 Exercise 2 APPLY your knowledge

1. (a) Outline the difference in tobacco use rates for males and females in Australia compared to middle-income countries.
   (b) Suggest reasons that might account for the differences identified in part (a).
2. Discuss how tobacco use could contribute to poverty in low- and middle-income countries.
3. (a) Use figure 8.57 to compare the rate of DALY due to high body mass index between Australia and low-income countries over time.
   (b) Suggest reasons that may account for the difference in part (a).

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8.8 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Tobacco marketing worksheet (doc-32221)
Weblink Tobacco marketing

8.9 Topic 8 review

8.9.1 Key skills

KEY SKILL Describe characteristics of high-, middle-, and low-income countries

In order to describe characteristics of high-, middle- and low-income countries, a range of factors relating to each characteristic (economic, social and environmental) should be known.

It is important to remember that there are variations within and between countries in each income group, so making definite statements should be avoided. For example, it is incorrect to say: 'People in low-income countries are not educated, whereas those in high-income countries are.' Although differences in education are a social characteristic of high-, middle- and low-income countries, this statement implies that no-one in low-income countries is educated and everyone in high-income countries is, which is not true.

A more accurate statement would be: 'People in low-income countries are less likely to be educated than those in high-income countries.' As a general rule, phrases such as 'more (or less) likely to', 'higher (or lower) levels of', 'experience higher (or lower) rates of' ensure that the statement is not applied to every person within an income group.

Further, the characteristic should be phrased in relation to the focus of the question. For example, if the question asks for a social characteristic of a low-income country, simply using the term 'education' does not provide the context required to be considered a correct answer. 'Lower levels of education' would be appropriate in this instance. For high-income countries 'high levels of education' would be acceptable. If a comparison between two types of countries is required, both countries should be referenced in the answer.

Each characteristic should be understood in enough detail to describe what it relates to. In the following example, gender equality is described and the differences in gender equality between high-, middle- and low-income countries are discussed.

Gender equality exists when both males and females experience the same opportunities in the society in which they live.[1] This relates to education, employment, income and decision making that affect them. In high-income countries like Australia, women generally have the same opportunities as males and have greater choice in aspects of their life such as education and employment. In many middle- and low-income countries, however, females do not have the same opportunities as males in society.[2] Females may have limited opportunities for education and often work in fields tending crops and/or spend significant time collecting water and preparing meals.[3]

1 Gender equality is described.

2 A comparison between Australia and low- and middle-income countries is made.

3 Specific effects of gender inequality are provided.

Practise the key skill

1. Describe one economic and one environmental characteristic common among high-income countries.

KEY SKILL Evaluate data to analyse similarities and differences between countries in relation to health status and burden of disease

Data analysis and evaluation is the focus of this key skill. Data may come in the form of tables, maps, charts, infographics and other graphs. As well as being able to use and interpret the data, it is important to be able to make statements about health status and burden of disease and the similarities and differences that occur between Australia and middle- and low-income countries. In order to do this effectively, it is necessary to have a thorough knowledge of the concepts of health status and burden of disease (including knowledge of the differences that occur in health status and burden of disease within and between countries).

Refer to the key skill 'Use data to describe and evaluate the health status of Australians' in section 2.6.1 for an explanation of interpreting data and evaluating the health status of Australians.

Once the data are evaluated and statements made, possible reasons for the similarities and differences can be explored.

Table 8.4 shows selected indicators for Australia and Brazil. By using the data presented in this table, it is possible to describe the health status of Australia compared with Brazil and explain possible reasons for a similarity and difference as shown in the data.

TABLE 8.4 Selected health indicators for Australia and Brazil

	Life expectancy, 2016		Under-five mortality rate, per 1000 live births, 2016	Adult literacy rates	% of total DALY attributed to:		
					Communicable diseases	Injuries	Non-communicable diseases
	Males	Females					
Australia	81.0	84.8	3.7	99*	4.11	12.72	83.17
Brazil	71.4	78.9	15.1	91.7	13.89	15	71.1

**Assumed rate for Australia.*
Source: WHO and World Bank data.

A suggested approach is as follows:

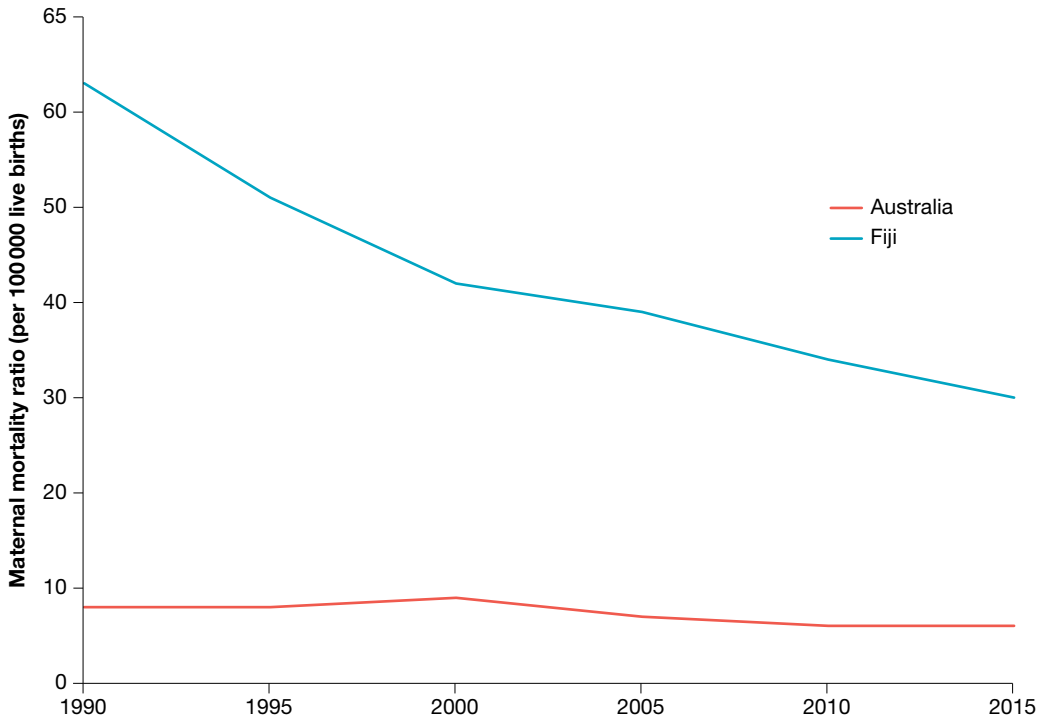
Health status in Australia is better than that in Brazil according to the data presented in table 8.4.[4] The under-five mortality rate is lower in Australia than Brazil at 3.7 and 15.1 deaths per 1000 live births respectively.[5] Safe water and sanitation may be more readily available for those in Australia compared to those in Brazil, which can contribute to this difference.[6] Children are often the most susceptible to conditions, such as cholera and dysentery, which can occur when clean water and sanitation are not readily available. These conditions can cause death and may contribute to the difference in the under-five mortality rate between the two countries.[7] In both Australia and Brazil, non-communicable diseases contribute to the greatest proportion of DALYs (83.17 per cent and 71.1 per cent of total DALY respectively).[8] The marketing of processed foods in Australia and Brazil may contribute to deaths associated with non-communicable diseases such as cancer and cardiovascular disease. This factor could contribute to these two countries experiencing these conditions as the leading causes of death.[9]

4 A general statement about the overall health status experienced in the two countries is made.
5 A specific difference is identified, with evidence from the table used to support the statement. Use specific figures where appropriate.
6 A possible reason for the difference is identified.
7 Possible differences in water and sanitation are used to explain the difference in the under-five mortality rate.
8 A similarity is identified with supporting evidence from the table included.
9 A possible reason is identified and linked to the similarity provided.

Practise the key skill

2. Figure 8.59 shows the maternal mortality ratio over time in Australia and Fiji, an upper middle-income country. Using data from the graph, outline one similarity and one difference between Australia and Fiji.

FIGURE 8.59 Maternal mortality ratio (per 100 000 live births) in Australia and Fiji over time



Source: Adapted from World Bank Data, 2017.

KEY SKILL Analyse factors that contribute to health status and burden of disease in different countries and discuss their impact on health and wellbeing

The factors set out in the study design are the ones that should form the focus of this key skill. They are:

- access to safe water
- sanitation
- poverty
- inequality and discrimination (race, religion, sex, sexual orientation and gender identity)
- global distribution and marketing of tobacco, alcohol and processed foods.

In addition to familiarity with these factors, it is necessary to be able to explain key aspects of each factor and how they contribute to health status and burden of disease. In particular, it is important to understand how these factors contribute to the differences and similarities in health status and burden of disease in Australia when compared with low- and middle-income countries.

This skill also requires links to be made between each factor and aspects of health and wellbeing (physical, social, emotional, mental and/or spiritual).

In the following example, poverty is first described. Then it is discussed in relation to its impact on health status and burden of disease, and the associated impacts on health and wellbeing in low-income countries compared to Australia.

Poverty relates to deprivation of resources and often occurs as a result of low income.[10] Poverty can be measured using extreme poverty, which is a measure of the proportion of the population living on less than US$1.90 per day. It can also be measured using relative poverty, which is a measure of the proportion of a population living on less than 50 per cent of the average income of the country in which they reside.[11]

10 The meaning of poverty is stated.

11 Two measures of poverty are identified and explained.

Poverty in low-income countries is more prevalent than in high-income countries like Australia. This means that those in low-income countries are less able to afford products that can enhance health status and reduce burden of disease including food, safe water and healthcare.[12] As a result, those in low-income countries are more susceptible to conditions, such as diarrhoeal disease, which contribute significantly more DALY in low-income countries from under-five and maternal mortality[13] compared to Australia, where the ability to access these resources is greater, due to higher average incomes.

12 Factors that link poverty to burden of disease are identified to make the eventual link to burden of disease more meaningful.

13 Specific links to health status and burden of disease are provided.

From an individual perspective, poverty can mean that families do not have enough food to eat. This can lead to not having enough energy[14] to complete daily tasks such as going to school, which is an aspect of physical health and wellbeing.[15] Poverty can mean that children cannot attend school. This can mean that they do not have the opportunity to socialise with children their own age, which impacts social health and wellbeing. If individuals are not able to participate in activities such as education, employment and recreation due to poverty, they may feel that they are not connected to the world they live in, which is an aspect of spiritual health and wellbeing.[16]

14 A specific link is made between poverty and physical health and wellbeing.

15 The dimension of health and wellbeing is identified.

16 Links are also made to two other dimensions of health and wellbeing, showing a greater level of understanding than linking to one dimension only.

Practise the key skill

3. Explain what is meant by ‘sanitation’.
4. Explain how sanitation can contribute to variations in health status and burden of disease between low-income countries and Australia.
5. Explain how sanitation can promote the health and wellbeing of females globally.

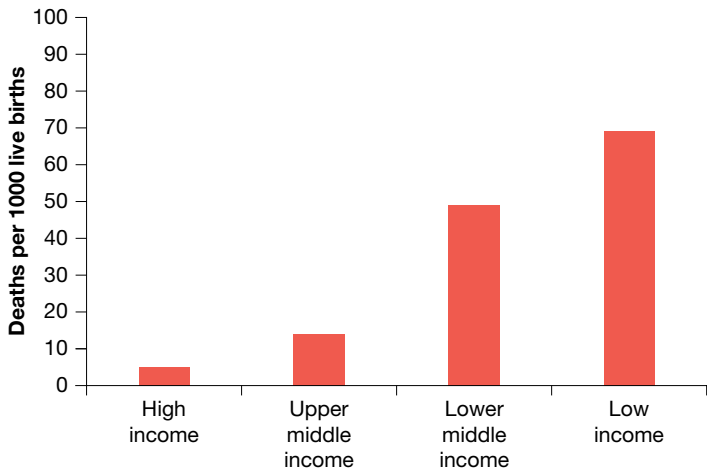
KEY SKILL Compare health data and other information to analyse reasons for health inequalities within and between nations

This skill requires the interpretation of information. The information can come in the form of data or other formats such as case studies.

The information will provide stimulus that can be used to analyse reasons for health inequalities within and between countries. The information may relate to health outcomes, such as life expectancy, or factors that contribute to differences, such as discrimination and access to safe water.

The following discussion uses data in figure 8.60 to explain the relationship between average income and under-five mortality, and then discusses reasons for the relationship.

FIGURE 8.60 Under-five mortality rate (per 1000 live births) in World Bank income groups, 2017



Source: Adapted from https://data.worldbank.org/indicator/SH.DYN.MORT.

As average income decreases, the rate of under-five deaths increases.[17] For high-income countries, the under-five mortality rate is around 5 per 1000 live births. This increases to around 15 per 1000 live births for upper middle-income, 50 per 1000 live births for lower middle-income and 70 per 1000 live births for low-income countries.[18]

Higher average incomes in high-income countries increase the capacity of people to afford resources such as food.[19] Adequate food promotes immune system function and assists in fighting off infectious diseases, which are a leading cause of death for children under-five globally.[20] In low-income countries, low average incomes prevent many people from accessing these resources, which contributes to the higher rates of mortality for those aged under five.[21] Compared to those in high-income countries,

17 The relationship between average income and under-five morality is stated.

18 Data with the correct unit are used to clarify the relationship.

19 A link between average income and food availability is established.

20 The relationship between food intake and under-five mortality is described.

21 A comparison between low- and high-income countries is presented.

governments in low-income countries are less able to afford installing infrastructure such as safe water and sanitation systems.[22] As a result, many children are forced to drink unsafe water, increasing their risk of diseases including diarrhoeal diseases, which are leading causes of under-five deaths.[23]

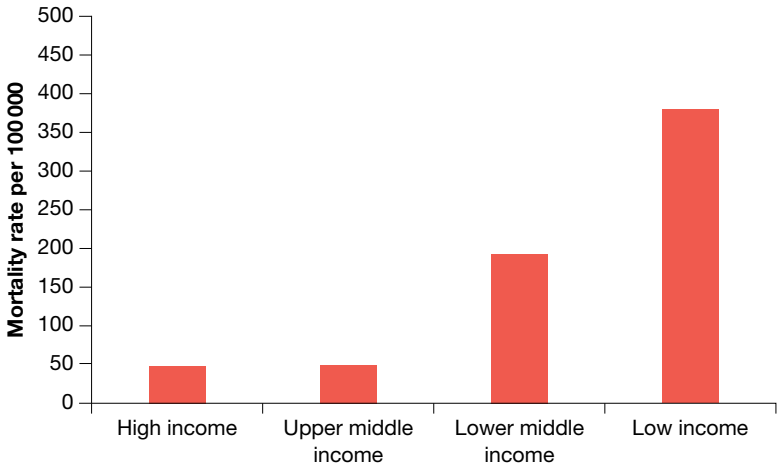
22 The relationship between average income and the provision of infrastructure is stated.

23 Infrastructure, and specifically, access to water and sanitation, is used to provide a reason for the relationship stated at the beginning of the response.

Practise the key skill

6. Figure 8.61 shows the mortality rate for communicable (infectious) diseases in the World Bank income groups.
   a. Using data, outline the difference in mortality rates due to communicable diseases between low- and high-income countries.
   b. Identify two factors and explain how each may contribute to the difference outlined in part (a).
7. Rates of depression are higher for transgender people compared to cisgender. Discuss possible reasons for this difference.

FIGURE 8.61 Mortality rate due to communicable diseases (per 100 000) World Bank income groups, 2017



Source: Adapted from http://vizhub.healthdata.org/gbd-compare.

8.9.2 Topic summary

Economic characteristics of high-, middle- and low-income countries

- Countries can be classified as high-, middle- and low-income.
- There are many characteristics common to high-, middle- and low-income countries, including economic, social and environmental characteristics.
- Most of the world's population live in low- and middle-income countries.
- Economic characteristics of high-income countries include low levels of poverty, a wide range of industries, opportunities for global trade and high average incomes.

Social and environmental characteristics of high-, middle- and low-income countries

- Social characteristics of high-income countries include higher levels of gender equality, low birth rates and population growth, high levels of employment, high levels of education, developed social security systems, developed health systems, access to technology and developed legal systems.
- Environmental characteristics of high-income countries include access to safe water and sanitation, food security, adequate housing, adequate infrastructure and high levels of carbon dioxide emissions.

Similarities and differences in health status and burden of disease in low-, middle- and high-income countries

- Low- and middle-income countries are more susceptible to fluctuations in their health status.
- Low- and middle-income countries generally have lower life expectancy and higher death rates than high-income countries.
- Child and adult mortality rates are higher in low- and middle-income countries than they are in Australia.
- As the average income decreases, so does health status. Low-income countries, for example, experience worse health status than middle- and high-income countries.
- Low- and middle-income countries experience much higher rates of communicable disease such as HIV/AIDS and malaria.
- Many low- and middle-income countries are experiencing economic growth and have a small percentage of wealthy people. As a result, they experience a 'double burden'. While dealing with the issues of a low-income country (such as lack of clean water and communicable diseases), they also have to deal with diseases of affluence that usually affect high-income countries (such as cardiovascular disease and obesity).

Access to safe water and sanitation as factors affecting health status and burden of disease

- Clean water is required for a range of human functions. Lack of access to safe water contributes to the high rates of infectious diseases and premature death in low- and middle-income countries.
- Sanitation relates to the safe removal of human waste from the immediate environment. Around a third of the world's population lack access to adequate sanitation, contributing to higher rates of infectious diseases and U5MR.

Poverty as a factor affecting health status and burden of disease

- Millions of people in low- and middle-income countries live on less than US$1.90 per day, which contributes to poor health status by limiting access to food, water, healthcare, education and shelter.

Inequality and discrimination as factors in health status and burden of disease

- These minority population groups are often discriminated against in education, employment and social inclusion, resulting in poorer health status.

Global distribution and marketing of tobacco, alcohol and processed foods as factors in health status and burden of disease

- Low and middle-income countries have been specifically targeted by manufacturers of tobacco, alcohol and processed foods, and this is contributing to an increase in non-communicable diseases in these countries.

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8.9 Exercise 1 Exam preparation

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Question 1

Besides high income, outline one economic, one social and one environmental characteristic of middle-income countries. **(3 marks)**

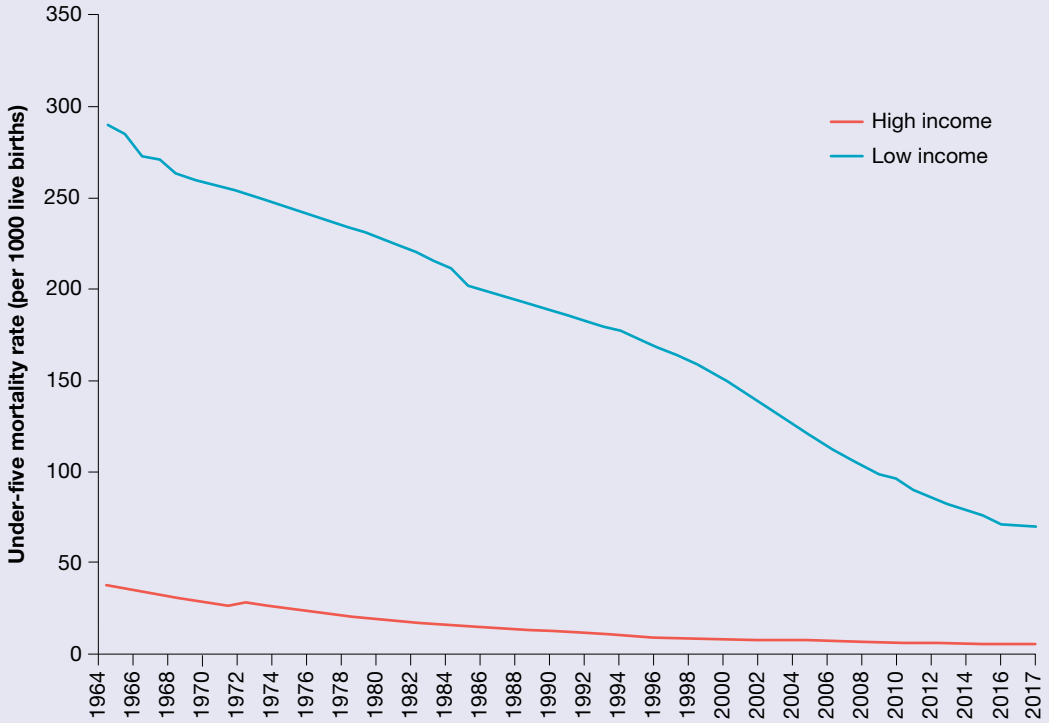
Question 2

Explain how discrimination can contribute to inequality in health status within countries. **(3 marks)**

Question 3

Figure 8.62 relates to the U5MR over time in low- and high-income countries (per 1000 live births).

FIGURE 8.62 Under-five mortality rate (per 1000 live births) in low- and high-income countries over time



Source: http://data.worldbank.org/indicator/SH.DYN.MORT?locations=XM&view=chart.

a. Using data, outline one similarity between low- and high-income countries in relation to the U5MR. **(1 mark)**
b. Identify one factor and explain how it may contribute to the similarity identified in part (a). **(2 marks)**
c. Using data, outline the difference between low- and high-income countries in relation to the U5MR in 2017. **(1 mark)**
d. Identify two factors and explain how each may contribute to the difference identified in part (c). **(4 marks)**

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Interactivities Crossword (int-6893)
Definitions (int-6894)

9 Sustainability and human development

9.1 Overview

Key knowledge

- The concept and dimensions of sustainability (environmental, social, economic) and its role in the promotion of health and wellbeing
- The concept of human development, including advantages and limitations of the Human Development Index

Key skills

- Explain sustainability (environmental, social, economic) and its importance in the promotion of health and wellbeing in a global context
- Explain the Human Development Index and evaluate its usefulness in measuring human development of countries

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 9.1 The sustainable use of resources is an important consideration in promoting health and wellbeing into the future.



KEY TERMS

Biodiversity the variety of different plants, animals and micro-organisms, their genes and the ecosystems of which they are a part

Economic sustainability ensuring that average incomes in all countries are adequate to sustain a decent standard of living and continue to rise in line with inflation and living costs in the future

Ecosystem a community of living things and the non-living components of the environment in which they live. An ecosystem can include plants, animals, micro-organisms, water, air, soil and rocks.

Environmental sustainability ensuring the natural environment is used in a way that will preserve resources into the future

Human development creating an environment in which people can develop to their full potential and lead productive, creative lives according to their needs and interests. It is about expanding people's choices and enhancing capabilities (the range of things people can be and do), having access to knowledge, health and a decent standard of living, and participating in the life of their community and decisions affecting their lives (adapted from the UN Development Programme, 1990).

Human Development Index a tool developed by the United Nations to measure and rank countries' levels of social and economic development. It provides a single statistic based on three dimensions — a long and healthy life, knowledge and a decent standard of living — and four indicators — life expectancy at birth, mean years of schooling, expected years of schooling and Gross National Income per capita.

Non-renewable resources resources that are not replenished in a short period, so once they are used they are not available for future generations. Non-renewable resources include coal, natural gas, petroleum and nuclear substances.

Renewable resources resources that are replenished naturally and over a relatively short period, and include crops, water, oxygen, forests and fish stocks

Social sustainability creating an equitable society that meets the needs of all citizens and can be maintained indefinitely

Sustainability meeting the needs of the present without compromising the ability of future generations to meet their own needs

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9.2 The economic dimension of sustainability

KEY CONCEPT Understanding the concept of sustainability — economic sustainability

Promoting health and wellbeing is the goal of governments, non-government groups and individuals globally. Ensuring improvements in health and wellbeing is sustainable is an important consideration in this process.

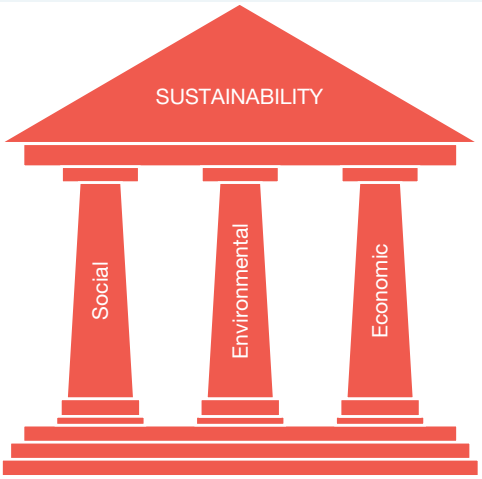
9.2.1 Sustainability

Sustainability is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. This refers to meeting today's needs and planning the country's growth without creating problems or depleting resources for future generations. The United Nations considers

three dimensions of sustainability, which are related to the three types of characteristics of low-, middle- and high-income countries explored in topic 8. Like the characteristics, the three dimensions of sustainability are related and influence each other. For example, sustainable access to clean water (environmental sustainability) can promote social sustainability as girls will not have to spend time collecting water and are more likely to be able to access a decent education. A more educated population will be more innovative in relation to developing new industries (economic sustainability).

The three dimensions are often referred to as the three pillars of sustainability, as they all play a role in achieving overall sustainability (see figure 9.2).

FIGURE 9.2 The three dimensions of sustainability are all important in promoting overall sustainability.



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Teacher-led video Concepts of sustainability (tlvd-0265)

9.2.2 Economic sustainability

This dimension relates to the capacity of future generations to earn an income and the efficient use of resources to allow economic growth over time. Low- and middle-income countries often experience low levels of economic sustainability.

Economic sustainability means ensuring that average incomes in all countries are adequate to sustain a decent standard of living and continue to rise in line with inflation and living costs in the future. Adequate incomes also mean that the government receives more funds through taxation and can provide public services to promote the health and wellbeing of its citizens. There are many ways that economic sustainability can promote health and wellbeing and some examples include:

- *ensuring that all people can earn a decent income*. This allows people to purchase health-promoting resources including food, shelter, education and basic healthcare. This promotes physical health and wellbeing by providing energy and the means to prevent and treat many common conditions. Mental health and wellbeing is also promoted as individuals feel confident that they can provide for their family.
- *increasing the capacity of governments to provide services and infrastructure*. The provision of infrastructure for clean water and sanitation promotes physical health and wellbeing by reducing the risk of infectious diseases. Public education and transport systems promote the ability of people to earn an income in the future, which contributes to positive thought patterns and promotes mental health and wellbeing.
- *ensuring children can stay in school*. Economic sustainability means children will not be forced into labour due to poverty; instead they may remain at school. This promotes social interaction, which is an aspect of social health and wellbeing. Education can assist in providing a sense of meaning and purpose in life, promoting spiritual health and wellbeing.

EXAM TIP

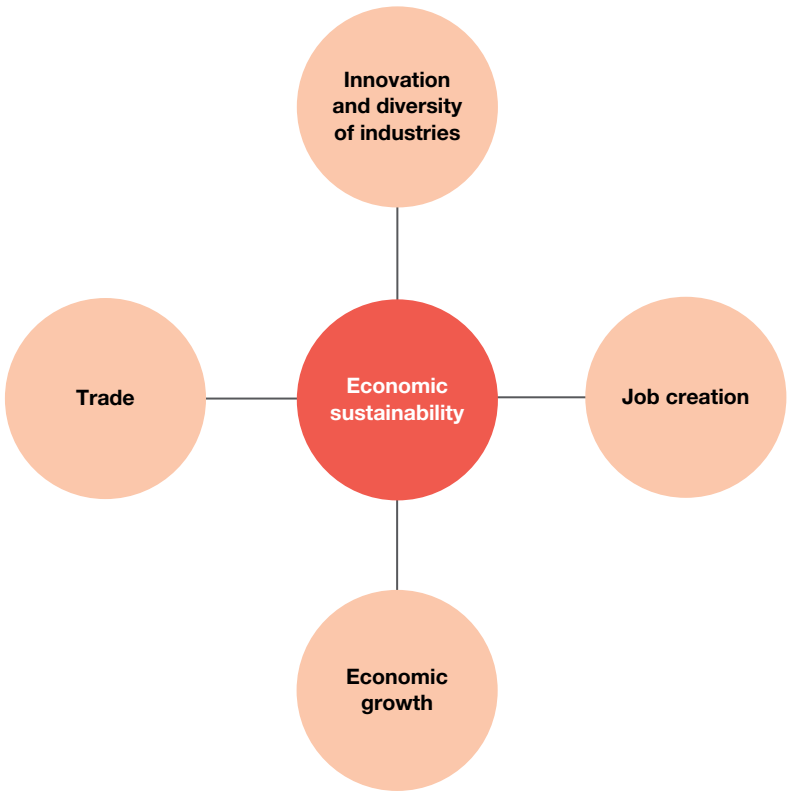
Each dimension of sustainability has the potential to promote health and wellbeing in countless ways and it is not possible to explore each possible impact in this section. It is important to practise making links between the three dimensions of sustainability and the five dimensions of health and wellbeing. Provided the explanation is logical, it will be eligible for marks.

FIGURE 9.3 Economic sustainability increases governments' capacity to build and maintain infrastructure, such as transport systems.



To ensure economic sustainability and the associated benefits for health and wellbeing, consideration must be given to the factors identified in figure 9.4.

FIGURE 9.4 Considerations for economic sustainability

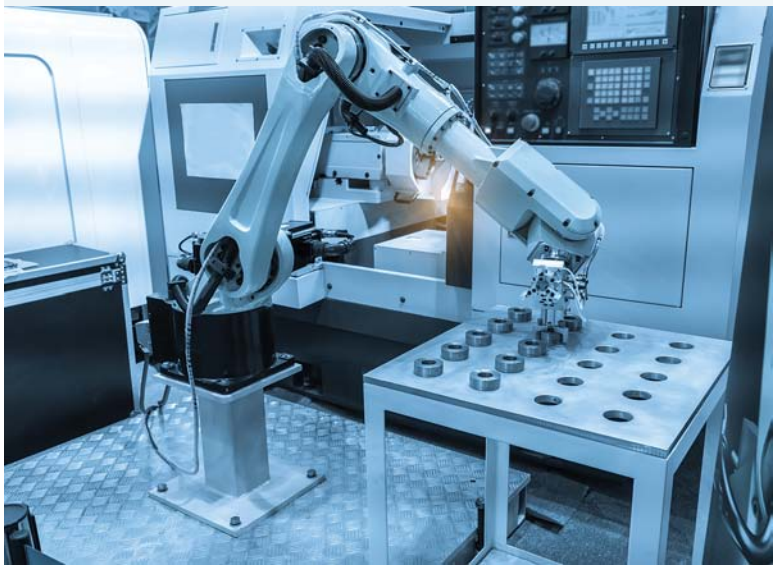


Innovation and diversity of industries

Countries require a range of industries to promote economic growth and stability. Many low- and middle-income countries rely on agriculture as their sole industry, which is heavily dependent on factors such as weather patterns and global markets, which are unstable and can prevent the economy from growing. A range of industries are required to ensure that interruptions to specific industries (such as a drought for the agricultural industry) will not cause economic catastrophe within a country. Research and development is required to establish industries that can provide sustainability and be a vehicle for economic growth.

Diversity of industry is a concern for all countries. Many of the established industries in high-income countries are undergoing significant change due to technological advancements including robotics and automation. As a result, new and innovative industries must be developed to ensure average incomes can be maintained and improved for the next generation.

FIGURE 9.5 Technological advancements, such as robotics, require high-income countries to develop new industries to maintain high average incomes.



Job creation

Job creation is a particular concern in low- and middle-income countries, but all countries experience the negative impacts of unemployment. Adequate employment opportunities are a vital component of economic sustainability because people can earn a wage, avoid poverty and contribute to their country's economy. As the world's population grows, economic sustainability will mean more jobs are required so all people of working age have the opportunity to work. Ensuring industries continue to evolve is an important part of job creation.

Economic growth

Ensuring economic sustainability requires sustained growth in Gross National Income (GNI) per capita to counter the impact of inflation, and to ensure that governments can continue to provide services, infrastructure and developments relating to industry. Although the GNI per capita is growing in most countries, if all people are to share in the benefits of a growing economy, a more equitable distribution of income is required.

Future generations must be able to enjoy the health-related benefits of sustained economic growth; therefore, the means by which economic growth is achieved must be a consideration for the current generation. For example, depleting natural resources such as coal may provide economic growth for the current generation, but this resource will not be available for future generations to use for their own economic growth. Achieving economic growth must not be done in a manner that decreases the ability of future generations to sustain economic growth and enjoy the associated benefits for health and wellbeing.

Trade

Producers in low- and middle-income countries must be able to trade their goods on the global market to increase their incomes and assist in growing their country's economy. In an attempt to keep prices low in high-income countries, producers in low- and middle-income countries have traditionally been paid less than what their products are worth. This unfair trading model has made it difficult for lower income countries to promote their economy and reduce poverty.

Unfair trade prevents poor countries adding value to their exports. Low- and middle-income countries often lack the processing capabilities to turn their raw products into something more valuable. Take coffee, for example. A jar of coffee costs a lot more than the cost of the beans that were required to make it. Much of this difference is due to the production process that the raw coffee beans undergo such as roasting and packaging. If low- and middle-income countries could process the beans themselves, they could make a greater profit. The price coffee producers receive for their raw beans in low- and middle income countries is often not sufficient to develop production industries, which perpetuates the poverty cycle.

FIGURE 9.6 Trade is an important component of economic sustainability.



Fair trade is seen as an opportunity to reverse this pattern. Fair trade is about achieving greater opportunities for international trade, decent working conditions and fair prices for producers in low- and middle-income countries. With a greater focus on fair trade, those in low- and middle-income countries have more opportunities to receive a fair price for their products, which assists in reducing poverty and achieving a more equal spread of wealth around the world. Poverty reduction is an essential component in the promotion of health and wellbeing globally.

9.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) Explain what is meant by the term 'sustainability'.
   (b) Explain why sustainability is an important consideration for promoting health and wellbeing.
2. Identify the three dimensions of sustainability.
3. Explain what is meant by 'economic sustainability'.
4. Explain why the development of new industries is important for low- and middle-income countries.
5. Explain why the development of new industries is important for economic sustainability in high-income countries.

9.2 Exercise 2 APPLY your knowledge

1. Outline the four factors that are important for economic sustainability.
2. Explain one way that each factor outlined in question 1 can promote health and wellbeing.

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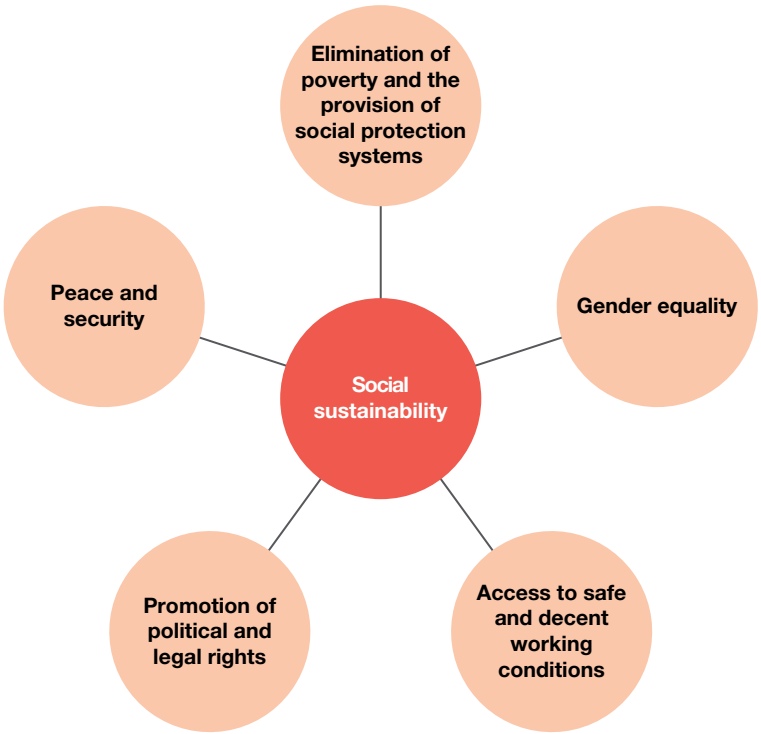
9.3 The social dimension of sustainability

KEY CONCEPT Understanding the concept of sustainability — social sustainability

The focus of **social sustainability** is people's health and wellbeing. Social sustainability can be defined as creating an equitable society that meets the needs of all citizens and can be maintained indefinitely. The underlying aim of social sustainability is to ensure that all people have their human rights upheld, can

participate in the society in which they live, participate in the decisions that affect their lives, and experience equal access to resources such as food, shelter, education, healthcare, employment, clean water, sanitation, clothing, recreation and leisure. To be socially sustainable, progress must lead to improvements in the health and wellbeing of all people over time, especially those who currently experience inequality. To ensure social sustainability, a number of conditions must be available to all people (figure 9.7).

FIGURE 9.7 Considerations for social sustainability



9.3.1 Elimination of poverty and the provision of social protection systems

Globally, hundreds of millions of people live in poverty, with the majority living in low- and middle-income countries. Although the economies of many countries are experiencing growth, unequal access to financial resources continues to create a divide between rich and poor. In order for improvements in health and wellbeing to be sustainable, all people must be able to enjoy the benefits that can accompany economic growth.

Social protection systems provide support for vulnerable people who are unable to earn an income, including as the result of illness or unemployment. Social protection systems assist in providing access to essential resources such as housing, food and basic healthcare. In Australia, income support is available through the federal government body Centrelink. In many low- and middle-income countries, the absence of social protection systems drive vulnerable groups further into poverty.

If poverty is eliminated, all people can access the resources required for a decent standard of living, such as education, food, clean water, adequate housing and sanitation. This promotes health and wellbeing by:

- reducing the risk of infectious diseases and promoting physical health and wellbeing
- increasing mental health and wellbeing as people are less likely to experience stress and anxiety due to limited access to resources such as food and healthcare.
- enabling people to be better equipped to deal with misfortune, which promotes emotional health and wellbeing.

9.3.2 Gender equality

Gender equality is still a significant issue globally. The achievement of optimal health and wellbeing is not possible if half the population is denied human rights and equal opportunities.

Women and girls must be able to access the same opportunities as men and boys in relation to education, employment, leadership and decision making. Gender equality means more educated people working productively, which promotes economic sustainability, an essential component of overall sustainability. As well as contributing to economic growth, gender equality can promote spiritual health and wellbeing, as females feel more a part of the society in which they live if they are socially included. By having more say in their lives, females may feel more satisfied with life, which can promote emotional health and wellbeing.

Gender equality includes the elimination of all forms of discrimination and violence against women and girls. This assists in promoting health and wellbeing in a number of ways, including:

- improved physical health and wellbeing, as women will be less likely to experience injuries as a result of violence
- decreased stress levels, as women will be less worried about the impacts of violence and discrimination, which promotes mental health and wellbeing
- improved social health and wellbeing, as females will be more empowered to make their own decisions about their lives, such as whether and whom they marry.

FIGURE 9.8 Gender equality in education is vital for social sustainability.



9.3.3 Access to safe and decent working conditions

Safe and decent working conditions ensure that all people can access meaningful employment, including women, young people and those with disabilities. Currently, billions of people are either unemployed or working in conditions that violate their basic human rights and destroy their dignity. Extreme poverty and the promise of a better life are often underlying factors in human trafficking, forced labour and child labour. The International Labour Organization (ILO) estimates that, globally, there are around 21 million people in forced labour and around 2.5 million people who have been trafficked and are being subjected to labour exploitation, including sexual exploitation.

FIGURE 9.9 Child labour must be eliminated to achieve social sustainability.



It is estimated that 150 million children between the ages of five and 17 currently work in conditions that are considered illegal, hazardous, or extremely exploitative. Large numbers of children work in commercial agriculture, fishing, manufacturing, mining, and domestic service. Some children work in illicit activities such as the drug trade and prostitution, or other traumatic activities, such as serving as child soldiers.

Access to safe and decent working conditions would see an end to child labour and forced and unsafe conditions, and assist in reducing poverty. This would have a range of benefits for health and wellbeing, including the following:

- Children would be able to stay in school and socialise with their peers, which promotes social health and wellbeing.
- Fewer people would be forced into prostitution, which reduces their risk of contracting HIV and other STIs, promoting physical health and wellbeing.
- People working in safe and decent jobs are more likely to experience positive emotions, including pride and satisfaction, which promotes emotional health and wellbeing.
- People experiencing safe and decent working conditions will feel safe at work and earn a reliable income, which can lower levels of stress and promote mental health and wellbeing.
- Safe and decent work promotes feelings of connectedness, which promotes spiritual health and wellbeing.

9.3.4 Promotion of political and legal rights

The opportunities available in a society must be equitable for all people. Women, indigenous populations and ethnic minorities are often under-represented in governments, and often do not have their rights upheld. According to the United Nations, in 2015, 22 per cent of all national parliamentarians were women, an increase of only 11.3 per cent from 1995. In 37 countries women numbered less than 10 per cent of parliamentarians, and in six governments there were no women at all. Under-representation of indigenous people and ethnic minorities is still a problem for governments in many high-, middle- and low-income countries. When specific groups are not adequately represented in government, policies are less likely to be developed that promote awareness and action towards issues that affect the health and wellbeing of these groups, which makes it difficult to break the cycle of poverty and achieve social sustainability.

FIGURE 9.10 The right to vote is important for promoting social sustainability.



In many countries, laws are developed to protect the citizens' human rights by making discriminatory acts illegal. Despite these interventions, many groups are not adequately protected under the law of the country in which they live. As a result, many groups, including women, experience high rates of crime and a reduced ability to participate in the community in which they live, such as not being able to vote, secure a loan, drive a car or own land. Such discrimination can also contribute to forced displacement from their homes.

Improving political and legal rights can promote health and wellbeing by:

- developing policies that prevent discrimination and promote equal opportunity for education and employment. This can reduce anxiety as people feel socially included which promotes mental health and wellbeing.
- connecting women, indigenous people and ethnic minorities to the communities in which they live, which can promote spiritual health and wellbeing
- addressing violence against women, which reduces the risk of injury from violence, which promotes physical health and wellbeing.

9.3.5 Peace and security

A peaceful environment and society are essential for promoting optimal health and wellbeing. On the other hand, when a country is in conflict, its level of health and wellbeing may be significantly lower than in times of peace.

During times of peace and security, besides the obvious reduction of death and injury from the conflict, there are a range of associated effects on health and wellbeing for all members of society, including the following:

- Financial resources are not being directed to a war effort, so the government is in a better position to provide essential resources for its citizens, including infrastructure, education, healthcare and social protection.
- The environmental impact of war does not occur, which increases access to food and services such as healthcare. Water and sanitation facilities and electricity supplies can also be maintained and people are less likely to be displaced. This reduces the risk of malnutrition and premature death, which promotes physical health and wellbeing.
- Adults can continue to work and children can attend school, which will promote social health and wellbeing as people have the opportunity to interact and socialise.
- People can go about their daily lives, performing activities such as attending work or going to school. This promotes all areas of health and wellbeing as people can work to reduce poverty which assists in providing resources such as food, water, shelter and healthcare. This can reduce stress (mental health and wellbeing), promote social interaction (social health and wellbeing), reduce the risk of infection (physical health and wellbeing), promote positive emotions (emotional health and wellbeing) and give people a sense of purpose in their lives. (spiritual health and wellbeing)
- The risk of personal injury and the destruction of infrastructure is reduced, which enhances physical health and wellbeing and means that vulnerable groups can be reached to address issues such as poverty and food insecurity.
- Long-lasting effects of war, such as the presence of landmines and the lack of infrastructure, are reduced so future generations do not have to focus on rebuilding, and can instead direct their efforts towards promoting their health and wellbeing.
- People are more likely to receive protection under law during times of peace. This can promote feelings of security, which promotes mental health and wellbeing.

9.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain what is meant by the term ‘social sustainability’.
2. What is the underlying aim of social sustainability?
3. Explain why social sustainability is an important consideration even if economic sustainability is achieved.
4. Explain how social protection systems can promote health and wellbeing.
5. Explain why gender equality is essential for sustainability.

9.3 Exercise 2 APPLY your knowledge

1. Outline the five considerations in achieving social sustainability.
2. Explain how each factor outlined in question 1 can promote health and wellbeing.

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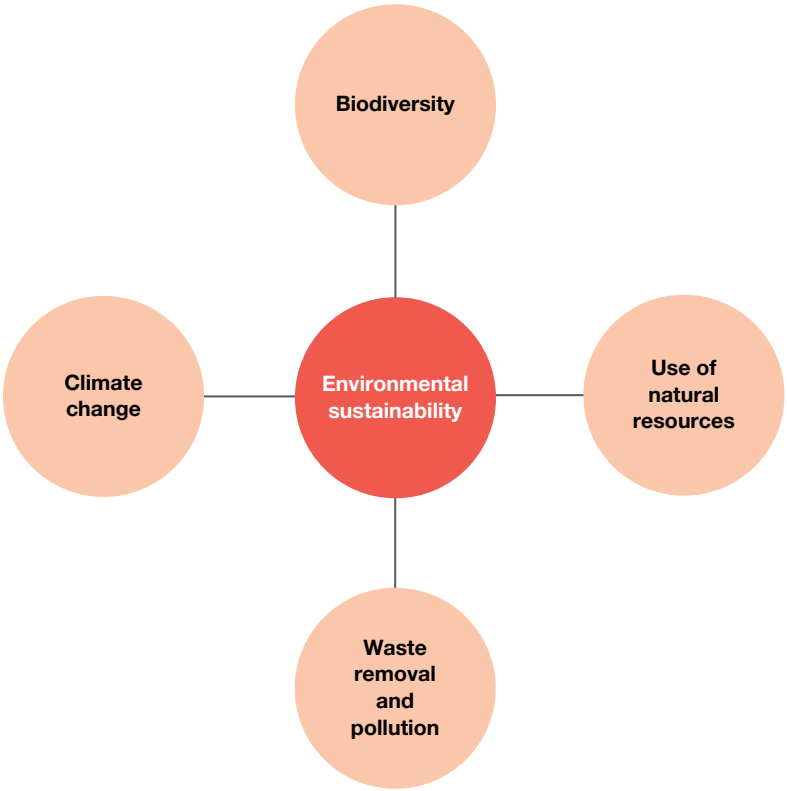
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9.4 The environmental dimension of sustainability

KEY CONCEPT Understanding the concept of sustainability — environmental sustainability

Environmental sustainability relates to ensuring the natural environment is used in a way that will preserve resources into the future. Human activities should use natural resources only at a rate that allows these resources to replenish for future generations. In low- and middle-income countries this is often a challenge, as many of these countries exploit their natural environment as a means of generating income and facilitating trade. Considerations for environmental sustainability are shown in figure 9.11.

FIGURE 9.11 The components of environmental sustainability



9.4.1 Biodiversity

Biodiversity relates to the variety of all forms of life: the different plants, animals and micro-organisms, the genes they contain and the **ecosystems** of which they form a part. The world's ecosystems provide many of the processes and resources required for human health and wellbeing, including:

- provision of oxygen and removal of carbon dioxide
- protection of water resources
- soil formation, including nutrient storage and recycling
- nourishment of plants and animals that are used for food
- wood products used for building, heat and cooking
- fibres used for clothing
- resources used for medicine
- opportunities for recreation and tourism.

Each species within an ecosystem plays an important role in maintaining balance within their environment. If a species is removed from an ecosystem, the ecosystem can become unbalanced and may not be able to carry out its processes effectively, which can directly impact people's health and wellbeing. An example of this is the role that bees play in pollinating many of the world's plants, including canola, sunflower, almonds, apples and stone fruits. According to the CSIRO, one third of our food is derived from insect pollinated crops, with bees playing a major role in this process. Bee numbers have been declining globally and if this trend continues, growing some crops could be increasingly difficult. This could decrease the world food supply by an estimated 5 to 8 per cent. Increased food insecurity could lead to decreased immune system function, particularly for vulnerable groups, which could contribute to disease and have an impact on physical health and wellbeing.

FIGURE 9.12 Balanced and stable ecosystems are required for a range of human functions.



9.4.2 Use of natural resources

The manner in which natural resources are used must be considered to ensure sustainable biodiversity. The natural resources that humans use can be classified as either **renewable** or **non-renewable**.

Renewable resources refer to those that are replenished naturally and over a relatively short period of time and include crops, water, oxygen, forests and fish stocks. With careful planning, renewable resources can be used for human use with little impact on the ecosystem. For example, fishing is a source of food and income in many countries. If fishing is managed in a sustainable way, then fish can breed and replenish at the rate they are being caught. In many instances, as people attempt to break the cycle of poverty and catch more fish to make a profit, overfishing can occur. This can have devastating effects on fish populations, as they are not able to regenerate at a sustainable rate.

FIGURE 9.13 With careful planning, the timber industry can be sustainable.



The timber industry is another area of concern, with many forests being harvested at a rate much faster than the trees can regenerate. As well as damaging delicate ecosystems, unsustainable use of renewable resources affects the ability of future generations to use these resources to promote their health and wellbeing. Sustainable use of renewable resources:

- allows future generations to be able to earn an income by utilising natural resources, which can assist in providing a range of goods and services required for optimal health and wellbeing such as food, shelter and healthcare
- preserves natural environments that many people value for cultural reasons, which promotes spiritual health and wellbeing. Natural environments also be used for socialising and relaxation, which promotes social and mental health and wellbeing.

FIGURE 9.14 Wind and solar are examples of renewable sources of energy.



Non-renewable resources refer to those that are not replenished in a short period of time. Once these resources are used, they are not available for future generations. According to the World Bank, in 2017 around 80 per cent of the global electricity supply was generated using non-renewable fossil fuels, including coal, natural gas, petroleum and nuclear substances. Electricity generated using fossil fuels is not sustainable, as fossil fuels will eventually run out. To ensure environmental sustainability, there must be a shift towards energy production from renewable sources such as the sun, tides, waves, wind and rain. Sustainable energy production will increase health and wellbeing in a number of ways:

- The next generation of children will be able to complete studies under artificial light, increasing their ability to escape poverty and improve all dimensions of health and wellbeing
- Hospitals will function more effectively with a reliable electricity supply, meaning people can receive treatment for many conditions, which promotes physical health and wellbeing
- Sustainable fuels mean that future generations can access transport systems, which can assist in maintaining social connections and promote social health and wellbeing.
- Less reliance on fossil fuels will reduce smoke and fumes from these sources, which can reduce the risk of respiratory conditions and improve physical health and wellbeing.

9.4.3 Waste removal and pollution

Maintaining clean ecosystems is important in maintaining environmental sustainability. As discussed earlier, ecosystems are responsible for producing clean water and air. Industry, agriculture and human waste can degrade the quality of these resources by contaminating the ecosystems that produce them.

Environmental sustainability requires humans to minimise their waste where possible and appropriately treat the waste products that are produced to reduce the impact on the environment. Adequate waste removal and maintaining environmental purity has a number of benefits for health and wellbeing by:

FIGURE 9.15 Preventing pollution is important for achieving environmental sustainability.



- *ensuring sustainable access to clean water.* This can prevent infectious diseases and promote physical health and wellbeing. Individuals will not have to spend hours collecting water each day so can instead pursue employment, which can promote feelings of satisfaction and achievement, which promotes emotional health and wellbeing.
- *reducing the risk of disease.* Pollution can provide a breeding ground for disease-causing pathogens. Reducing pollution can reduce this threat. Reducing air pollution can reduce the impact of respiratory diseases such as asthma improving physical health and wellbeing.
- *providing nutrient-rich soil.* Crops fit for human consumption can be grown, which can promote the functioning of body systems and promote physical health and wellbeing. Food security can reduce levels of stress and promote mental health and wellbeing.

9.4.4 Climate change

According to the Intergovernmental Panel on Climate Change (2007), the global average surface temperature has increased by approximately 0.65 degrees Celsius over the past 50 years and will increase even more rapidly over the next century. The rate at which sea levels have risen has also increased in recent decades, and is also expected to continue over the coming century. These changes in climate will in turn affect weather patterns such as rainfall, drought, wind patterns and heat waves.

FIGURE 9.16 Climate change has the potential to drastically change landscapes, which has a number of implications for human health and wellbeing.



Ensuring climate change is minimised is vital for promoting health and wellbeing for a number of reasons:

- Weather and rainfall patterns will stabilise, which may reduce the rate and severity of natural disasters. This will reduce the number of injuries and deaths that occur as a result of these events, which will promote physical health and wellbeing and assist in maintaining infrastructure that is required for social, emotional, mental and spiritual health and wellbeing. Predictable rainfall allows crops to be grown and promotes food security, which will also promote physical health and wellbeing.
- Sea levels will not continue to rise. This will ensure people in low-lying areas will not be displaced, which can reduce levels of anxiety and promote mental health and wellbeing. Fresh water sources will also be preserved, which promotes physical health and wellbeing.
- Communicable disease rates will decrease, improving physical health and wellbeing. Preventing further climate change will prevent disease carrying organisms from spreading to other areas as environmental conditions will not support their migration.
- Ecosystems can be maintained if temperatures do not continue to rise. This assists in providing resources such as clean water, air and nutrient-rich soil, which are all required for overall health and wellbeing.

9.4.5 Interrelationships between the three dimensions of sustainability

The three dimensions of sustainability are interrelated, which means they have an impact on each other. As a result, some examples of resources or conditions required for sustainability can fit into more than one dimension. For example, poverty reduction is a part of social sustainability, but in order to be achieved, it is reliant on economic sustainability. Access to safe water is an aspect of social sustainability, but relies heavily on environmental sustainability to ensure clean water is available.

As they are interrelated, failure to consider one dimension will affect the others. For example, a country might have a high income due to the oil reserves they are mining. However, oil reserves deplete (reduced environmental sustainability), and so this source of income will shrink in the future (reduced economic

sustainability). Reduced income could lead to fewer economic resources available for public education, which has an impact on social sustainability.

In many ways, the environmental aspect of sustainability is considered the largest dimension of sustainability because social and economic sustainability depend on it (see figure 9.17). Without access to natural resources, humans cannot survive, let alone earn an income.

FIGURE 9.17 The three dimensions of sustainability all have an impact on each other.



9.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Explain what is meant by 'environmental sustainability'.
2. Explain what is meant by 'biodiversity' and outline two reasons why it is essential for health and wellbeing.
3. Explain the difference between renewable and non-renewable resources.
4. Explain the difference between economic, social and environmental sustainability.
5. Explain why a sustainable ecosystem is important for the health and wellbeing of future generations.

9.4 Exercise 2 APPLY your knowledge

1. (a) Outline the four factors that are important for environmental sustainability.
   (b) Explain how each factor outlined in part (a) can promote health and wellbeing.
2. Explain how access to electricity can promote physical and spiritual health and wellbeing.
3. (a) What does it mean when the three dimensions of sustainability are said to be interrelated?
   (b) Provide examples of how the three dimensions are interrelated.

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9.4 Exercise 3 studyON: Past VCAA exam questions online only

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9.5 The concept of human development

KEY CONCEPT Understanding human development as a way of looking at the differences and similarities between countries

Human development is a concept that provides another way of looking at the differences and similarities between countries around the world in addition to classifying countries as low-, middle- and high-income. Looking at the characteristics of low-, middle- and high-income countries can be useful, but many of these aspects are difficult to measure and therefore make comparison difficult. The concept of human development can give a more accurate picture of how well people are living within particular countries.

The Gross National Income (GNI) per capita of a country, or the average income, has historically been used to gauge how well people are living and the level of human development being experienced in a country. However, although economic wealth is associated with better outcomes for people, wealth is rarely distributed equally. To look at this measure in isolation will not necessarily give an accurate indication of how well the entire population is living. The purpose of human development is to make people, not the country's income, the focus.

FIGURE 9.18 Looking only at economic indicators can hide the vast inequalities that exist within and between countries.



As defined by the United Nations, human development is about much more than income: it is about creating an environment in which people can develop to their full potential and lead productive, creative lives according to their needs and interests. It is about expanding people's choices and enhancing their capabilities (the range of things people can be and do), having access to knowledge, health and a decent standard of living, and participating in the life of their community and decisions affecting their lives (adapted from the UN Development Programme, 1990).

'The basic purpose of [human] development is to enlarge people's choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and sense of participation in community activities. The objective of [human] development is to create an enabling environment for people to enjoy long, healthy and creative lives.'

Source: Mahbub ul Haq, Founder of the Human Development Report, http://www.ipc-undp.org/conference/photo/.

on Resources

Teacher-led video What is human development? (tlvd-0266)

Human development is about having more freedom and choices, so people can lead the life they value. Human development is about providing people with opportunities, not insisting that they make use of them. Choices relate to what people value and want. Freedom of choice is central to the human development approach: someone choosing to be hungry (during a religious fast, for example) is quite different to someone who is hungry because they cannot afford to buy food.

There is no limit to the choices people can make, but a key component of human development is equity. As a result, one person's choices should not negatively affect another person's ability to lead the life that they value. For example, a person wanting to be married should not force someone else into wedlock against their will.

FIGURE 9.19 Education is a key component of human development because it expands people's choices and capabilities.



Expanding choices is about developing people's abilities and giving them a chance to use them. Educating a girl, for example, builds her skills, but is of little use if she cannot access meaningful employment, or does not have the right skills for the local labour market. Enhancing capabilities relates to the things that people can be and do. Examples of what people can be include being well fed, sheltered and healthy. The things people can do include going to school, working, voting and participating in community life.

Human development implies that people must influence and actively participate in the processes that shape their lives. Fundamentally, human development is about improving people's lives, rather than assuming that economic growth will automatically lead to better lives for all. Economic factors are an important part of achieving this, but they are not the only part and are not the overall objective of human development.

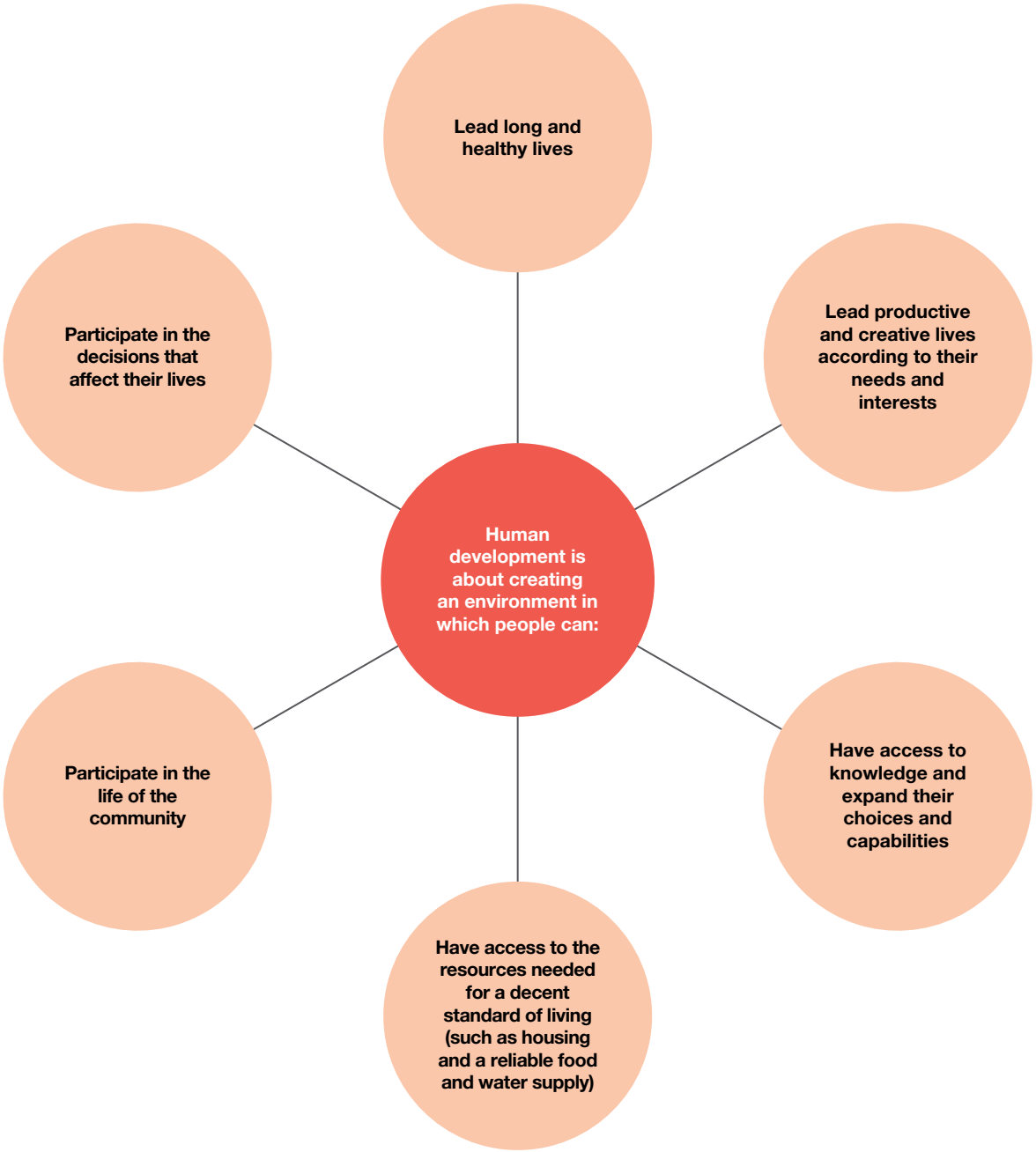
In order to improve human development, people need to have certain choices, capabilities and freedoms. Some of the critical elements relating to these include those shown in figure 9.20.

EXAM TIP

When making links to human development, it is important to ensure that a specific aspect of human development is the focus and that enough detail is provided to explain how the aspect of human development is impacted. For example, it is true to say that 'education enhances choices and capabilities', but there is not enough detail in this link to be awarded full marks. A better response would be 'education can develop capabilities in relation to numeracy and literacy. With these skills, a person is likely to have more choice in relation to the careers they pursue in the future'.

Without these capabilities, human development cannot progress and many opportunities remain inaccessible. It is also important that these capabilities and freedoms are able to be sustained or maintained in the long term.

FIGURE 9.20 The elements critical to human development



9.5.1 Case study in human development

Consider the following examples that illustrate how human development presents in day-to-day life for Adam and Veronica, two children growing up in Lackistan, a fictional country:

Lackistan has a high average income and the economy is growing, but the wealth is distributed unequally. The major cities are sufficiently developed with access to public services and adequate infrastructure. As a result, those living in the major cities have access to education, healthcare, transport systems, adequate housing and safe water and sanitation. Those in rural areas, however, often experience food insecurity, lack of access to healthcare, education, safe water and sanitation.

Lackistan is typical of many countries in that the average incomes are high, but this hides the fact that not everyone is enjoying the benefits that can come with a growing economy and high incomes.

Adam lives in the capital of Lackistan with his parents. They live in a safe neighbourhood where crime rates are low and resources such as healthcare, safe water and adequate sanitation are readily available. Adam recently graduated from a public secondary school and has been accepted by the local university to study medicine. Adam's family belong to the ethnic majority of Lackistan and enjoy the freedoms that the country has to offer, such as being able to vote and participate in other aspects of community life. Adam wants to finish his medical degree and then work either in general practice or a hospital, as he has always dreamed of being able to help people. Adam wants to have a family eventually, but is going to wait until his career is established before committing to a serious relationship.

Adam appears to be experiencing a high level of human development. He has received an education and has chosen to study medicine at university. Adam has choices in relation to his career and is focusing on working in a field that he has been interested in for some time. Adam thinks he would like to have a family, but has the freedom to wait until the time is right. He lives in a safe community where he can access the resources required for a decent standard of living such as healthcare, water and sanitation. Adam enjoys freedoms such as being able to vote and participating in the life of the community in which he lives.

Veronica lives in a rural region of Lackistan with her mother. When Veronica was five years old, her father died. He was 28 years old, and died as the result of an infectious disease that could have been prevented with access to basic healthcare. Veronica spent a large portion of her childhood collecting water as her mother worked in the fields trying to grow enough food for Veronica and herself. Educational opportunities are limited in rural areas of Lackistan, but Veronica would not have been able to attend school because she was responsible for collecting water.

Because she is illiterate, Veronica's employment opportunities are limited to unskilled jobs in her community, which she finds physically demanding and unrewarding. Veronica belongs to an ethnic minority that is often discriminated against by other groups in relation to basic rights such as voting and participating in the life of the community. In line with cultural traditions, Veronica was married at the age of 15 to a man chosen by her uncle. In the years that followed, she had three children and now works in agriculture trying to grow enough food to feed her family.

Although she lives in the same country, Veronica's level of human development is much lower than Adam's. Her father died at a young age from a preventable disease, which indicates that people in Veronica's community may not be able to lead long and healthy lives. Safe water is not readily available, indicating that the resources required for a decent standard of living are not universally accessible. Veronica was unable to access education and now her choices in relation to employment are limited. Veronica did not have the freedom to make decisions affecting her life in relation to when and to whom she got married.

9.5 Activities

1. Access the **Human development** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Wealth and health** weblink and worksheet in the Resources tab then complete the worksheet.

9.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. (a) Briefly explain the concept of 'human development'.
   (b) Why is using only GNI or economic growth not an adequate way of measuring human development?
2. Identify three examples of choices that people can make in life to enhance their human development.
3. Using examples, explain what is meant by 'capabilities'.
4. Explain the difference in human development experienced by Adam and Veronica in the case study.

9.5 Exercise 2 APPLY your knowledge

1. Explain likely differences in the human development experienced in a country classified as low-income compared to a country classified as high-income.

2. Do you think the level of human development experienced in Australia is sustainable? Why or why not?
3. The *1996 Human Development Report* opens with the fundamental statement, 'human development is the end — economic growth a means'. Explain why economic growth is a means to achieving human development.
4. 'People are the real wealth of nations, not money.' Do you agree with this statement? Why or why not?

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9.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Human development worksheet (doc-32223)
Wealth and health worksheet (doc-32224)

Weblinks Human development
Wealth and health

9.6 The advantages and limitations of the Human Development Index

KEY CONCEPT Understanding the Human Development Index, including its advantages and limitations

on Resources

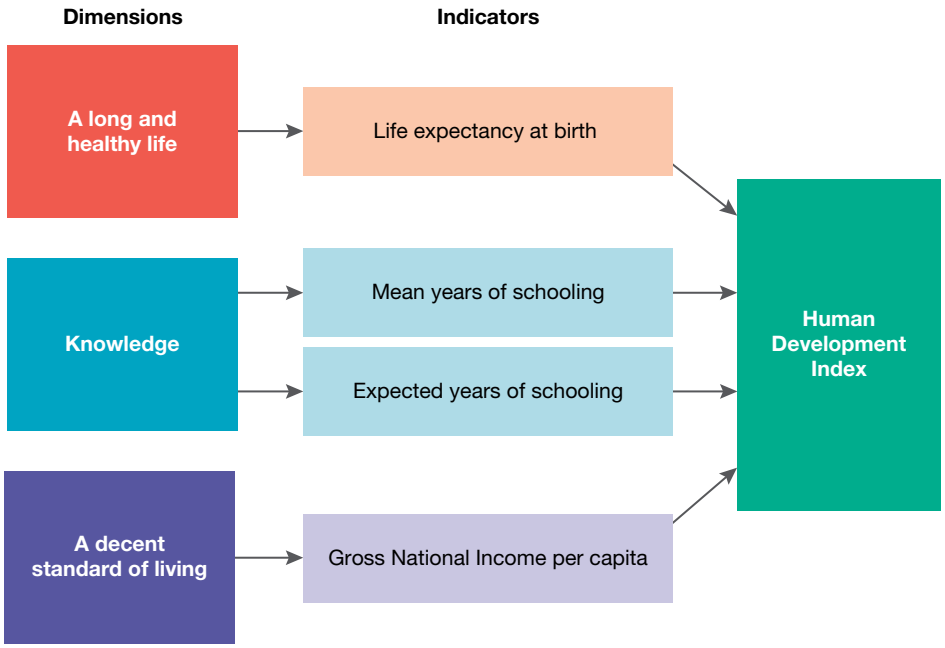
Teacher-led video Human development index (tlvd-0267)

Measuring the total level of human development of a country is impossible. There are many aspects of people's lives that need to be taken into account, and to collect all of this information on a global scale is not practical. The United Nations has, however, developed a measurement system that attempts to reflect the level of human development being experienced in different countries and regions. It is known as the **Human Development Index** (HDI) and it uses three dimensions and four indicators to create an index that estimates the level of human development experienced in different countries (see figure 9.21).

The dimensions relate to broad concepts that make up a part of the UN's interpretation of human development, whereas the indicators are the measurable aspect of each dimension. The four indicators relate to:

- *life expectancy at birth*. An indication of how long a person can expect to live; it is the number of years of life remaining to a person at birth if death rates do not change (AIHW, 2008).
- *mean years of schooling*. The average number of years of education achieved by those aged 25 years and over.
- *expected years of schooling*. The number of years of education expected for a child of school entrance age.
- *Gross National Income per capita*. The overall income of a country after expenses owing to other countries have been paid, divided by the population of the country.

FIGURE 9.21 The Human Development Index is based on three dimensions and four indicators.



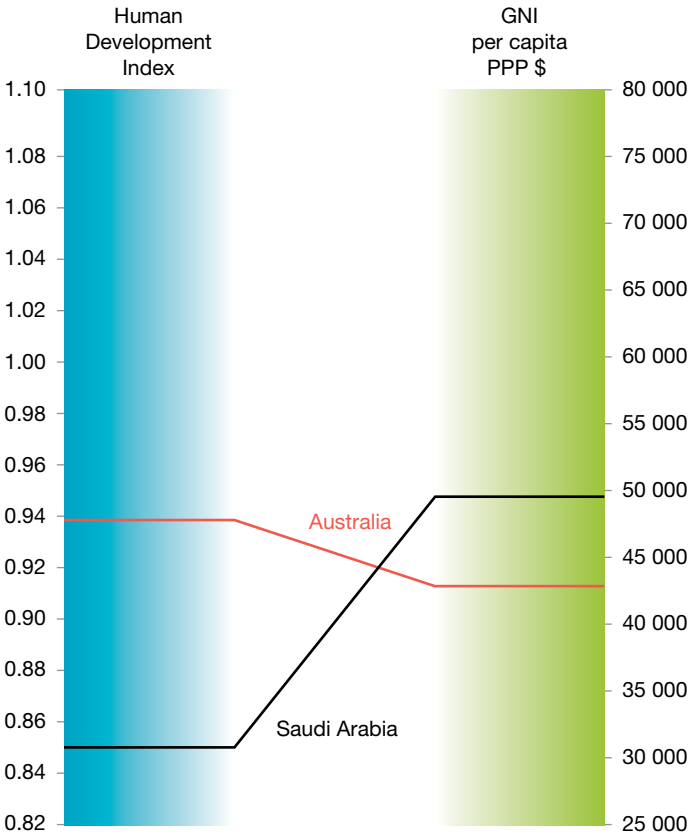
Using the four indicators, the HDI is a number between zero and one (0–1). The closer to one, the greater the level of development experienced. As the HDI uses more than just economic indicators, a clearer picture of the overall standard of people's lives can be seen. The HDI reflects the level of development in a country, allows comparisons to be made between countries and regions, and allows improvements made over time to be monitored.

The United Nations (2018) classifies countries by dividing them into four groups according to their HDI:

- very high human development
- high human development
- medium human development
- low human development.

For many countries, higher average incomes correlate to a higher HDI. But high average incomes do not necessarily relate to greater opportunities for education and health, so this pattern is not observed for all countries (refer to figure 9.22).

FIGURE 9.22 The Human Development Index gives a more complete picture than just income.



Source: United Nations Development Programme, Human Development Indices and Indicators 2018 Statistical Update.

EXAM TIP

When answering questions related to the HDI make sure you read the question carefully if you are asked to link to indicators of the HDI you will need to link to life expectancy at birth, mean and expected years of schooling and gross national income per capita. If you asked to link to dimensions you will need to link to a long and healthy life, knowledge and a decent standard of living.

The Human Development Indices of selected countries are shown in table 9.1.

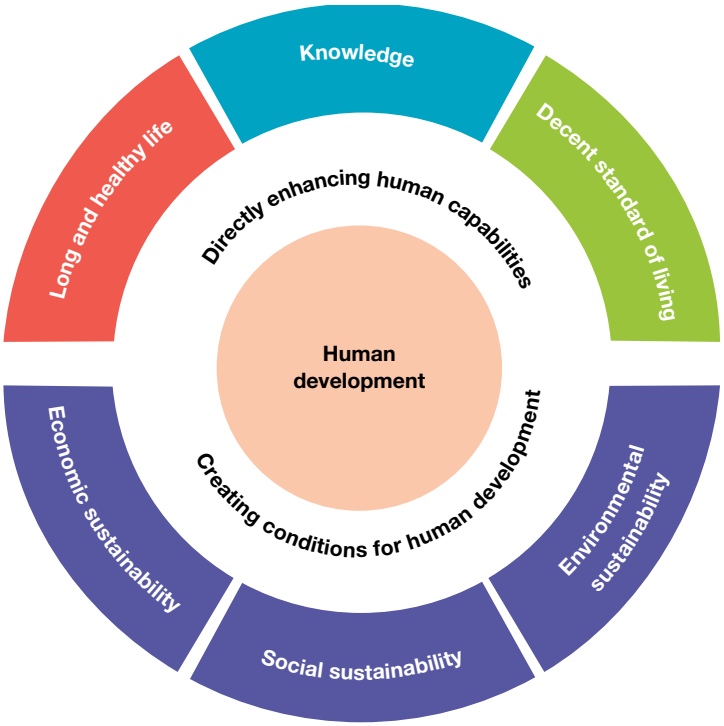
In order for human development to continually improve, the initiatives, policies and strategies employed must be able to be maintained over a long period of time. If this cannot occur, the current level of human development may decrease over future generations. Ensuring opportunities for future generations to lead productive and fulfilling lives is the underlying objective of economic, social and environmental sustainability (figure 9.23).

TABLE 9.1 The Human Development Indices of selected countries in 2018

Human Development Index classification	Country	Human Development Index	Rank
Very high human development	Norway	.953	1
	Australia	.939	3
	United Kingdom	.922	14
	Malaysia	.802	57
High human development	Iran	.798	60
	Mexico	.774	74
	China	.752	86
	Jamaica	.732	97
Medium human development	Indonesia	.694	116
	Iraq	.685	120
	India	.640	130
	Bangladesh	.608	136
Low human development	Papua New Guinea	.544	153
	Syrian Arab Republic	.536	155
	Uganda	.5.6	162
	Central African Republic	.367	188

Source: © 2018 United Nations Development Programme.

FIGURE 9.23 The three dimensions of sustainability are important considerations for all areas of human development, including a long and healthy life, knowledge and a decent standard of living.



Source: Adapted from United Nations Development Programme, *Human Development Report 2015: Work for Human Development*, New York, p. xii.

9.6.1 Advantages of the HDI

The HDI has a number of advantages for exploring the level of human development experienced globally, as explained here.

- The HDI takes more than just average incomes into account, so provides a more comprehensive representation of the level of human development experienced:
  - It provides an indication of opportunities for education, which reflects access to knowledge and the ability to enhance choices and capabilities.
  - Average income reflects the ability to access the resources required for a decent standard of living.
  - Life expectancy reflects the ability to lead a long and healthy life.
- The HDI is a composite statistic and, as a result, provides a single statistic relating to the three dimensions and four indicators. This makes comparison easier, as numerous statistics do not have to be sorted through and compared.
- The HDI is effective for analysing progress that is made by countries over time. The four indicators may experience differing rates of progress, but monitoring the overall HDI is useful for analysing the overall progress achieved over time.
- The HDI has captured the attention of media, policy makers, communities and individuals and, as a result, has raised awareness of the importance of human development. It helps people question and revise current policy choices.

9.6.2 Limitations of the HDI

Although the HDI is a useful and innovative measure, it does have some limitations, as described below.

- Human development is a complex concept and encompasses many aspects of human lives. The HDI only reflects selected aspects of human development and therefore does not capture the richness and

depth of human development. Aspects of human development that are not measured by the HDI include gender equality; freedom of speech; freedom of employment; levels of discrimination; empowerment; access to resources such as water, social security and public housing; social exclusion; and political participation.

- The HDI, although moving beyond economic indicators, is still based on averages and, therefore, does not provide an indication of the inequalities that exist within countries. Those from cultural minorities, females, those with disabilities and those in rural areas often experience lower levels of human development than the rest of the population.
- No survey data are collected in the HDI, so people's feelings about their lives and issues facing communities are not reflected, including social, emotional, mental and spiritual health and wellbeing, and feelings about physical safety.
- Collecting data is complex and the reliability of data for measuring human development remains a challenge. Comparisons between countries are often difficult because of the different definitions and methods used in measuring key components of the HDI. Comparisons within countries is often difficult as data are often only collected at a national level.
- In some situations, the concept of human development has been equated with the three dimensions of the HDI, which neglects key aspects of human development including freedom, choices and capabilities.

CASE STUDY

Human Development Index

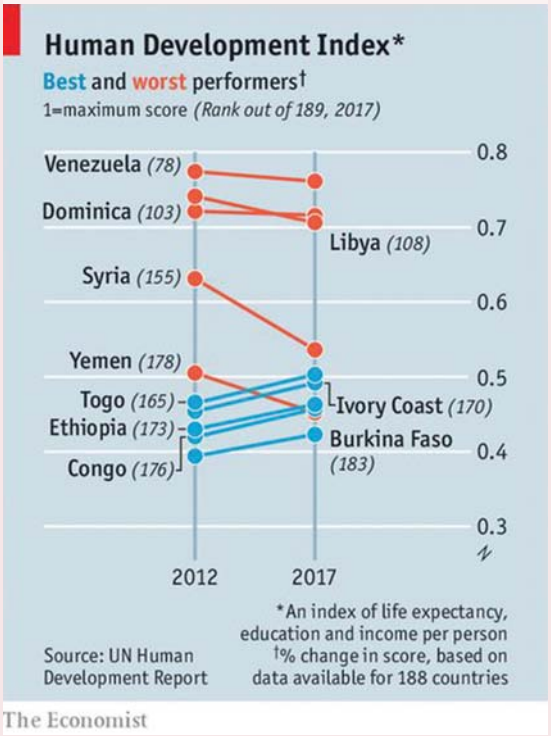
Between 2012 and 2017 Congo made the greatest strides in human development, according to the UN's Human Development Index. In 2017 people in the central African country lived for over two years longer, and could expect to spend almost one year more in school, than they did five years before. Average income per person was also 20% higher than in 2012. The three countries that performed worst over that period are war-torn. In Syria incomes have fallen by almost half since the war began in 2012. The UN also calculates an adjusted index that takes inequality into account. On average, this reduces countries' scores by 20%; Congo's falls by over 30%.

Source: https://www.economist.com/economic-and-financial-indicators/2018/09/20/human-development-index>.

Case study review

1. Identify indicators of the HDI evident in the case study. Use examples to support your answer.
2. Suggest reasons why war-torn countries have seen their HDI fall since 2012.

FIGURE 9.24 The Human Development Index, best and worst performers



9.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What measure does the UN use to report on the level of human development experienced in different countries?
2. (a) What dimensions are used to assess the HDI of each country?
   (b) Explain the indicators that relate to each dimension.
   (c) What other factors could be included in calculating the HDI of a country? Explain.
   (d) Why might it be difficult to include other factors in calculating the HDI?
3. Complete the following table:

Strengths of the HDI	Limitations of the HDI

9.6 Exercise 2 APPLY your knowledge

1. Outline two reasons that may account for Australia having a higher HDI than China.
2. Using your knowledge of the HDI, explain why Australia has a higher human development index than Saudi Arabia, yet Saudi Arabia has a higher average income (see figure 9.22).
3. Explain two likely differences in human development between Australia and Uganda based on their respective Human Development Indices (refer to table 9.1).

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9.6 Exercise 3 studyON: Past VCAA exam questions online only

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9.7 Topic 9 review

9.7.1 Key skills

KEY SKILL Explain sustainability (environmental, social, economic) and its importance in the promotion of health and wellbeing in a global context

Closely related to the promotion of health and wellbeing is the notion of sustainability. While people should be able to optimise their health and wellbeing, it is important that they are able to do so in a sustainable way; that is, without compromising the ability of future generations to achieve similar levels of health and wellbeing.

For this key skill, it is important to be able to explain sustainability and the three dimensions that underpin it: economic, social and environmental. Being able to identify and discuss specific factors that relate to each dimension of sustainability assists in explaining the importance of each in relation to the promotion health and wellbeing globally.

In the following example, the concept of social sustainability is explained and its importance in relation to promoting health and wellbeing globally is discussed.

Social sustainability relates to creating an equitable society that meets the needs of all citizens and can be maintained indefinitely.[1] Social sustainability includes ensuring all people of working age around the world have access to safe and decent working conditions.[2] Safe and decent working conditions mean that people will not have to work in forced labour, which provides a greater sense of control and purpose in their life and promotes spiritual health and wellbeing around the world.[3] Safe working conditions reduce the risk of work-related injuries which promotes physical health and wellbeing globally.[4] Social sustainability also includes gender equality. If all females in all countries are at reduced risk of domestic violence, they may experience lower rates of stress and anxiety which promotes mental health and wellbeing in a global context.[5]

1 An explanation of social sustainability is provided.

2 A specific aspect of social sustainability is identified.

3 A reference to the global context of this skill is provided.

4 Specific links are made between safe and decent work and multiple dimensions of health and wellbeing.

5 Another aspect of social sustainability is identified to add depth to the discussion.

Practise the key skill

1. Briefly explain what is meant by economic sustainability and discuss its importance for the promotion of health and wellbeing in a global context.
2. Briefly explain what is meant by environmental sustainability and discuss its importance for the promotion of health and wellbeing in a global context.

KEY SKILL Explain the Human Development Index and evaluate its usefulness in measuring human development of countries

For this skill, it is necessary to be familiar with the Human Development Index (HDI), which measures levels of social and economic development within a country and enables comparisons between countries. The three dimensions and four indicators that are used to determine the HDI of a country should also be understood. The dimensions and indicators are:

- a long and healthy life: life expectancy at birth
- knowledge:
  - mean years of schooling
  - expected years of schooling
- a decent standard of living: Gross National Income per capita.

It is important to know what the HDI rating means; for instance, what does an HDI of 0.700 mean compared to an HDI of 0.500? This skill also requires an evaluation of the use of the HDI in relation to its usefulness in measuring human development. To assist in evaluation, a range of advantages and limitations the HDI should be known.

In the following example, the reasons for the difference in HDI between Australia (.939) and Indonesia (.694) are discussed and the usefulness of the HDI in measuring human development is explained.

Australia has a higher HDI than Indonesia which indicates a higher level of social and economic development in Australia.[6] This may be due to higher life expectancy at birth, mean years of schooling, expected years of schooling and / or Gross National Income per capita.[7]

The HDI is useful as a tool for reflecting the level of human development experienced as it moves beyond using only economic indicators. Economic indicators are useful statistics, but a high average income does not provide information relating to how well people are living. The HDI takes a broader approach and includes factors that relate to other aspects of wellbeing such as health and educational outcomes.[8]

Although the HDI includes a range of indicators relating to human development, it is based on average data and therefore does not provide an indication of the inequalities experienced within countries. Many population groups face specific challenges in promoting their human development and the HDI does not reflect this.[9]

6 A key aspect of the HDI is identified.

7 The specific reasons that may account for the difference between Australia and Indonesia are stated.

8 An advantage of the HDI is explained.

9 A limitation of the HDI is explained.

Practise the key skill

3. Briefly explain the HDI.
4. Discuss the degree to which the HDI reflects the level of human development experienced in a country.
5. New Zealand has a higher life expectancy than the USA, but the USA has a higher HDI. Explain possible reasons for this.
6. Explain why the HDI is often used as an indication of wellbeing instead of average income.

9.7.2 Topic summary

The economic dimension of sustainability

- Sustainability relates to 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'.
- The three dimensions of sustainability are economic, social and environmental sustainability. Each is essential for optimal health and wellbeing both now and in the future.
- Economic sustainability relates to the capacity of future generations to earn an income and the efficient use of resources to allow economic growth over time. Considerations for economic sustainability include innovative and diverse industries, job creation, economic growth and trade.

The social dimension of sustainability

- Social sustainability relates to creating an equitable society that meets the needs of all citizens and can be maintained indefinitely.
- Social sustainability works to ensure that all people have their human rights upheld, can participate in the society in which they live, participate in the decisions that affect their lives, and experience equal access to resources such as food, shelter, education, healthcare, employment, clean water, sanitation, clothing, recreation and leisure.

- Social sustainability is reliant upon the elimination of poverty and the provision of social protection systems, gender equality, access to safe and decent working conditions, promotion of political and legal rights, and peace and security.

The environmental dimension of sustainability

- Environmental sustainability relates to ensuring the natural environment is used in a way that will preserve resources into the future.
- Considerations for environmental sustainability include biodiversity, the use of natural resources, pollution and waste removal, and climate change.

The concept of human development

- Human development refers to creating an environment in which people can develop to their full potential and lead productive, creative lives according to their needs and interests. It is about expanding people's choices and enhancing capabilities (the range of things people can be and do); having access to knowledge, health and a decent standard of living; and participating in the life of their community and decisions affecting their lives.

Understanding the Human Development Index, including its advantages and limitations

- The Human Development Index (HDI) ranks the development of countries based on more than economic wealth. It takes three dimensions (a long and healthy life, knowledge and a decent standard of living) and four indicators (life expectancy at birth, mean years of schooling, expected years of schooling and Gross National Income per capita) into account.
- Advantages of the HDI include that it:
  - takes more than just average incomes into account, and so provides a more comprehensive representation of the level of human development experienced
  - takes multiple factors into account and produces a single statistic, which is beneficial for comparing countries and monitoring progress over time
  - is effective for analysing progress that is made by countries over time
  - has captured the attention of many aspects of society and promotes improvements in relation to human development.
- Limitations of the HDI include that it:
  - only reflects selected aspects of human development
  - is based on averages and, as a result, does not provide an indication of the inequalities that exist within countries
  - doesn't collect survey data, so people's feelings about their lives and issues facing communities are not reflected
  - relies on data collected in hundreds of countries which can compromise accuracy
  - has been equated with the concept of human development, which neglects key aspects of human development including freedom, choices and capabilities.

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9.7 Exercise 1 Exam preparation

Question 1

Briefly explain what is meant by human development according to the United Nations. **(3 marks)**

Question 2

Use the table below to answer the questions that follow.

	U5MR (per 1000 live births)	Life expectancy	Maternal mortality ratio (per 100 000 live births)	Incidence rate for HIV (per 100 000 population per year)	Births attended by skilled health personnel (%)	Percentage of 1-year-olds immunised against measles	Population with access to safe water (%)	GNI per capita ($PPP)
Australia	4	83.1	6	5.1	99	94	100	43 560
Burundi	82.9	57.9	740	21	60	98	75	702
Central African Republic	139.2	52.9	880	167	40	25	68	663
Kenya	70.7	67.3	400	229	44	93	62	2 961

a. Briefly explain the HDI. **(2 marks)**
b. Identify the country that would have the lowest HDI and justify your choice. **(3 marks)**
c. Outline one advantage and one limitation of the HDI in relation to measuring the level of human development experienced. **(2 marks)**

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Interactivities Crossword (int-6895)
Definitions (int-6896)

10 Global trends and health and wellbeing

10.1 Overview

Key knowledge

- Implications for health and wellbeing of global trends including:
  - climate change (rising sea levels, changing weather patterns and more extreme weather events)
  - conflict and mass migration
  - increased world trade and tourism
  - digital technologies that enable increased knowledge sharing

Key skills

- Analyse the implications for health and wellbeing of particular global trends

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 10.1 The number of refugees and displaced people as a result of conflict is at its highest since World War II, leading to a range of health and wellbeing implications.



KEY TERMS

Acidification decrease in the pH levels of the ocean that occurs when carbon dioxide in the atmosphere reacts with the sea water
Aquifer an underground layer of rock, sediment or soil that contains water
Asylum seeker a person seeking international protection and whose refugee status is yet to be determined
Biodiversity the variety of different plants, animals and micro-organisms, their genes and the ecosystems of which they are a part
Desalination plant the process of removing salt, especially from sea water so that it can be used for drinking or irrigation
Displaced people those who are forced to leave their home because of war or persecution
Ecosystem a community of living things and the non-living components of the environment in which they live. An ecosystem can include plants, animals, micro-organisms, water, air, soil and rocks.
Glacier a slowly moving mass or river of ice formed by the accumulation and compaction of snow on mountains or near the poles
Globalisation the process whereby boundaries between countries are reduced or eliminated allowing individuals, groups and companies to act on a global scale. It can be described as transforming the different societies of the world into one global society. A reduction in barriers to trade, communication and transport contributes to this process.
Greenhouse gases gases that contribute to the greenhouse effect by absorbing heat. Carbon dioxide and chlorofluorocarbons (used in the manufacture of aerosol sprays) are examples of greenhouse gases.
Statelessness a situation where a person does not have citizenship of any country. These individuals have no protection of their human, social or political rights and cannot access education or healthcare or have freedom of movement.

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10.2 The implications for health and wellbeing of climate change

KEY CONCEPT Understanding the impact of rising sea levels, changing weather patterns and more extreme weather events on health and wellbeing

This topic explores the implications for health and wellbeing of increased **globalisation** and the global trends relating to climate change, conflict and mass migration; increased world trade and tourism; and digital technologies that enable increased knowledge sharing.

Global trends are patterns of social, environmental and economic activity that will have an effect at some stage in the future and require action to be taken at a global level.

10.2.1 Climate change and extreme weather events

The Earth's climate has experienced changes throughout history as a result of small changes in the Earth's orbit around the sun. However, over the last 50 years, the burning of fossil fuels to provide energy has resulted in a 20 per cent increase in the production of carbon dioxide and other **greenhouse gases**, largely due to transport and industry. Greenhouse gases trap heat that is radiated from the sun. A range of human activities is now producing levels of greenhouse gases that are leading to global warming and contributing to changes in global climate beyond those that occur in the normal cycle of the Earth.

The temperature of the planet has warmed by around .8 degrees Celsius over the last 50 years, with each decade becoming increasingly warmer. Longer term, the temperature of the planet is predicted to increase by 3.5 degrees Celsius. This increase in the Earth's temperature has significant consequences. **Glaciers** are melting and so are the ice sheets that cover West Antarctica and Greenland. This has led to rising sea levels, changing weather patterns and more intense and frequent extreme weather events such as floods, cyclones and heatwaves.

The quality of the air and water and the availability of food and shelter are all affected by climate change and will have significant effects on health and wellbeing. According to the World Health Organization, between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths each year, from malnutrition, malaria, diarrhoea and heat stress.

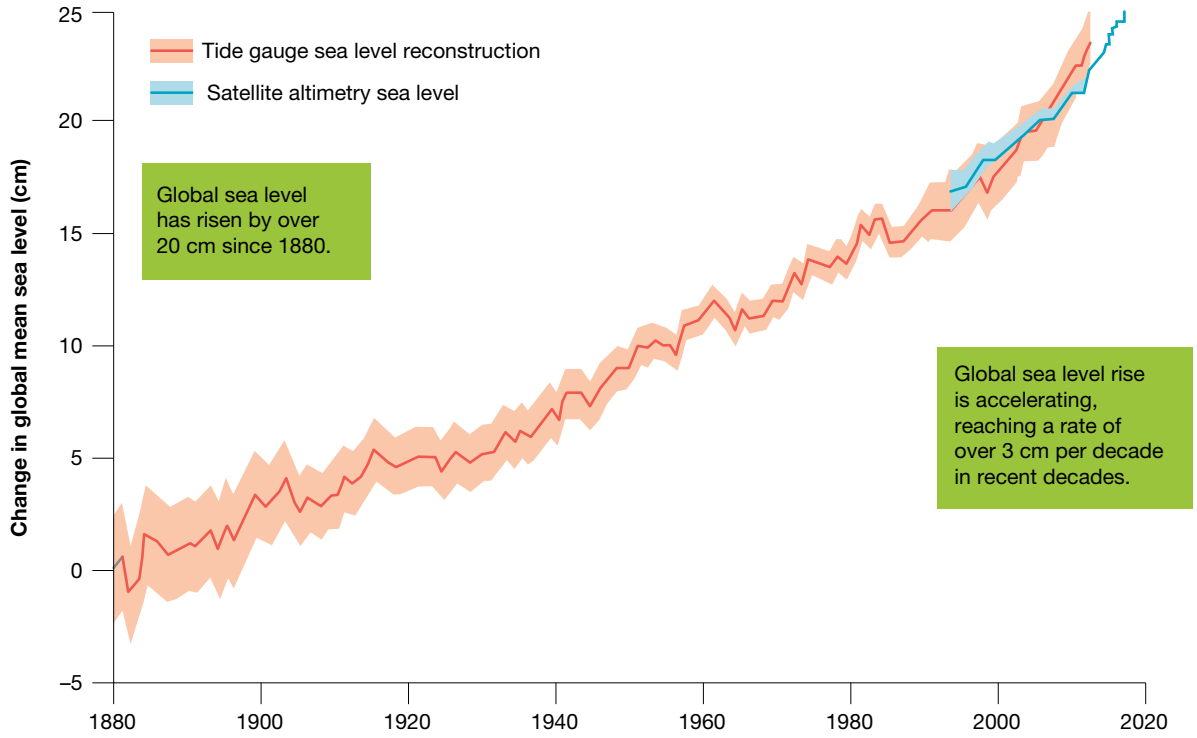
EXAM TIP

When asked to discuss the impact of climate change on health and wellbeing use an example linked to either rising sea levels, changing weather patterns or extreme weather events. Once you have chosen an appropriate example you will then need to show how it impacts on different dimensions of health and wellbeing.

10.2.2 Rising sea levels

Increased greenhouse gas emissions have contributed to global warming and rising sea levels. The average sea level has increased at a rate of around 1.8 millimetres per year from 1961 to 2003, and more recently has been reported to have increased at a rate of 3.2 millimetres each year, or 3.2 cm per decade. It has been predicted that if greenhouse gas emissions continue at the same rate, the average sea level could increase by almost one metre by 2100 (see figure 10.2). This would mean that approximately 150–200 million people would have to relocate, as their land would be under water. Currently in some low-lying coastal cities, rising sea levels are already having an impact on the availability of land for farming.

FIGURE 10.2 Increase in sea levels 1880–2018



Source: © CSIRO State of the Climate 2018, Australian Bureau of Meteorology Commonwealth of Australia, p. 13.

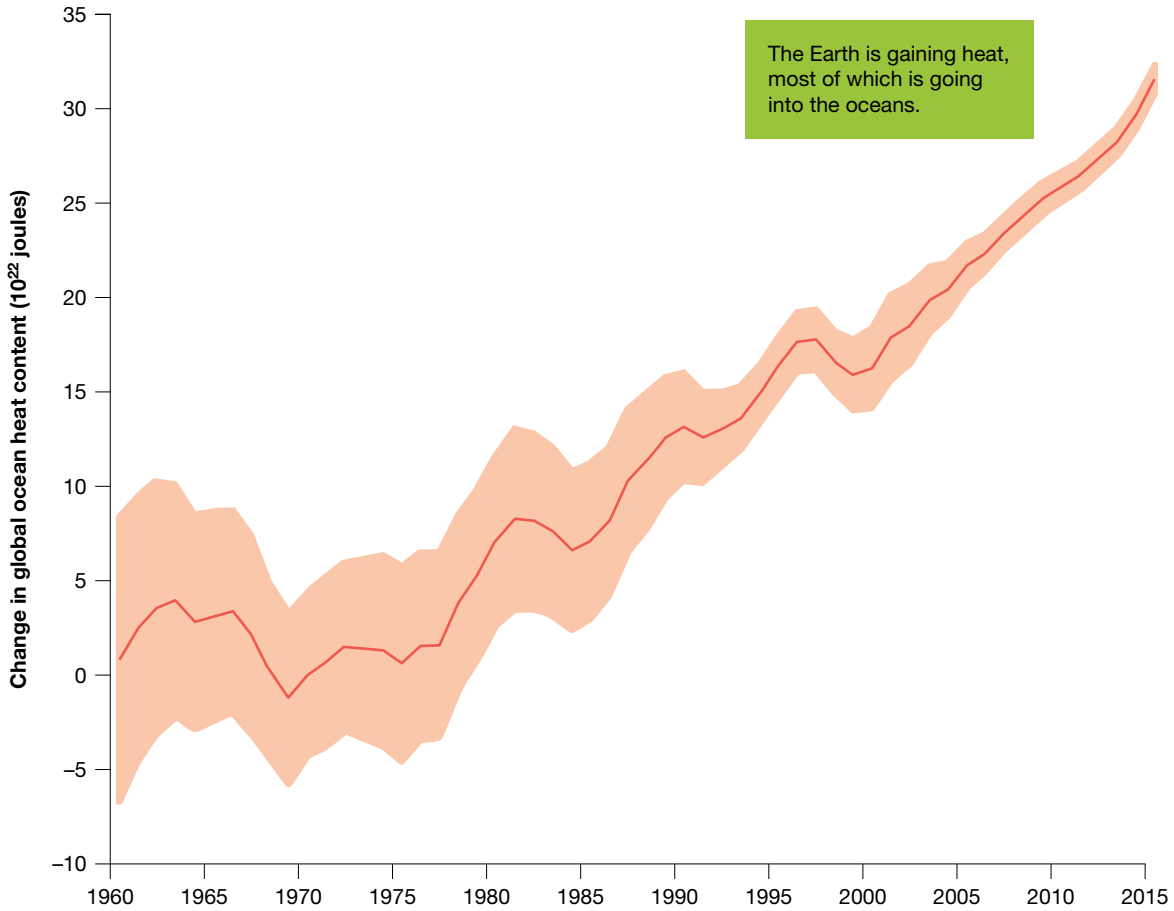
The two major causes of rising sea levels are:

- the expansion of the water that occurs as it warms
- the increase in the volume of water that results from the melting of ice in the Earth's polar regions and glaciers.

The average temperature of the oceans has increased 0.1 degrees Celsius and warming extends as far as 2000 metres below the surface (see figure 10.3). The Arctic sea ice cap has shrunk by 2.7 per cent each decade since 1978.

According to a new report from the United Nations, sea levels are rising faster than previously thought. Each decade sea levels are rising by 3.2 cm.

FIGURE 10.3 Estimates of the change in ocean heat content over the full ocean depth, from 1960 to present. (Shading provides an indication of the confidence range of the estimate.)

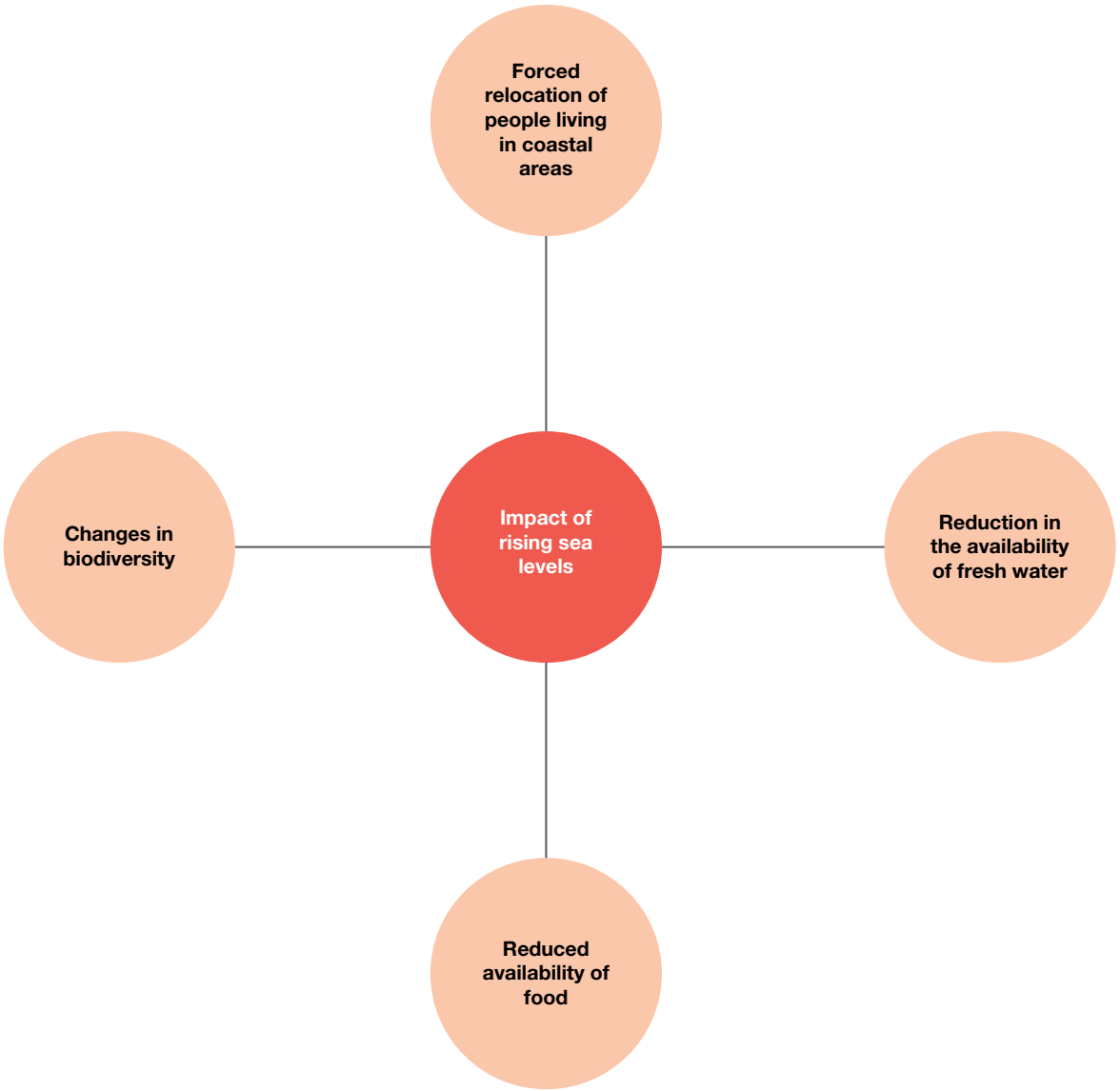


Source: © CSIRO State of the Climate 2018, Australian Bureau of Meteorology Commonwealth of Australia, p. 11.

10.2.3 Impact of rising sea levels on health and wellbeing

Rising sea levels will have a significant impact on health and wellbeing. People living close to the sea will need to relocate, the availability of fresh water and food will be reduced and there will be changes in **biodiversity** (see figure 10.4).

FIGURE 10.4 Rising sea levels will have a significant impact on health and wellbeing as it affects food and water supplies and forces people living in coastal areas to relocate.



Relocation of people living in coastal areas

Rising sea levels mean people living in coastal areas will lose their villages and farms due to flooding. More than half of the world's population lives within 60 km of the sea. Having to relocate houses and farms is stressful and increases the risk of people suffering from poor mental health and wellbeing. Relocation can also place strain on existing infrastructure, such as safe water and sanitation services, housing and healthcare services. This can lead to poor physical health and wellbeing and increased mortality rates from communicable diseases such as diarrhoea and malaria. Relocating can interfere with social networks within the community, reducing levels of social health and wellbeing as well as impacting spiritual health and wellbeing as people become disconnected from their communities.

Reduction in the availability of fresh water

As sea levels increase, salt water gradually seeps into fresh underground water sources known as **aquifers**, or freshwater springs. These aquifers provide most of the fresh water that is available for use on the planet. People cannot drink salt water, and many plants cannot survive high levels of salt. While salt can be

removed from water through **desalination plants**, these are very costly to build and maintain and many countries do not have the resources necessary. This will bring about widespread water scarcity, which will have significant consequences for health and wellbeing. Lack of water impacts on physical health and wellbeing as it could bring about increased levels of morbidity and mortality from diarrhoea and other water-borne diseases as people struggle to reuse the limited water they might have available.

Water scarcity can also lead to increased levels of poverty, because people must pay large amounts of money to purchase clean water for drinking. This will affect mental health and wellbeing due to the increased stress this produces. Physical health and wellbeing can also be affected because families may not have sufficient money to afford food, clothing, shelter and healthcare, increasing the risk of malnutrition and illness. Water scarcity is also anticipated be a major cause of conflict as countries seek to gain control over the limited freshwater supplies that are available. Conflict leads to poor health and wellbeing in all dimensions.

FIGURE 10.5 Global warming will lead to more extreme weather events, such as this flood in Thailand, and rising sea levels. This means villages and farms will be lost.



Reduced availability of food

Salt water is unsuitable for many trees, plants and crops. This means that existing seeds, grains, fruits and vegetables will not be suitable for growing in many areas. Fruit trees that provide food for people are likely to stop bearing fruit because of the salinity. Increased temperature of the oceans leads to increased **acidification**, which affects marine life such as clams, oysters and sea corals. These animals provide food for other marine animals. An interruption in the marine **ecosystem** reduces the number and variety of fish and seafood available for consumption, affecting thousands of people worldwide who rely on seafood as their main food source.

Rising sea levels will therefore bring about reductions in food supply and further widespread hunger and undernutrition, which will reduce the overall level of health and wellbeing. Hunger and malnutrition affects physical health and wellbeing by reducing immunity to disease, contributing to micronutrient deficiencies, lack of energy and stunted growth in children.

FIGURE 10.6 Water scarcity can have consequences for health and wellbeing.



Poor physical health and wellbeing reduces emotional health and wellbeing, as people may worry and become fearful about how they will feed their family and the risks of ongoing illness. Illness and fatigue affects a child's ability to attend school and a mother's ability to work, which reduces opportunities to develop relationships, which affects social health and wellbeing. Ongoing illness and hunger leads to disempowerment and disconnection from the community, reducing spiritual health and wellbeing.

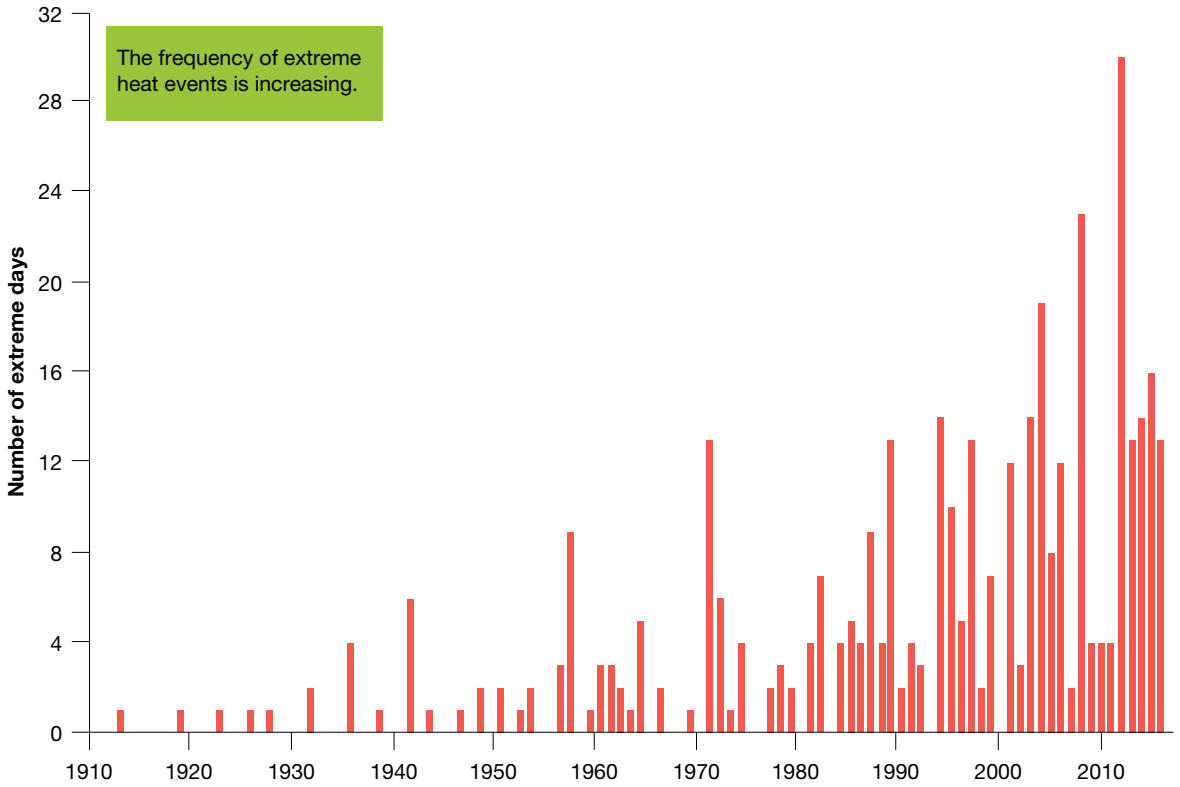
Changes in biodiversity

Increased salt water will change the chemistry of the soil in coastal areas, making it unsuitable for many coastal plants to survive. Similarly, many forms of wildlife, such as shorebirds and sea turtles, use the sand on beaches to nest. Rising sea levels could lead to the flooding and erosion of these areas reducing habitats and endangering these animals. Biodiversity is important for keeping resources such as water and soil healthy and capable of recovering from disasters and pollution. Biodiversity helps ensure a sustainable food supply and is the source of many medicines and drugs. All species are part of a complex ecosystem that relies on a wide variety of plants and animals for the system to be sustainable. Rising sea levels and salinity has the potential to interrupt this ecosystem and threaten many of the systems that sustain life, impacting all dimensions of health and wellbeing.

10.2.4 Changing weather patterns and extreme weather events

The weather and climate are changing due to global warming. Oceans play an important role in determining our climate, and the increasing temperature of the oceans has brought about changing weather patterns. With temperatures expected to increase we are likely to experience more extremely hot days and less extremely cool days. The frequency of days with extremely high temperatures in Australia continue to increase (see figure 10.7).

FIGURE 10.7 Number of days in Australia where extreme heat was experienced.



Number of days each year where the Australian area-averaged daily mean temperature is extreme. Extreme days are those above the 99th percentile of each month from the years 1910–2017. These extreme daily events typically occur over a large area, with generally more than 40 per cent of Australia experiencing temperatures in the warmest 10 per cent for that month.

Source: © CSIRO State of the Climate 2018, Australian Bureau of Meteorology Commonwealth of Australia, p. 4.

Rainfall patterns are also expected to change. Dry regions will become even drier and wet regions will become even wetter. In Australia, for example, rainfall from May to July has reduced by around 19 per cent since 1970 in the southwest areas of Australia but has increased across parts of northern Australia.

Extreme weather events are also becoming more common, with the number of weather-related natural disasters having more than tripled since the 1960s. Heatwaves are expected to become more frequent, making droughts and fires more likely in many areas. Rainfall in countries such as Ethiopia, where droughts are already common, could decline by 10 per cent over the next 50 years. Extreme weather events such as cyclones, floods, droughts, fires and storms are also expected to become more common and will affect health and wellbeing by increasing the incidence of infectious diseases, bringing about extremes in temperatures, changing the types of crops that can be grown and reducing access to fresh water.

Impact of changing weather patterns and extreme weather events on health and wellbeing

Increased temperatures, changing rainfall patterns and more extreme weather events will impact on health and wellbeing globally. We are likely to see an increase in a range of infectious diseases, increased burden of disease from conditions such as cardiovascular disease and asthma, increased homelessness, particularly in low-income countries, greater hunger and undernutrition and less access to fresh water (see figure 10.8).

FIGURE 10.8 Changing weather patterns and extreme weather events will have a significant impact on health and wellbeing.



Increased incidence of infectious diseases

Many infectious diseases are spread by mosquitoes that breed in surface water that becomes stagnant. Mosquitoes thrive in humid conditions. Warmer temperatures are likely to produce ideal breeding grounds for mosquitoes. Physical health and wellbeing could be compromised as in increase in the mosquito population could result in an increase in diseases such as malaria, dengue and yellow fever, and the spread of these diseases into countries that were previously unaffected. Floods and droughts also increase the risk of diarrhoeal diseases. Other diseases linked to heavy rainfall and contaminated water supplies include cholera, giardia, typhoid, and hepatitis A.

FIGURE 10.9 Mosquitoes spread many infectious diseases.



Increased burden of disease from cardiovascular disease and asthma

Extreme temperatures can kill people, particularly those who suffer from cardiovascular and respiratory diseases, the elderly and young children. Climate change is predicted to see an increased frequency and intensity of heatwaves, as well as warmer summers and milder winters. Pollen levels increase during periods of high heat and can trigger asthma, which already accounts for a high burden of disease, therefore impacting physical health and wellbeing.

Increased homelessness

The impact of extreme temperatures is likely to be greater in low- and middle-income countries as they lack the resources to cope with natural disasters, which often leaves people displaced or homeless. Homelessness is a major cause of poor emotional and mental health and wellbeing. It reduces social connection and belonging and, therefore, reduces social and spiritual health and wellbeing. Without safe housing, the risk of injury and violence is also increased which reduces physical health and wellbeing.

Increased hunger and undernutrition

Changes in weather will affect the growth of many crops around the world. Crops such as wheat and rice grow well in high temperatures, while plants such as maize and sugar cane prefer cooler climates. Changes in rainfall patterns will also affect how well plants and crops grow. The effects of a change in the weather on plant growth may lead to some countries not having enough food and experiencing high levels of hunger and undernutrition. This affects physical health and wellbeing. Children especially are at risk of stunting and poorly developed immune systems which will increase the risk of contracting a range of diseases and suffering these diseases for a much longer period of time. Hunger reduces a child's opportunity to attend school and develop social connections which reduces social health and wellbeing. Mothers often have to care for the sick children which reduces the time she is able to work in the fields to provide food for the family which increases stress and impacts mental health and wellbeing.

Reduced access to fresh water

Flood water contaminates water stores, which means clean water becomes unavailable for drinking. This increases the incidence of water-borne diseases such as diarrhoea, typhoid and giardia. Flooding is also responsible for drownings and physical injuries, which affects physical health and wellbeing.

FIGURE 10.10 Climate change poses a threat to health and wellbeing worldwide.



Source: Adapted from the World Health Organization.

10.2 Activity

Access the **Climate change** weblinks and worksheet in the Resources tab then complete the worksheet

10.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What has caused the increase in the production of carbon dioxide and other greenhouse gases over the last 50 years?
2. Why do increasing levels of greenhouse gases contribute to global warming?
3. What temperature increase is predicted for the planet in the longer term? Outline the consequences of this.
4. What are the two major causes of rising sea levels?
5. Explain three ways that rising sea levels can have an impact on health and wellbeing.

6. Provide three examples that represent extreme weather events.
7. Outline three ways in which changing weather patterns will affect health and wellbeing.

10.2 Exercise 2 APPLY your knowledge

1. Explain the relationship that exists between rising sea levels and conflict between countries.
2. Outline the evidence that suggests global warming is contributing to changing weather patterns.
3. Using examples from figure 10.10 discuss how climate change impacts health and wellbeing.

studyON

10.2 Exercise 3 studyON: Past VCCA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Climate change worksheet (doc-32225)
Weblinks Climate Change — the mental impact
Climate Change — sea levels rising

10.3 The implications for health and wellbeing of conflict and mass migration

KEY CONCEPT Understanding the impact of conflict and mass migration on health and wellbeing

10.3.1 Conflict

Since 2001, the level of conflict worldwide has increased. Acts of terrorism that have deliberately targeted civilians have become more common and more deadly. According to the World Health Organization, armed conflicts are now the largest and longest experienced since the end of World War II, and the number of refugees and **displaced people** as a result of conflict is also at its highest since World War II. The nature of conflict has also changed, with international humanitarian law now being largely ignored. There is deliberate bombing of healthcare facilities and siege and starvation tactics are being used as weapons of war.

Impact on health and wellbeing

Conflict has a significant impact on health and wellbeing. Besides the obvious loss of life that occurs during periods of conflict, the associated effects flow through to all parts of society. Those who are already experiencing poor living conditions and poor physical health and wellbeing are often the most affected, further reducing health and wellbeing. Low- and middle-income countries are often not in an economic position to sustain a war effort and provide basic resources for their people. The physical environment can be destroyed, which can limit access to supplies such as food and water and services such as healthcare. As a result, malnutrition is increased and conditions that may have been treatable during peaceful times, such as injuries and infections, are left untreated during times of conflict. This affects physical health and wellbeing. Water and sanitation facilities and electricity supplies can also be destroyed and thousands of people are at risk of dying from diseases caused by unsafe water.

The effects of conflict also include physical injuries, higher maternal and infant mortality, and increases in outbreaks of communicable diseases such as typhoid, dysentery and cholera. Mental health and wellbeing is affected during times of conflict, with individuals living in fear and being concerned for the health and wellbeing of themselves and their families.

During times of conflict the risk of personal injury and the destruction of infrastructure can make it difficult to reach those requiring assistance and aid. For these reasons, health workers may also find it difficult to carry out their work, compounding the effects on health and wellbeing.

FIGURE 10.11 During times of war and conflict, healthcare facilities are often deliberately bombed.



Women are at higher risk of rape and abuse when conflict occurs. Lack of protection from rival forces has an impact on the lives of women and children, affecting their physical, social, spiritual, emotional and mental health and wellbeing. Things rarely return to normal when the conflict ends, and the damage done may mean people cannot lead lives equivalent to those they were leading before the conflict. Long-lasting effects, such as the presence of landmines and the lack of infrastructure, can affect the lives of residents for many years into the future. Many families are also left without an income earner, which can drive them further into poverty.

10.3.2 Mass migration

Mass migration refers to movement of large groups of people from one geographical area to another. The main reasons for mass migration is the forced displacement of people as a result of conflict, persecution, violence and violations of human rights. In 2018, the United Nations Refugee Agency (UNCHR) estimated 70.4 million people were at risk as a result of these factors. This included 20.2 million refugees, 3.2 million **asylum-seekers**, 39.7 million internally displaced people (IDPs), and 3.9 million stateless people. During the first half of 2018, UNCHR offices reported that at least 5.2 million people were newly displaced with around 3.7 million displaced within their own country and 1.4 million displaced across international borders, most of whom moved into neighbouring countries (see figure 10.12).

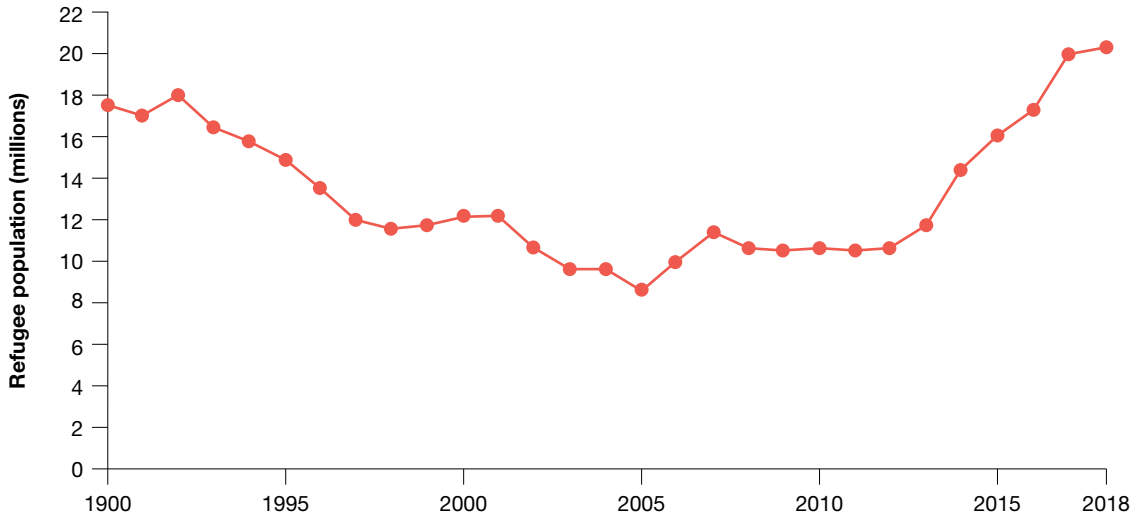
FIGURE 10.12 Mass migration refers to movement of large groups of people from one geographical area to another and includes refugees, asylum-seekers, internally displaced persons and stateless people.

MASS MIGRATION

Refugees	Asylum-seekers	Internally displaced persons	Stateless persons
• People who have fled their country and crossed an international border to find safety in another country, often with little more than the clothes on their back. • They leave behind homes, possessions, jobs and loved ones.	• People who have fled their country but for whom their request for protection in another country has yet to be processed.	• People who have been forced to leave their home but have not crossed a border to find safety • They are on the run in their own country.	• People who do not have the nationality of any country and are therefore not protected by the laws of any country.

The number of people who have been displaced has continued to increase since 2012 (see figure 10.13).

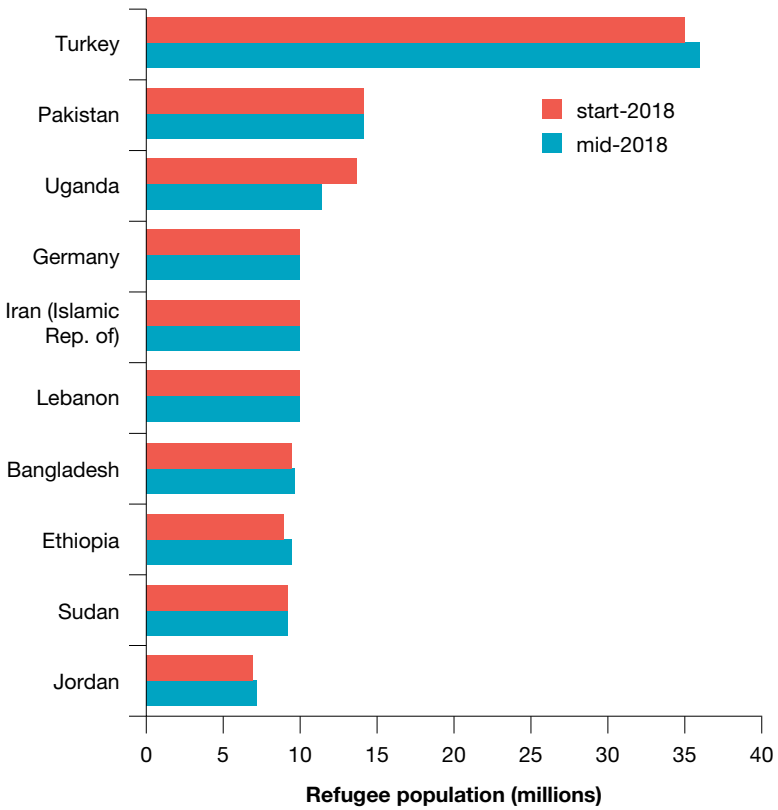
FIGURE 10.13 The number of refugees continues to increase largely as a result of the war in Syria, South Sudan, Democratic Republic of Congo, Nigeria, the Central African Republic, Sudan and Eritrea.



Source: UNHCR Mid-year trends 2018, p. 5.

When people are internally displaced, it usually results in overcrowding in the urban centres. People are also forced to relocate to other countries, most of which are low- and middle-income countries. Most of the world's displaced people are provided asylum by low- and middle-income countries in Africa, Asia and the Middle East. These countries hosted almost 12.6 million refugees in 2018 (see figure 10.14). This can create a huge burden on the already struggling economies, infrastructure, security and society of these countries and can have a destabilising effect regionally and globally. The mass migration of people also has the potential to contribute to the spread of infectious diseases. This adds further to the stress placed on the healthcare systems of countries that are already struggling to meet the health needs of the population.

FIGURE 10.14 Major host countries of refugees (start-2018–mid-2018)



Source: © UNHCR 2018

Impact on health and wellbeing

Mass migration has a significant impact on health and wellbeing. Most of those who are displaced have been forced to leave their homes, farms and jobs and are living below the poverty line. They often seek shelter with relatives or friends, in schools, public and abandoned buildings, makeshift shelters, or in the open with little or no protection. People suffer from insecurity, lack of services, and shortages of food and water. Children usually drop out of school to work or beg, and women may be forced into selling sex to get enough food to survive. Displaced women and children are particularly at risk of sexual and gender-based violence, increased levels of domestic violence, child abuse and alcohol-related violence, all of which not only affects their physical health and wellbeing but also their mental and emotional health and wellbeing.

FIGURE 10.15 A refugee camp in Somaliland



Refugees are often forced into crowded and unsanitary living conditions in refugee camps. This can lead to outbreaks of cholera, diarrhoea and other vaccine-preventable diseases that contribute to high rates of morbidity and mortality and reduced physical health and wellbeing.

10.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is meant by 'the nature of conflict has changed'?
2. Outline three ways that conflict can affect health and wellbeing.
3. When conflict occurs, why are women at greater risk?
4. What is meant by mass migration?
5. Explain each of the four groups of people who generally constitute mass migration.
6. Explain four ways that mass migration can impact on health and wellbeing.

10.3 Exercise 2 APPLY your knowledge

1. Why would conflict be described as a global trend?
2. Use the information in figure 10.14 to support the statement that most of the world's refugees relocated to low- and middle-income countries. Explain the consequences of this on health and wellbeing.

studyON

10.3 Exercise 3 studyON: Past VCCA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

10.4 The implications for health and wellbeing of world trade and tourism

KEY CONCEPT Understanding how world trade and tourism impacts health and wellbeing

10.4.1 World trade

World trade is the exchange of goods and services between countries. It is driven by different production costs in different countries. It is cheaper for some countries to import goods than to make them. Many

low-income countries do not have the production processes available for converting raw materials into valuable consumer goods. Trade allows countries to specialise and enables technologies, skills and ideas to be shared. It promotes competition, which helps boost innovation and productivity and fosters economic growth. According to the World Bank, low- and middle-income countries constitute 48 per cent of world trade in 2018, up from 33 per cent in 2000, and the number of people living in extreme poverty has been cut in half since 1990, to just under one billion people. Trade has helped increase the number and quality of jobs in low- and middle-income countries, stimulated economic growth, and contributed to productivity increases.

World trade provides job opportunities for local workers. Increased levels of employment lead to a higher standard of living and more consumer purchasing. This ultimately sparks the country's economy and may help to develop small, locally owned businesses where the business owner can then sell to foreign markets and further increase their income. Many of these small business owners are women. Export growth has been associated with promoting gender equality. Many exporting firms that get set up in low- and middle-income countries employ women. An example of this is in Cambodia and India where most workers in the clothing industry are women.

FIGURE 10.16 In Bangladesh many women work in textile factories, producing garments for export.



An increase in employment levels, incomes, and the general standard of living in low- and middle-income countries helps improve physical health and wellbeing by reducing hunger and providing resources for the provision of medical care. A reduction in hunger leads to more energy, better functioning body systems and fewer diseases. Preventative medical care, including checkups and vaccinations, are available to more of the population which helps reduce communicable diseases such as measles and whooping cough.

When children have good physical health and wellbeing, they are able to attend school and gain an education which in turn can provide them with the knowledge and skills needed to live a healthy life. This contributes to lower under-five mortality rates and increased life expectancy.

However, the impacts of world trade are not always positive for many low-income countries. To produce cheap goods, some multinational corporations have been accused of social injustices, particularly against women who have been forced to work in dangerous conditions for very low pay. Many low-income countries do not have laws to protect the health and safety of workers. There have also been instances where children have been used to work in very unsafe and poor conditions where safety standards are ignored. This has significant impact on health and wellbeing. Women and children are at risk of disability and death due to working in unsafe conditions which affects physical health and wellbeing. Crowded factories with poor ventilation put women and children at risk of respiratory conditions and communicable diseases, also impacting physical health and wellbeing. Social health and wellbeing is reduced as children are denied access to school and women are denied access to social interactions and the development of relationships. Unsafe working conditions increases the level of stress and anxiety and reduces self-esteem, impacting mental health and wellbeing. Spiritual health and wellbeing is also reduced as women and children can lose a sense of hope and purpose in life and are not given the opportunity to make choices in accordance with their values and beliefs.

Other areas of concern have been the increasing use of pesticides by corporate farms in low- and middle-income countries, with host countries ignoring costly environmental standards. There have also been situations where industrial waste has been incorrectly disposed of in the environment. This contributes to environmental degradation with the eventual reduction in the amount of food available and the further pollution of water sources. This impacts on physical health and wellbeing by contributing to increased hunger and malnutrition and an increase in waterborne diseases such as diarrhoea. Therefore there are many advantages and disadvantages associated with world trade and these are summarised in table 10.1.

TABLE 10.1 Advantages and disadvantages of world trade

World trade	
Advantages	**Disadvantages**
• Fosters economic growth • Reduces poverty • Provides employment for local workers • Supports establishment of small, locally owned businesses largely owned by women • Promotes gender equality	• Few occupational health and safety rules exist which leads to women and children being forced to work in dangerous conditions for low pay • Overuse of pesticides can lead to environmental degradation • Incorrect disposal of industrial waste can lead to environmental contamination

CASE STUDY

US$180m programme launched on mining sector

Every year, more than 2,700 tonnes of gold is mined around the world. Twenty per cent of that — over 500 tonnes annually is produced by artisanal and small-scale miners. These miners and processors — majority of them in low- and middle-income countries often work in harsh conditions, without the protection of industry regulations on pay, health or safety, in order to meet the global desire for gold — investment in jewellery and consumer products. As many as 15 million people work in the sector globally — including 4.5 million women and over 600,000 children. In many of these countries, mercury is used in the gold extraction process. However, studies indicate that mercury exposure in artisanal and small-scale miners is putting miners and their communities at risk of impacts from permanent brain damage to seizures, vision and hearing loss, and delayed childhood development.

A new $180 million programme is being introduced that will improve health conditions for artisanal miners across eight countries, while slashing mercury emissions harmful to the environment, The programme aims to reduce the use of mercury in artisanal gold mining and introduce and facilitate access to mercury-free extraction methods, while also working with governments to formalize the sector, promote miners' rights, safety and their access to markets.

"From smartphones to wedding rings, gold passes through all of our hands every day. But for most of us the source of that gold, and its real cost, remains a mystery," said Gustavo Fonseca, GEF Director of Programs. "Introducing safe, mercury-free technologies into the small-scale mining sector will help provide a safe transition to job formality and dignified work for millions, while putting an end to the environmental impacts that can pave way to sustainably produced gold." The sector is the single largest source of man-made mercury emissions, responsible for the release of as much as 1,000 tonnes of mercury to the atmosphere annually, which represents nearly 40% of the total emissions.

While small-scale gold mining represents a development opportunity for rural populations, who often have few livelihood alternatives. This programme aims to secure miners' livelihoods, by opening up access to markets and the finance needed to increase incomes and enable the uptake of mercury-free technology.

Spanning eight countries the five-year programme is a partnership between the Global Environment Facility, the United Nations Development Programme, the United Nations Environment Programme, the United Nations Industrial Development Organization, Conservation International and the governments of Burkina Faso, Colombia, Guyana, Indonesia, Kenya, Mongolia, the Philippines and Peru.

Source: United Nations Development Programme: US$180m programme launched on mining sector February 18th 2019. https://www.undp.org/content/undp/en/home/news-centre/news/2019/-180-million-investment-on-gold-mining-to-tackle-health-and-envi.html.

Case study review

1. Explains the aims of the programme being introduced.
2. What are the benefits associated with gold production and trade identified in the article?
3. Identify the negative implications associated with the global production and trade in gold for the small-scale farmers.
4. Use examples from the case study to discuss the statement: World trade has many advantages but it can also have negative implications for health and wellbeing.

10.4.2 Tourism

Tourism is one of the world's fastest growing industries worldwide. It represents international trade in services and accounts for 10 per cent of the world's exports in goods and services or GDP. According to the United Nations World Tourism Organization, international tourist arrivals have increased from 25 million globally in 1950 to 278 million in 1990, 674 million in 2000, 1186 million in 2015 and 1323 million in 2017. International tourist arrivals worldwide are expected to reach 1.8 billion or more by 2030. The strongest growth in tourism is expected to be in Asia and the Pacific regions, where tourist visitors are predicted to increase by 331 million to reach 535 million in 2030.

10.4.3 Why is tourism important?

Tourism plays a key role in developing jobs for local people as well as promoting local culture and products. It is a key driver of economic progress. In 2017, tourism was responsible for providing 1 out of every 10 jobs and 10 per cent of the world's economic output or GDP.

FIGURE 10.17 Tourism is a major source of income in Samoa.



Money spent by international visitors on accommodation, food and drink, entertainment, shopping and other goods and services reached US$1340 billion in 2017, which is around US$3.7 billion per day in tourism exports. In many low- and middle-income countries, tourism is a major source of income and employment. In many of these countries, tourism ranks as the highest export sector. Tourism involves many service providers and organisations, some of which are directly involved in the provision of services to tourists, while others work in the background and support the services that enable tourism to take place. Tourism encourages governments to spend money developing the necessary infrastructure, which can benefit local communities and families. Tourism has helped countries such as Cabo Verde, the Maldives and Samoa move from being classified as a low-income country to a middle-income country.

How tourism promotes health and wellbeing

Tourism has five key benefits which promote health and wellbeing:

1. *Tourism promotes inclusive and sustainable economic growth.* Tourism accounts for 10 per cent of the world's GDP and this trend is set to continue. Economic growth is important if people and countries are to escape from poverty. Economic growth promotes job creation and opportunities for people to be employed and earn an income. With an income, families are more able to purchase the necessary food, water, clothing, shelter and healthcare that promotes physical health and wellbeing. With an income, families can afford to send their children to school, which creates opportunities for them to develop relationships that promotes social health and wellbeing. Healthier people feel more confident and empowered, which increases the level of emotional health and wellbeing. Greater empowerment builds a sense of belonging to the community, which promotes spiritual health and wellbeing.
2. *Tourism contributes to social inclusiveness and employment*. One in every 11 jobs globally is provided by the tourism industry and more than half of all international tourists will travel to low- and middle-income countries. Almost twice as many women are employed in the tourism sector compared with any other sector. This increases female empowerment and gender equality. This promotes social, emotional, mental and spiritual health and wellbeing. Tourism's contribution to economic growth and development can also benefit health and wellbeing. Money from tourism can be reinvested in healthcare services, which can improve maternal health and wellbeing, reduce child mortality and

prevent diseases, which promotes physical health and wellbeing. A well-trained and skillful workforce is crucial for tourism to prosper. The tourism sector can provide incentives to invest in education and vocational training. Youth, women, older people and those with special needs can also benefit through education, where tourism has the potential to promote inclusiveness, a culture of tolerance, peace and non-violence, and all aspects of global exchange and citizenship. These promote all dimensions of health and wellbeing.

3. *Tourism promotes resource efficiency and environmental protection.* Tourism is effective in raising money for the conservation of wildlife and the environment. It can be a way of protecting and restoring biodiversity. This helps promote spiritual health and wellbeing. Protecting the environment is also important for physical health and wellbeing.
4. *Tourism preserves cultural values, diversity and heritage*. Tourism can protect traditional values and customs, empower communities and foster pride, which promotes emotional and spiritual health and wellbeing. Tourism also promotes cultural diversity and raises awareness of the value of heritage, which promotes social, emotional, mental and spiritual health and wellbeing.
5. *Tourism promotes mutual understanding, peace and security.* Tourism can break down barriers that exist between cultures, and provides opportunities to build trust and peace. Tourism is also a resilient industry that can recover quickly in the event of a natural disaster. Trust and peace between countries helps reduce conflict, which promotes all dimensions of health and wellbeing. Developing trust promotes social and emotional health and wellbeing.

10.4.4 The challenges of tourism

While tourism can generate many benefits for local communities, it can bring about many challenges, particularly if it is unsustainable. It can pose environmental challenges, cause overcrowding and put pressure on local infrastructure and services; it can also place stress on fragile local ecosystems. Disposal of liquid and solid wastes generated by the tourism industry may also strain the capacity of local infrastructure to treat the additional wastes generated by tourism activities. These wastes can contaminate water supplies, which impacts on physical health and wellbeing. The World Tourism Organization defines sustainable tourism as 'tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities'.

Tourism can also be considered a threat to health and wellbeing. Increasing international air travel, trade and tourism can result in disease-producing organisms being transported rapidly from one country to another. Where countries previously would have reported an outbreak of an infectious disease, the possible threat to trade and tourism and the corresponding economic impact can mean some countries may be tempted not to report them — which can lead to potential epidemics.

FIGURE 10.18 Why tourism matters



Source: World Tourism Organization 2016, 'Why Tourism Matters', infographic (online), available at www.unwto.org.

There are many examples of how diseases have been spread through tourism. At the 2016 Olympic Games in Rio De Janeiro there was widespread fear that the Zika virus, which was prevalent in the area, would be contracted by the 16 000 athletes and 600 000 visitors attending the games. There were concerns that the virus could be transmitted via sexual contact and spread further once visitors returned home. There were also fears that the disease could be spread to mosquitoes in visitors' home towns on their return.

At the 2010 Winter Olympics in Vancouver, an outbreak of 82 cases of measles occurred when at least two visitors brought the virus with them. The virus was further spread when these visitors returned home. Vomiting and diarrhoeal diseases have been associated with people travelling on cruise ships, stopping at ports along the way and infecting local communities. These diseases were also spread to 65 people at the 2006 FIFA World Cup in Germany.

EXAM TIP

When analysing the impact of world trade and tourism on health and wellbeing of people in low- and middle-income countries consider both the benefits and challenges in your discussion.

10.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What percentage of the world's GDP does tourism contribute to?
2. Which regions are expected to have the strongest growth in tourism by 2030?
3. List the five key benefits of tourism.
4. Explain how tourism and world trade can contribute to health and wellbeing.
5. Outline two challenges that are associated with tourism.
6. What is meant by sustainable tourism and why is sustainable tourism important?

10.4 Exercise 2 APPLY your knowledge

1. Explain how world trade and tourism can help reduce poverty.
2. Outline how tourism and world trade can help achieve gender equality.
3. Explain how tourism can contribute to social inclusiveness.
4. World trade and tourism does not always promote health and wellbeing. Discuss.

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10.4 Exercise 3 studyON: Past VCCA exam questions online only

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10.5 The implications for health and wellbeing of digital technologies

KEY CONCEPT Understanding how digital technologies that enable increased knowledge sharing impacts health and wellbeing

Over the last 10 years there has been considerable growth in digital technologies. The world has become increasingly more connected. People, businesses and governments are moving into the virtual world to deliver and access services, obtain and share knowledge, undertake transactions, shop, work and interact with each other. Digital media now allows people to selectively access information they need through multiple channels.

Developments in mobile phone technology and the rapid expansion of affordable mobile phone networks means that digital technologies are much more available to people, even those living in the most remote, resource-limited areas. The number of mobile phones now exceeds the world's population.

The expansion of digital technologies means mobile phone technology can be used not only for everyday communication but also for more complex data collection and sharing of health-related information. Many

countries are using digital technologies in their health information systems. Mobile phones help healthcare workers in the field gather population data, such as the number and ages of men, women and children, the numbers of pregnant women and whether they access healthcare before, during and after pregnancy. This health-related information is important for governments to be able to establish programs that meet the needs of the population as well as evaluate the effectiveness of the programs implemented.

Digital technologies also provide countries with the ability to register births, deaths and marriages, which ensures people have access to legal protection, education and basic human rights. Mobile phone technology can be used for disaster preparedness, and SMS services can be used to issue warnings of an impending emergency. This reduces stress levels and promotes mental health and wellbeing.

FIGURE 10.19 Digital technologies are now available to people who live outside major cities.



Digital technologies also have the potential to engage individuals and families more directly in their healthcare experience. People now have access to more self-care and diagnostic information that they can use to monitor and improve their health and wellbeing. This can promote physical health and wellbeing, as people are more aware of their own health, as well as promoting mental and emotional health and wellbeing.

The emergence of eHealth is changing the nature of healthcare. eHealth refers to health services and information delivered or enhanced through the internet and related technologies. eHealth has the capacity to increase efficiency in healthcare, which can reduce the cost by avoiding unnecessary duplication of diagnostic or therapeutic services and better communication that reaches more people. Digital technologies can empower people to manage their health and wellbeing and to adopt healthy behaviours. Personal health records can be shared with other members of the healthcare team, used for ongoing disease monitoring and feedback and to share health information and treatment goals with the patient. Digital technologies have the capacity to open new avenues for patient-centred medicine, and eventually enable more patient choice.

Online networks enable people to share and compare different diagnoses and treatments with people who have the same conditions all over the world. Members of an online community can ask for advice, learn from each other, discuss test results, and compare how different medications, treatments, or combinations of drugs might be working. Sharing information creates more informed and empowered people, and can lead to changes in the patient and health provider relationship. As health professionals are no longer the only source of information, the relationship becomes more equal and collaborative. Advances in technology are generating new opportunities to leverage eHealth tools to help individuals self-monitor and assess their symptoms, create online communities, and empower individuals with chronic disease to be actively engaged in the management of their health and wellbeing.

CASE STUDY

My Health Record

In 2019 the Australian government introduced My Health Record, which is an online summary of a person's health information in one place. This allows individual Australians to share and control their health information with doctors, hospitals and other healthcare providers, from anywhere at any time. It is anticipated that people will become more invested in their own health and be empowered to have more control over decisions about their health and the management of personal health information. There are laws in place to ensure the privacy of this information is maintained but people do have the option to cancel a My Health Record at any time, which permanently deletes all records. Whilst there are some concerns about having all health records online, more than 6.45 million Australian had a My Health Record in January 2019 with the majority of general practices, public hospitals and pharmacies connected to My Health Record.

Case study review

1. What is My Health Record?
2. What are the benefits outlined in the information of having a My Health Record?
3. What might be some of the concerns about My Health Record?
4. Why is it important for people to be able to opt out of My Health Record?
5. Explain how digital technologies such as My Health Record could promote health and wellbeing.

10.5.1 The challenges of digital technologies

While digital technologies have the capacity to promote health and wellbeing there is a darker side of internet and mobile phone technology use. Issues regarding the privacy and safety of children and young people is a concern in all countries, but those in low- and middle-income countries are at greater risk as there are fewer measures protecting children's safety online. Research by UNICEF has shown that almost a quarter of children in urban areas and one in every five children in rural areas surveyed in Vietnam shared personal information such as their phone number or name of their school with someone online. In South Africa, more than 70 per cent of users of an online social networking site talked to strangers at least once a week. In Vietnam 49 per cent of urban children had been exposed to indecent content online, while 20 per cent of rural children reported having been bullied, threatened or embarrassed online. This can have a serious impact on emotional and mental health and wellbeing.

10.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. How are people, business and governments using digital technologies?
2. Outline how mobile phone technology is assisting people to share information.
3. List the information that can be collected using digital technologies and explain the benefits of each.
4. What is meant by eHealth?

10.5 Exercise 2 APPLY your knowledge

1. Explain how digital technologies can empower people to manage their health and wellbeing and to adopt healthy behaviours.
2. How do digital technologies contribute to a more equal and collaborative relationship between a patient and a healthcare worker?
3. Explain three ways that digital technologies can promote health and wellbeing.

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10.5 Exercise 3 studyON: Past VCCA exam questions online only

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10.6 Topic 10 review

10.6.1 Key skills

KEY SKILL Analyse the implications for health and wellbeing of particular global trends

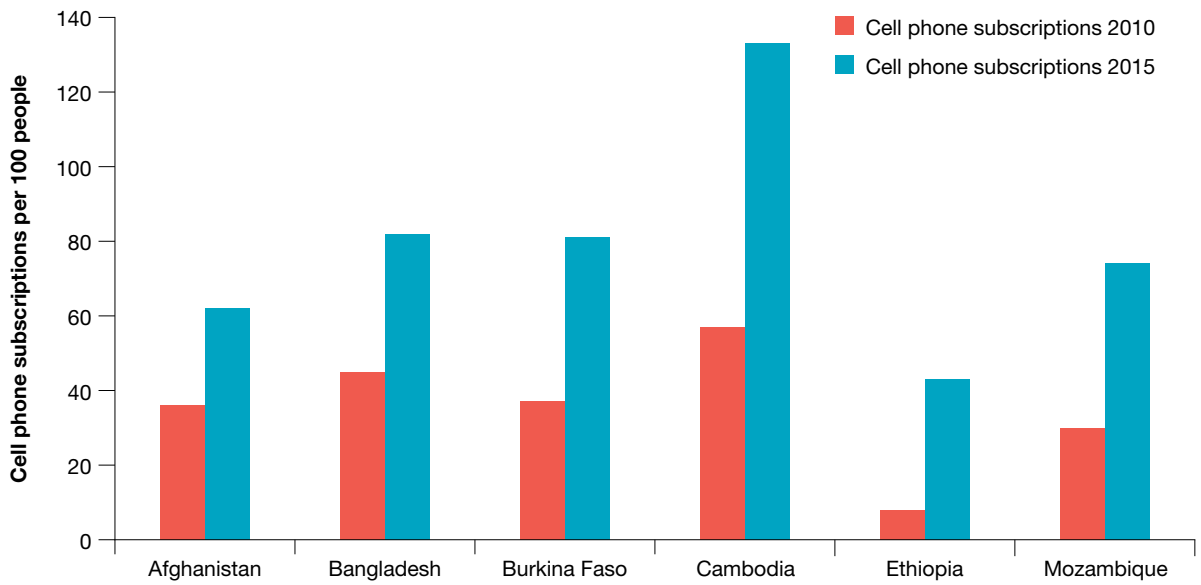
To address this skill, it is important to have a clear understanding of all dimensions of health and wellbeing and each of the global trends explored in this topic.

The following questions offer a useful approach when analysing the impact of global trends on health and wellbeing:

- What is the global trend that is the focus of the question? For example, it could be rising sea levels or extreme weather events as part of climate change; it could be conflict or mass migration, world trade or tourism or any digital technologies. This information could be presented as a case study, graph, table or quotation.
- What does the global trend mean or what does it include?
- Will the trend have a positive impact on all dimensions of health and wellbeing, including physical, social, emotional, mental and spiritual health and wellbeing?
- Are there any potential negative influences on health and wellbeing in relation to the global trend?

These questions will be applied to figure 10.20.

FIGURE 10.20 Number of cell phones users per 100 people in selected low- and middle-income countries, 2010 and 2015



Source: Adapted from data from the World Bank, 2016.

The global trend shown in the graph is the increase in the use of digital technologies. In this case, it is the increase in the number of cell phone subscriptions per 100 people in selected countries.[1] All countries shown have increased access to this form of digital technology over the last five years. This has contributed to a world that is becoming increasingly more connected. People, businesses and governments are now able to deliver and access services, obtain

1 The global trend is clearly identified.

2 Digital technologies as a global trend is outlined to show an understanding of what it means.

and share knowledge, undertake transactions, shop, work and interact with each other in ways that was not possible in the past.

Developments in mobile phone technology have been enabled through the expansion of affordable mobile phone networks. This has increased their accessibility to everyone, even those living in the most remote and poor areas of the world. Mobile phone technology has opened communication channels across the world, enabling more complex data collection and the sharing of health information.[2]

Mobile phones offer a great opportunity to promote health and wellbeing. Healthcare workers can gather population data quickly, such as the number and ages of people, the number of women who are accessing healthcare during and after their pregnancy and the number of people who are suffering from diseases and where they live. This data helps promote good health and wellbeing because it provides valuable information that allows government to implement relevant programs in the right areas to help people stay healthy.[3]

3 The link to health and wellbeing is outlined.

Digital technologies allow births, deaths and marriages to be registered, which is important for health and wellbeing as it contributes to people having access to legal protection, education and basic human rights. This promotes social, emotional and mental health and wellbeing. When their human rights are fulfilled, people feel much more connected to their communities, which promotes spiritual health and wellbeing.

Mobile phone technology can be used by countries to better prepare for disasters. Mobile phones can be used to transmit SMS messages to issue warnings of an emergency and provide instructions for people to minimise injuries and deaths. This helps promote physical, mental and emotional health and wellbeing.[4]

4 The positive impact of mobile phone technology is linked to specific dimensions of health and wellbeing.

Mobile phone technologies can be used to involve individuals and families more directly in their healthcare experience. They have access to more self-care and diagnostic information that can be used to monitor and improve their health and wellbeing and help them to adopt healthy behaviours. This can promote physical health and wellbeing as people can take action to prevent ill health.[5]

5 The positive impact of mobile phone technology on physical health and wellbeing is discussed.

While digital technologies can promote health and wellbeing, they also have the potential to have a negative impact. The privacy and safety of children and young people online is a concern in most countries — those in low- and middle-income countries are less protected. Many children are sharing personal information online with people they don't know and many are being exposed to indecent content or are being bullied, threatened or embarrassed online. This can have a serious impact on children's emotional and mental health and wellbeing.[6]

6 The potential for digital technologies to have a negative impact is outlined.

Practise the key skill

Since the Syrian war began in 2011, more than 5.6 million Syrians have fled the country as refugees, and another 6.2 million people are displaced within their own country. Half of the people affected are children.

1. Identify the global trend represented in the information above.
2. Outline the differences between refugees and those who are displaced.
3. Describe two implications of the Syrian war for health and wellbeing.

10.6.2 Topic summary

The implications for health and wellbeing of climate change

- Human activity has resulted in a 20 per cent increase in the production of greenhouse gases over the last 50 years, which has brought about climate change.
- Due to the increasing temperature of the planet, we are now experiencing rising sea levels, changing weather patterns, and more intense and frequent extreme weather events.
- Sea levels had been rising at a rate of 1.8 mm per year between 1961 and 2003, but are now rising at a level of 3.2 mm each year.
- Rising sea levels are due to the expansion of the water that occurs at it warms as well as the increase in the volume of water that results from the melting of the polar ice caps and inland glaciers.
- Rising sea levels have an impact on people's health and wellbeing worldwide, but those living in coastal areas, and particularly those living in low- and middle-income countries, are at greater risk of losing their homes and their livelihoods.
- Rising sea levels affect health and wellbeing by forced relocation of people living in coastal areas, reducing access to fresh water, reducing agricultural and food supplies and changing the biodiversity of the planet
- Global warming is expected to contribute to changing weather patterns, such as more extreme heat and for longer periods, changing rainfall patterns where dry regions will become dryer and wet regions are more likely to be flooded.
- Extreme weather events include cyclones, floods, droughts, fires and storms.
- Extreme weather events will affect health and wellbeing by contributing to increased rates of infectious diseases, more heatwaves, which could contribute to deaths from cardiovascular disease and respiratory diseases, changes in the types of crops that can be grown and reduced access to fresh water.

The implications for health and wellbeing of conflict and mass migration

- Since 2001, the level of conflict worldwide has increased, acts of terrorism have become more common and more deadly.
- The number of refugees and displaced persons due to conflict is at its highest since World War II.
- Conflict brings about loss of life as well as destruction of existing farming land and infrastructure.
- People are forced from their homes and seek safety in other parts of the country or in another nearby country. This is known as mass migration.
- When people are displaced it usually results in overcrowding in the urban centres, or people are moved to crowded refugee camps with unsanitary living conditions. Infectious diseases often spread quickly and medical supplies, housing and fresh water can be in short supply.

The implications for health and wellbeing of world trade and tourism

- World trade has contributed to the reduction of global poverty since 1990 by providing job opportunities for local workers and stimulating economic growth.
- Tourism is one of the world's fastest growing industries, accounting for 10 per cent of the world's GDP in 2017.
- Tourism provides jobs and can help lift countries out of poverty and achieve gender equality, as almost twice as many women than men are employed in the tourism sector.
- Tourism has five main benefits: improved economic growth and social inclusiveness; employment; improved resource efficiency and environmental protection; preservation of cultural values, diversity and heritage; and the promotion of mutual understanding, peace and security.
- Tourism can also bring many challenges, such as environmental challenges, overcrowding and pressure on local infrastructure; it can be a threat to health and wellbeing. Increased travel can result in the transmission of diseases and illnesses.

The implications for health and wellbeing of digital technologies

- Digital technologies have expanded considerably over the last ten years, which means people have become more connected and there is considerably more knowledge sharing.

- Expansion in the mobile phone network has contributed to an increased ability to reach more people and provide them with health information as well as more efficient data collection methods.
- Digital technologies can empower people to take control of their health and wellbeing and make changes to their lifestyle.

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10.6 Exercise 1 Exam preparation

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Question 1

Tanzania: Eco-friendly sustainable camp

Isoitok Camp Manyara in Tanzania-Africa was created and designed with the idea to allow foreign travelers to experience the true life and daily existence of the Maasai whilst taking in jaw dropping views across The Great Rift Valley to Lake Manyara National Park. The experience of staying at Isoitok Camp is an education both in cultural tourism and how to run a business using the environment around you. The traveler gets to understand how the Maasai neighbors generally live and what they must endure over the changing seasons. The initiative does not end there as once again the traveler sees first hand and is educated through familiarization briefings as to what is meant by an "eco" friendly "sustainable" camp.

Source: Adapted from: United Nations World Tourism Organisation: Tourism in Africa: A Tool for Development, p. 73. http://cf.cdn.unwto.org/sites/all/files/pdf/tourism_africa_tool_development1.compressed_0_0.pdf.

a. Explain one of the global trends that is evident in this example. **(2 marks)**
b. What is meant by eco-tourism?
c. Provide three advantages of this project to Tanzania. **(3 marks)**
d. Discuss how this global trend could promote health and wellbeing. **(4 marks)**

Question 2

The diagram in figure 10.21 represents a range of consequences associated with climate change.

FIGURE 10.21 State of the Global Climate 2017



Source: https://public.wmo.int/en/media/press-release/state-of-climate-2017-%E2%80%93-extreme-weather-and-high-impacts.

a. Describe two factors that have contributed to the consequences shown in the diagram. **(4 marks)**
b. Select two examples of the consequences of climate change represented in the diagram and analyse the impact on health and wellbeing. **(4 marks)**

Question 3

Increased access to digital technologies, particularly in low- and middle-income countries has increased the number of adults with access to financial services such as banking. Access to financial services mean people can take out loans which can be used to start or expand their business.

a. Explain how access to financial services could promote health and wellbeing. **(2 marks)**
b. List two other examples of how digital technologies can be used to promote health and wellbeing. **(2 marks)**
c. For each of the examples identified in part b, describe two ways they can promote health and wellbeing. **(4 marks)**

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Interactivities Crossword (int-6897)
Definitions (int-6898)

School-Assessed Coursework Unit 4 AOS 1 Outcome 1

Area of Study 1 Health and wellbeing in a global context

Outcome 1

Analyse similarities and differences in health status and burden of disease globally and the factors that contribute to differences in health and wellbeing.

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11 Sustainable Development Goals and the World Health Organization

11.1 Overview

Key knowledge

- Rationale and objectives of the United Nations (UN's) Sustainable Development Goals (SDGs)
- Key features of SDG 3: 'Ensure healthy lives and promote wellbeing for all at all ages'
- Relationships between SDG 3 and SDGs 1, 2, 4, 5, 6 and 13 that illustrate collaboration between the health sector and other sectors in working towards health-related goals
- Priorities and work of the World Health Organization (WHO)

Key skills

- Describe the objectives of the UN's SDGs and justify their importance
- Describe key features of SDG 3 and analyse its relationships with other SDGs in collaborative approaches to improving health and wellbeing, and human development globally
- Explain the priorities and the work of the WHO and discuss how the WHO priorities are reflected in different scenarios

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 11.1 The Sustainable Development Goals are framing agendas and political policies from 2016 to 2030. Their goals are to end extreme poverty, fight inequality and injustice and address climate change.



KEY TERMS

Adolescent/ce a stage of the lifespan that commences at puberty and ends when a person turns 20 years of age. It is a biological marker that signals the transition to adulthood and is included as part of youth.
Antenatal care healthcare provided to women during pregnancy and just after birth
Birth asphyxia a condition in which a baby's brain and other organs do not get enough oxygen before, during or immediately after birth. It can cause temporary or permanent damage.
Caesarean section a surgical procedure in which a baby is born through a cut made in the mother's abdominal wall and the wall of the uterus rather than through the normal birthing process
Degradation the deterioration of the environment through the depletion of resources, such as clean air, water and soil; the destruction of ecosystems; and the extinction of wildlife
Ecosystem a community of living things and the non-living components of the environment in which they live. An ecosystem can include plants, animals, micro-organisms, water, air, soil and rocks.
Essential medicines a range of medicines that meet the priority healthcare needs of the population
Extreme poverty living on less than US$1.90 per day
Extremism belief in and support for ideas that are very far from what most people consider correct or reasonable
First trimester the first three months of pregnancy
Food security 'the state in which all persons obtain nutritionally adequate, culturally appropriate, safe food regularly through local non-emergency sources' (VicHealth, 2008)
Hunger the continuing lack of food needed for an active and healthy life
Indivisible unable to be divided or separated
Interdependent mutually reliant on each other
Maternal mortality death of a mother during pregnancy, childbirth or within six weeks of delivery
Maternal mortality ratio the number of mothers who die as a result of pregnancy, childbirth or associated treatment per 100 000 women who give birth
Millennium Development Goals a set of goals that were introduced in 2000 to guide global action until 2015
Microfinance small, low-cost financial services for poor people that involve low-interest loans to develop small businesses
Modern contraceptive methods technological advances designed to overcome biology and enable couples to have sexual intercourse at any mutually-desired time
Neonatal period the first 28 days after birth
Open defecation using open spaces rather than a toilet to pass human waste
Poverty not having the resources to meet basic needs such as food, clothing and shelter
Schistosomiasis a worm infection that occurs when people swim, bathe or have contact with fresh water contaminated with human excreta
Social protection measures measures put in place to prevent individuals and families from suffering from poverty because of a crisis or another unexpected event. They include healthcare, income security for children, those who become sick or disabled and the elderly.
Stakeholders people, groups and organisations who are involved in or affected by a course of action
Stillbirth the birth of an infant that has died in the womb
Sustainable agriculture the capacity of agricultural practices over time to provide sufficient food in ways that are economically efficient and profitable, socially responsible and environmentally sound
Sustainable development development that meets the needs of the present without compromising the ability of future generations to meet their own needs
Trachoma a bacterial infection of the eye that can cause complications including blindness
Tropical diseases a group of diseases that mainly occur in tropical and subtropical environments and are most common in countries where people lack access to safe water and sanitation
Vector control actions taken to control and eradicate the carriers of disease and infection

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11.2 Objectives and rationale for the Sustainable Development Goals and key features of SDG 3

KEY CONCEPT Understanding the SDGs, including their rationale and objectives

11.2.1 What are the Sustainable Development Goals (SDGs)?

The 17 Sustainable Development Goals (SDGs), also referred to as the global goals, include 169 targets to be achieved by 2030. The goals were developed through a collaborative process by all United Nations member states, non-government organisations, and people around the world with an interest in making the world a better place. The goals include ambitious targets and plans about how each of them can be achieved. They tackle global challenges and aim to meet the needs of all people in all countries. They direct action in five areas of importance (see figure 11.2):

FIGURE 11.2 The SDGs direct action in five areas of importance for humanity and the planet.



- *People*. End **poverty** and hunger, in all their forms and dimensions, and ensure that all human beings can fulfil their potential with dignity and equality and in a healthy environment.
- *Planet*. Protect the planet from **degradation** through sustainable consumption and production, management of natural resources and acting on climate change to support the needs of present and future generations.
- *Prosperity*. Ensure all people can enjoy successful and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.
- *Peace*. Foster peaceful, just and inclusive societies that are free from fear and violence. There can be no **sustainable development** without peace and no peace without sustainable development.
- *Partnership*. Implement the SDGs with a global partnership for sustainable development, focused on the needs of the poorest and most vulnerable, with the participation of all countries, **stakeholders** and people.

11.2.2 Rationale for the SDGs

There were three main reasons, or rationale, for the introduction of the Sustainable Development Goals:

1. A new set of goals and targets were needed when the **Millennium Development Goals** (MDGs) finished in 2015. The MDGs provided a global framework of action to address poverty and make global progress on education, health and wellbeing, **hunger** and the environment. They resulted in significant improvements in global health and wellbeing and human development. More than 1 billion people were lifted out of **extreme poverty**, progress had been made against hunger, more girls were attending school and some action had been taken to protect the planet.
2. Progress in all areas was uneven across regions and countries, leaving millions of people behind, especially the poorest and those disadvantaged due to sex, age, disability, ethnicity or geographical location. This showed there was still a lot of work to be done.
3. New global challenges had emerged that needed to be considered. These included the impact of increasing conflict and **extremism**, widespread migration, economic and financial instability and large-scale environmental changes. These challenges have the capacity to undermine many of the achievements that had been made through the MDGs.

11.2.3 Objectives of the SDGs

The 17 global goals work together to achieve three major objectives:

- end extreme poverty
- fight inequality and injustice
- address climate change.

To achieve these objectives, the SDGs aim to end poverty and hunger; promote health and wellbeing; address inequalities within and among countries; build peaceful, just and inclusive societies; protect human rights; and promote gender equity and the empowerment of women and girls, all underpinned by the promotion of a sustainable world. A sustainable world means people can escape poverty and enjoy decent work without harming the Earth's essential **ecosystems** and resources; where people can stay healthy and get the food and water they need; where everyone has access to clean energy that doesn't contribute to climate change; and where women and girls are afforded equal rights and equal opportunities. The three dimensions of sustainability underpinning the goals are social, economic and environmental.

FIGURE 11.3 The UN's 17 Sustainable Development Goals



Source: United Nations, 2015.

11.2.4 The Sustainable Development Goals are interconnected

One goal is no more important than any other — they complement and interconnect with each other. They are designed as a set of goals and targets that are integrated, **interdependent** and **indivisible**. Their achievement requires collaboration across all sectors and at national, international, regional and local levels.

11.2.5 SDG 3: Good health and wellbeing

Good health and wellbeing contributes to the achievement of many of the SDGs. In turn, the achievement of other SDGs helps achieve good health and wellbeing. It is for this reason that SDG 3: Good health and wellbeing is the focus of this topic, along with its relationship with other selected SDGs, which are:

- SDG 1: No poverty
- SDG 2: Zero hunger
- SDG 4: Quality education
- SDG 5: Gender equality
- SDG 6: Clean water and sanitation
- SDG 13: Climate action.

This topic will investigate each of the key features of SDG 3 and then explore the relationship between SDG 3 and the other selected SDGs as represented in figure 11.4.

FIGURE 11.4 This topic explores the interrelationships between SDG 3 and other health-related SDGs.



on Resources

Teacher-led video Features of each SDG (tlvd-0256)

11.2 Activity

Access the **SDG** weblink and worksheet in the Resources tab then complete the worksheet.

11.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. When were the Sustainable Development Goals (SDGs) introduced and by whom?
2. What is the target year for the achievement of the goals?
3. What was the rationale (the reasons) for the introduction of the SDGs?
4. What are the objectives of the SDGs?
5. What are the five areas of importance?
6. What are the dimensions of sustainability that underpin the SDGs?
7. Why are the goals described as being interconnected?

11.2 Exercise 2 APPLY your knowledge

1. Why is collaboration needed across all sectors to achieve the goals and targets?
2. 'There can be no sustainable development without peace and no peace without sustainable development'. Explain this statement.

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11.2 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document SDG worksheet (doc-32226)
Weblink SDG

11.3 Key features of Sustainable Development Goal 3 Good health and wellbeing

KEY CONCEPT Understanding the key features of SDG 3: Good health and wellbeing



GOOD HEALTH AND WELLBEING: ENSURE HEALTHY LIVES AND PROMOTE WELLBEING FOR ALL AT ALL AGES

Goal 3 aims to promote physical and mental health and wellbeing, and extend life expectancy by addressing the major causes of morbidity and mortality in high, middle- and low-income countries. The goal includes a number of features each with individual targets. These are:

- reduce **maternal mortality** to less than 70 per 100 000 live births
- end preventable deaths of newborns and children under five, reducing neonatal mortality to 12 per 1000 live births and under-5 mortality to 25 per 1000 live births

- end the epidemics of AIDS, tuberculosis, malaria and neglected **tropical diseases** (NTD), and combat hepatitis, water-borne diseases and other communicable diseases
- reduce by one third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and wellbeing
- strengthen the prevention and treatment of substance abuse, including drugs and alcohol
- halve global deaths and injuries from road traffic accidents
- ensure universal access to sexual and reproductive healthcare services
- achieve universal health coverage, including access to affordable **essential medicines** and vaccines
- reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
- strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries, as appropriate
- support the research and development of vaccines and medicines for communicable and non-communicable diseases and provide access to affordable essential medicines and vaccines
- increase investment in healthcare services and qualified healthcare staff, especially in low-income countries and small island developing states
- strengthen the capacity of all countries for early warning, risk reduction and management of health and wellbeing risks.

SDG 3 aims to achieve good health and wellbeing for everyone, at every stage of life. Its key features include targets for improvements or outcomes for a range of global health and wellbeing issues as well as actions or means of implementation targets that must be met if Goal 3 is to be achieved.

The features of Goal 3 that represent outcomes for health and wellbeing are to:

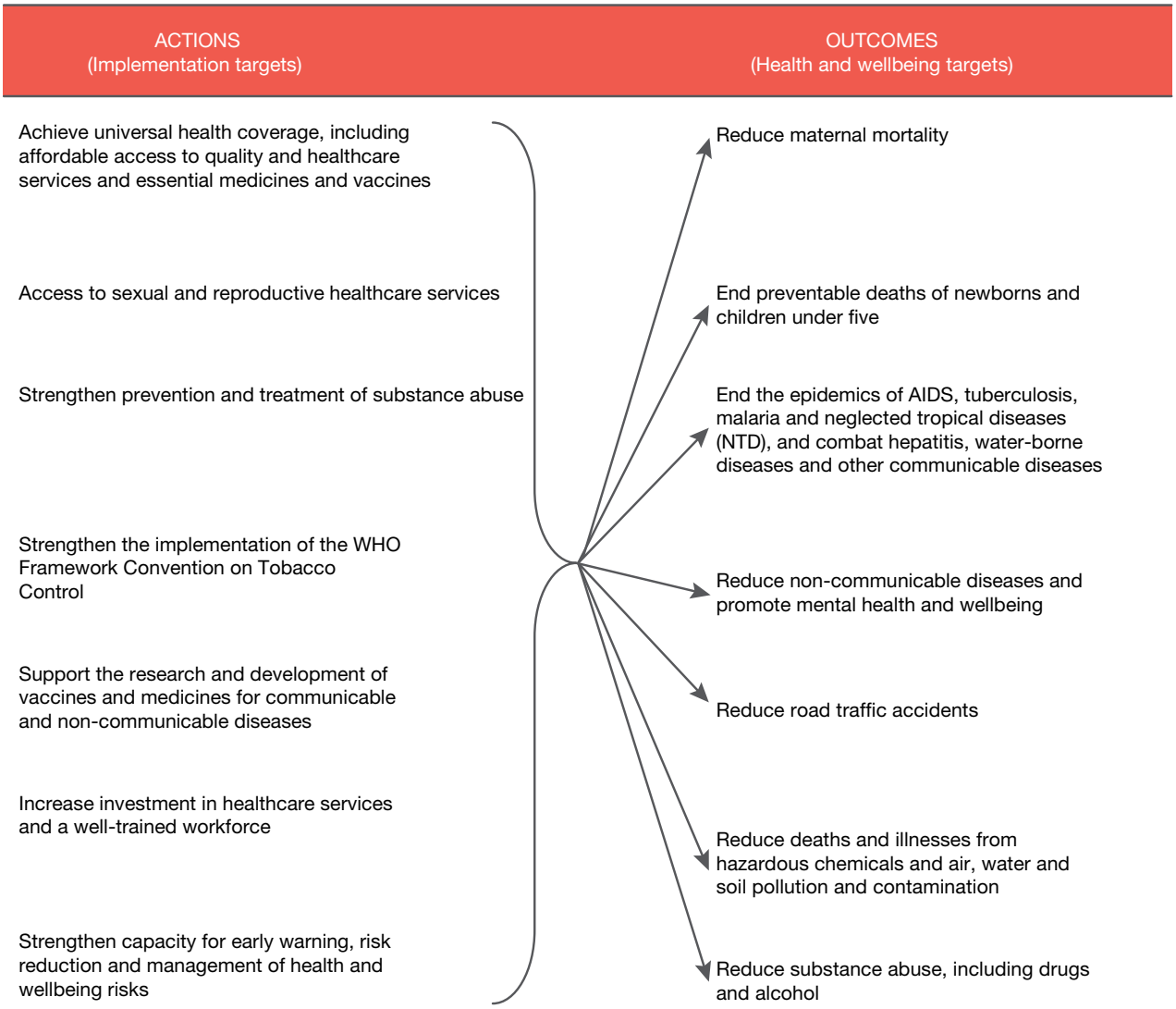
- reduce maternal mortality
- end preventable deaths of newborns and children under five
- end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases (NTD), and combat hepatitis, water-borne diseases and other communicable diseases
- reduce non-communicable diseases
- promote mental health and wellbeing
- reduce substance abuse, including drugs and alcohol
- reduce road traffic accidents
- reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

The features of SDG 3 that represent the 'means of implementation' or actions are:

- achieving universal health coverage. This is a prerequisite for achieving SDG 3 and includes expanding health and wellbeing services so all people have access to the health and wellbeing services they need at a cost which does not cause them to suffer financial hardship
- ensuring an adequate and well-trained health workforce is in place in every country
- having access to essential medicines and vaccines
- having access to sexual and reproductive healthcare services
- strengthening the implementation of the WHO Framework Convention on Tobacco Control in all countries
- supporting the research and development of vaccines and medicines for communicable and non-communicable diseases
- increase investment in healthcare services and qualified healthcare staff, especially in low-income countries and small island developing states
- strengthen the capacity of all countries for early warning, risk reduction and management of health and wellbeing risks.

The key features of SDG 3 are represented in figure 11.5 which shows how the actions or implementation targets will contribute to improved health and wellbeing outcome targets.

FIGURE 11.5 The key features of SDG 3



11.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. State the name of SDG 3 and its aim.
2. What is the difference between the features of SDG 3 that represent health and wellbeing outcomes and the features that represent 'means of implementation' or action features?
3. Describe universal health coverage.

11.3 Exercise 2 APPLY your knowledge

1. Why is universal health coverage considered to be a prerequisite for achieving Goal 3?
2. Why is it important to strengthen the capacity of all countries for early warning, risk reduction and management of health and wellbeing risks?
3. The features of SDG 3 can be grouped under a range of categories. Refer to figure 11.5 and complete the following table that represents one way the features can be grouped.

Health and wellbeing outcomes	
Population groups	1. Reduce maternal mortality 2. _____
Disease groupings	1. End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases (NTD), and combat hepatitis, water-borne diseases and other communicable diseases 2. _____ 3. Reduce non-communicable diseases and promote mental health and wellbeing
Causes of burdens of disease	1. _____ 2. Reduce road traffic accidents
Actions or 'means of implementation'	
Universal health coverage	1. Achieve universal health coverage, including affordable access to quality healthcare services and essential medicines and vaccines 2. _____ 3. Increase investment in healthcare services and a well-trained workforce
Substance control	1. _____ 2. Strengthen the implementation of the WHO Framework Convention on Tobacco Control
Medicines and research	1. _____
Early warning and protection	1. _____

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11.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

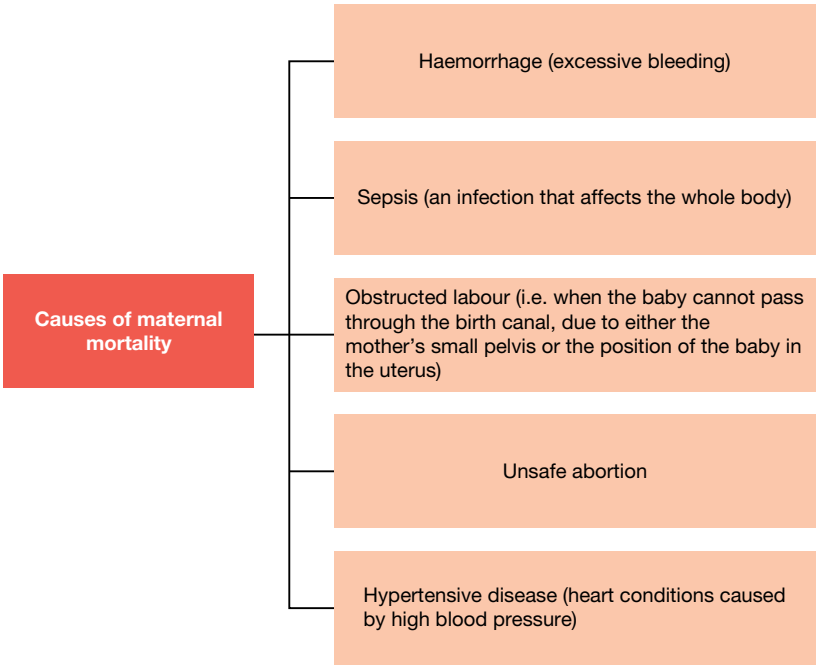
11.4 SDG 3 Key feature of maternal and child health and wellbeing

KEY CONCEPT Understanding the key features of SDG 3: maternal and child health and wellbeing

11.4.1 Reduce maternal mortality

Maternal mortality refers to the number of mothers who die due to complications related to pregnancy and childbirth. Most maternal deaths occur in low- and middle-income countries as a result of five main causes (figure 11.6).

FIGURE 11.6 Causes of maternal mortality

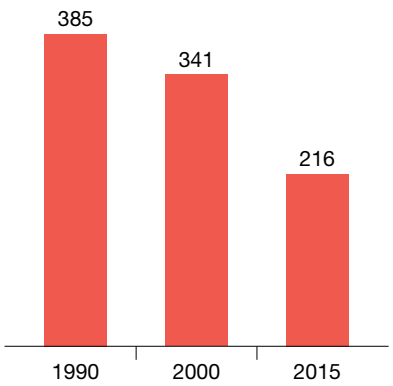


Malnutrition can also increase the risk of maternal mortality, particularly in low-and middle-income countries. Iron-deficiency anaemia contributes to 20 per cent of all maternal deaths.

Improvements in maternal mortality

The number of mothers who survive childbirth has improved significantly since 1990. The **maternal mortality ratio** was reduced by 37 per cent worldwide between 1990 and 2015, or from 385 maternal deaths per 100 000 live births to 216 per 100 000 (see figure 11.7).

FIGURE 11.7 Global maternal mortality ratio (deaths per 100 000 live births)



Source: Adapted from data from Report of the Secretary-General, 'Progress towards the Sustainable Development Goals', United Nations, 2016.

Reasons for improvements in maternal mortality rates

- more women having access to sexual and reproductive health and wellbeing services, including **antenatal care**. Antenatal care ensures qualified health workers can monitor the mother's and baby's health and wellbeing and reduce the risk of complications.
- more births being assisted by skilled health personnel. During childbirth, skilled birth attendants can assist with obstructed labour and provide medical assistance if a **caesarean section** is required or if haemorrhaging occurs. Giving birth in a medical clinic greatly reduces the risk of infection during childbirth.
- fewer **adolescent** girls are now having children. In 2018, the adolescent birth rate was 44 births per 1000 women aged 15–19. Pregnancy during adolescence increases the risk of maternal mortality, as girls are often still developing and their bodies are less able to cope with pregnancy and childbirth. **Stillbirths** and newborn deaths are 50 per cent higher among infants born to adolescent mothers compared to infants born to mothers aged 20 to 29.
- greater access to family planning services. In 2018, 77 per cent of women aged 15–49 had access to **modern contraceptive methods** or family planning services. This enables families to plan the number of children they have and the spacing of births. By allowing two years between births, mothers and infants are more likely to survive pregnancy and childbirth and remain healthy.

SDG 3 aims to reduce maternal mortality rates from 216 per 100 000 to less than 70 per 100 000 live births by 2030. However, every day hundreds of women are still dying during pregnancy or from childbirth-related complications. Most of these deaths occur in low-income countries, particularly in sub-Saharan Africa and southern Asia where approximately 800 women die each day and the maternal mortality ratio is approximately 14 times higher than in higher-income countries.

FIGURE 11.8 A Society for Family Health (SFH) family planning volunteer prepares to speak to women in Kano, Nigeria, about child spacing.



Reducing maternal mortality rates

Most maternal deaths can be prevented by providing access to sexual and reproductive healthcare services, in particular antenatal care during pregnancy, skilled birth attendants during childbirth, as well as care and support for mothers in the weeks after childbirth. In 2016, 90 per cent of all births in most high-income and upper-middle-income countries were attended by skilled birth attendants. However, in low-income and lower-middle-income countries less than half of all births were assisted by skilled health personnel. Women living in rural areas are much less likely to have access to these services compared to those living in the city. Only half of all pregnant women globally can access the recommended four antenatal care visits.

Preventing unintended pregnancy through universal access to family planning is critical to further improvement in the health and wellbeing of women and reducing maternal mortality. While access to modern methods of contraception for women aged 15 to 49 increased to 77 per cent in 2018, there are still many women who do not have the means to control the number of children and the timing and spacing of births. This figure is much higher in countries such as sub-Saharan Africa where only half of all women can access modern methods of contraception.

FIGURE 11.9 Maternal mortality rates can be reduced with all women having access to quality antenatal care. It is recommended that women have four antenatal care visits during their pregnancy.



Adolescent pregnancy has also declined steadily in almost all regions but remains high in sub-Saharan Africa. In 2018, the adolescent birth rate in sub-Saharan Africa was 101 per 100 000 women aged 15–19 years (see figure 11.10).

11.4.2 End preventable deaths of newborns and children under five

Many infant deaths occur in the **neonatal period** — the first 28 days of life. Up to half of all these deaths occur within the first 24 hours of birth, and 75 per cent occur in the first week. In 2016, 2.6 million newborns died, with most of these deaths occurring in the first week of life. The 48 hours immediately following birth is the most crucial period for newborn survival. Three quarters of neonatal deaths are due to premature birth, **birth asphyxia** (lack of breathing at birth), birth trauma and infections. Children who

reach their fifth birthday have a much greater chance of surviving into adulthood. However, every day in 2016, 15 000 children died before reaching their fifth birthday with acute respiratory infections, diarrhoea and malaria being the leading causes of death (see figure 11.11).

FIGURE 11.10 Improvements in maternal mortality can be achieved by increasing women's access to sexual and reproductive healthcare services.

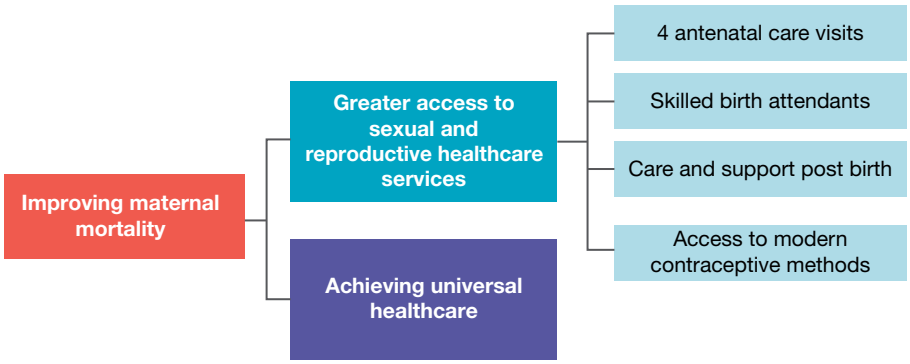
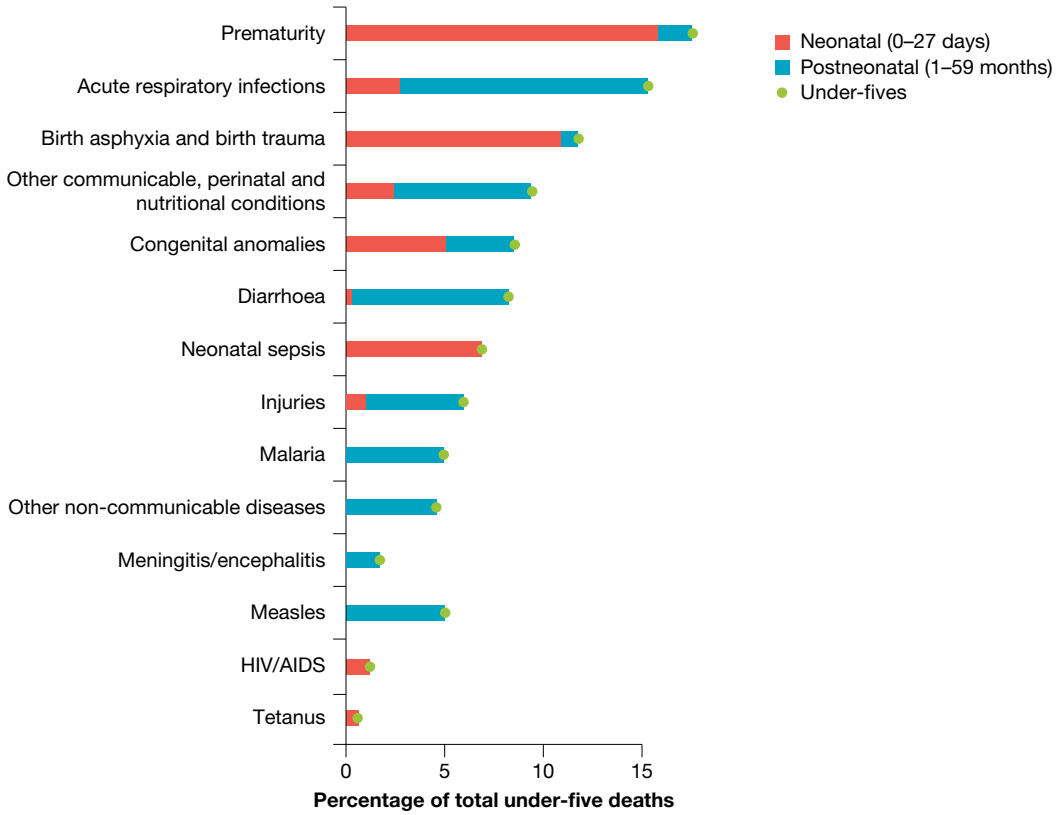


FIGURE 11.11 Prematurity, acute respiratory infections, birth asphyxia and birth trauma are responsible for three quarters of all deaths under five.



Source: https://www.who.int/gho/publications/world_health_statistics/2018/EN_WHS2018_Part2.pdf?ua=1 page 5.

Improvements in newborn and child health and wellbeing

The global under-five mortality rate was reduced by more than half, from 90 to 41 deaths per 1000 live births, between 2000 and 2016. This represented a reduction from 9.9 million to 5.6 million deaths.

Neonatal mortality rates also declined from 31 deaths per 1000 live births in 2000 to 19 in 2016, representing a reduction from 4 million neonatal deaths in 2000 to 2.6 million in 2016. Sub-Saharan Africa and southern Asia had the highest neonatal mortality rates at 28 deaths per 1000 live births.

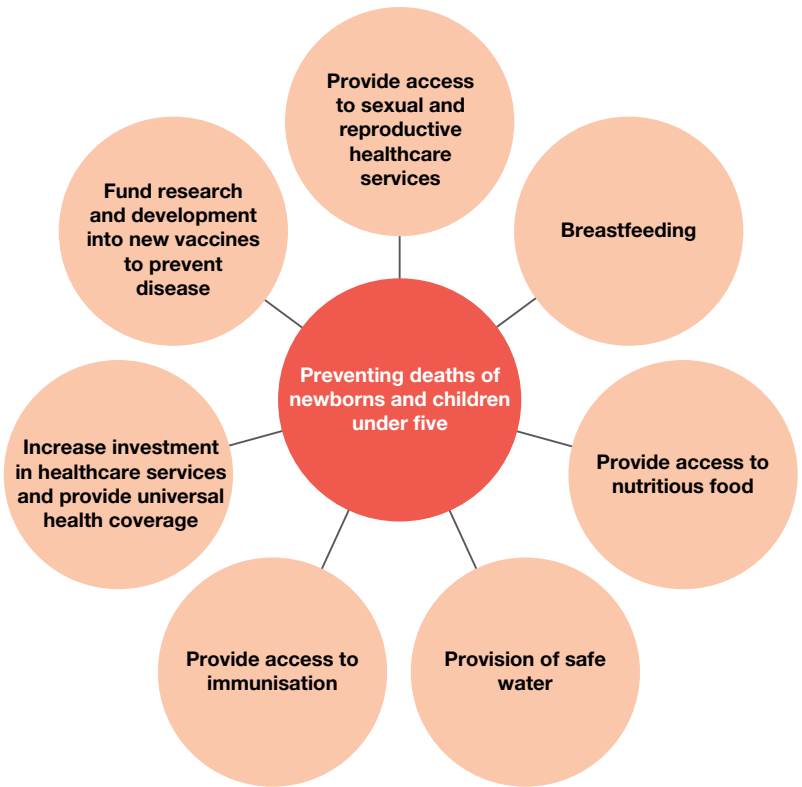
Improved access to antenatal care, more births being assisted by skilled health personnel, fewer young mothers giving birth and greater access to family planning services have all contributed. Since 2000, higher rates of childhood vaccination have saved almost 15.6 million lives and reduced the number of reported cases of measles by 67 per cent. Approximately 85 per cent of children worldwide received at least one dose of the measles vaccine in 2017 compared to 73 per cent in 2000.

SDG 3 aims to end preventable deaths of newborns and children under five and reduce neonatal mortality from 19.2 per 1000 live births in 2015 to 12 per 1000 live births in 2030. It also aims to reduce under-five mortality rates from 43 deaths per 1000 live births to 25 per 1000 live births. However, one million newborns continue to die in their first week of life, and 2.6 million will die during their first 28 days of life. Four out of every five deaths of children under the age of five occurs in sub-Saharan Africa and southern Asia. Children born into poverty are almost twice as likely to die before the age of five as those from wealthier families. Children of educated mothers — even mothers with only primary schooling — are more likely to survive than children of mothers with no education.

End preventable deaths of newborns and children under five

Preventable deaths of newborns and those under five (U5MR) can be reduced by ensuring that mothers have access to sexual and reproductive health services, especially safe childbirth practices and neonatal care. Many deaths of children under five are due to preventable causes such as malnutrition, malaria, diarrhoea, measles and pneumonia. Breastfeeding, access to nutritious food, access to safe water, health and wellbeing services including vaccinations, and antibiotics are important for reducing the under-five mortality rate. To achieve this, there needs to be increased investment in healthcare services. There are many children globally who are not vaccinated or do not receive the full vaccination schedule due to lack of access to healthcare. Investment by the global community is also needed for research and development of new vaccines to prevent diseases such as malaria, HIV and many tropical diseases, which are responsible for the deaths of many children under five (figure 11.12).

FIGURE 11.12 There are many factors that can contribute to ending preventable deaths of newborns and children under-five particularly in low-and middle-income countries.



11.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What are the five main causes of maternal mortality?
2. Outline three ways that maternal mortality rates can be reduced.
3. When do most infant deaths occur?
4. What factors have contributed to reductions in under-five mortality rates?

11.4 Exercise 2 APPLY your knowledge

1. Describe how access to sexual and reproductive health and wellbeing services can help reduce maternal and child mortality.
2. Why would children born into poverty be almost twice as likely to die before the age of five as those from wealthier families?
3. Discuss why universal health coverage could help reduce under-five mortality.
4. Refer to figure 11.11. Compare the main causes of death of newborns to those that cause the death of children under five.
5. Create a table or mind map summarising the key points for SDG 3 — maternal and child health and wellbeing.

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11.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

11.5 SDG 3 Key feature of communicable diseases

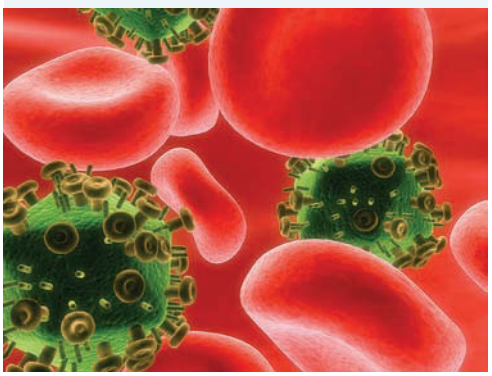
KEY CONCEPT Understanding the key features of SDG 3: Good health and wellbeing: key feature — communicable diseases

A feature of Goal 3 is to end epidemics of communicable diseases, in particular AIDS, tuberculosis, malaria and neglected tropical diseases. It also aims to reduce hepatitis, water-borne diseases and other communicable diseases.

11.5.1 AIDS

AIDS (Acquired Immunodeficiency Syndrome) is caused by the Human Immunodeficiency Virus (HIV), which damages and weakens the body's immune system. The body loses the ability to fight infections, and the infected person eventually develops AIDS. Those with AIDS are at high risk of developing infections, cancers and other diseases such as tuberculosis, which eventually leads to death. The HIV virus is transmitted via the exchange of infected bodily fluids such as blood, semen, vaginal secretions and breast milk. It is usually spread by sexual intercourse without a condom and by the sharing of needles and syringes. It is estimated that between 75–85 per cent of adults who are HIV positive contracted the infection through unprotected sexual intercourse. HIV can also be passed from an infected mother to a child during pregnancy, birth or through breastfeeding.

FIGURE 11.13 AIDS is caused by the HIV virus, which is transmitted via exchange of fluids such as blood. It destroys the immune system and the body loses its ability to fight infections.



There is currently no cure for HIV and no vaccine to prevent the disease. However, antiretroviral drugs (ART) help delay and, in some cases, prevent the progression of HIV to AIDS. ART involves a combination of three or more drugs that stops the virus from reproducing so people with HIV can enjoy healthy lives and reduce the risk of transmitting the virus to others. However, ART does not eliminate the virus from the body and the drugs need to be taken continuously.

Improvements in HIV/AIDS-related deaths and illness

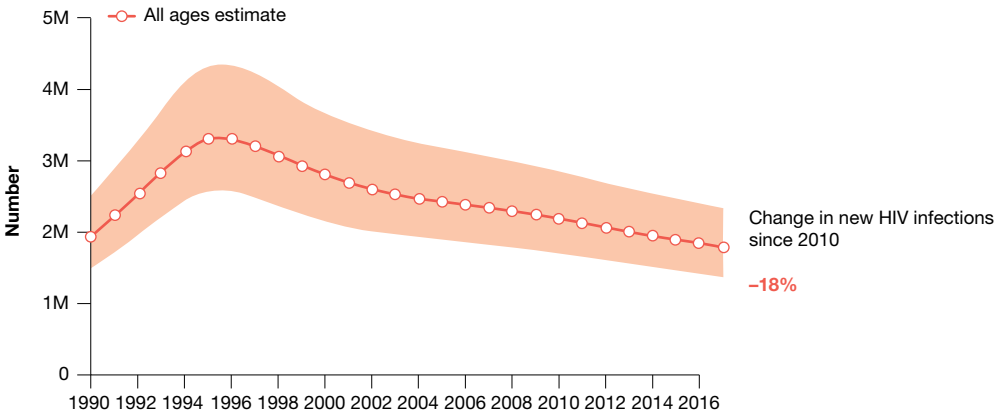
An estimated 35 million people have died from AIDS-related illnesses since the start of the epidemic. However, progress has been made in reducing mortality from AIDS-related illnesses and the rate of new infections (see figures 11.15 and 11.16). Progress has also been made in preventing mother-to-child transmission of HIV and reducing deaths of mothers who are infected with HIV.

FIGURE 11.14 Close to 10 per cent of Swaziland's total population are orphans due to HIV/AIDS.



This progress has been due to substantial investment in health services, enabling more people to access ART treatment, ongoing research and development for better ways to diagnose the disease and cheaper medicines. Between 2013 and 2017 the percentage of people living with HIV and receiving ART increased from 39 per cent to 59 per cent. This represented approximately 20.9 million more people receiving ART. In 2017, 77 per cent of pregnant women living with HIV had access to ART to prevent transmission of HIV to their babies.

FIGURE 11.15 The change in HIV infections between 2000 and 2017

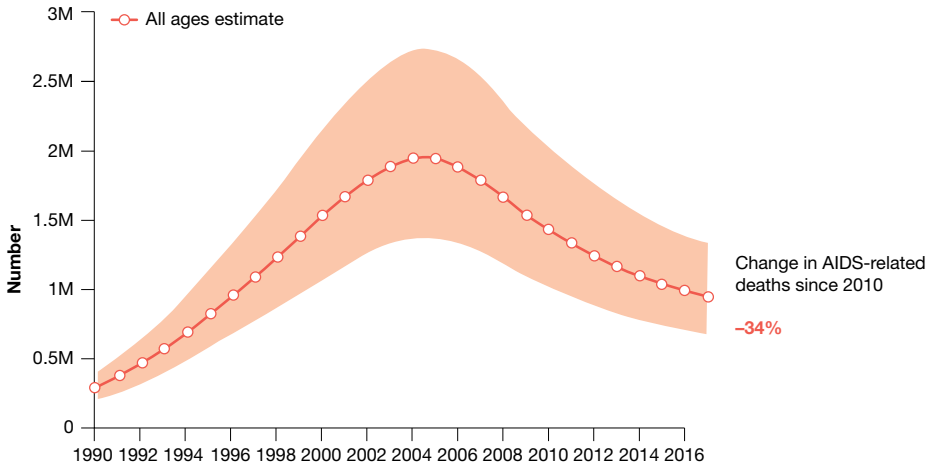


Source: http://aidsinfo.unaids.org//.

SDG 3 aims to end the epidemic of AIDS by 2030. Despite the achievements since 2005, this remains a significant challenge for the global community.

- AIDS is still a major cause of morbidity and mortality, particularly in low- and middle-income countries.
- While mortality rates have fallen since 2005, 940 000 people died from HIV-related causes in 2017.
- Sub-Saharan Africa is the most affected region.
- AIDS continues to be the leading cause of death among those aged 10 to 19 years in Africa, the second most common cause of death among youth globally and the leading cause of death for women of reproductive age worldwide.

FIGURE 11.16 The change in AIDS-related deaths between 2000 and 2017



Source: http://aidsinfo.unaids.org//.

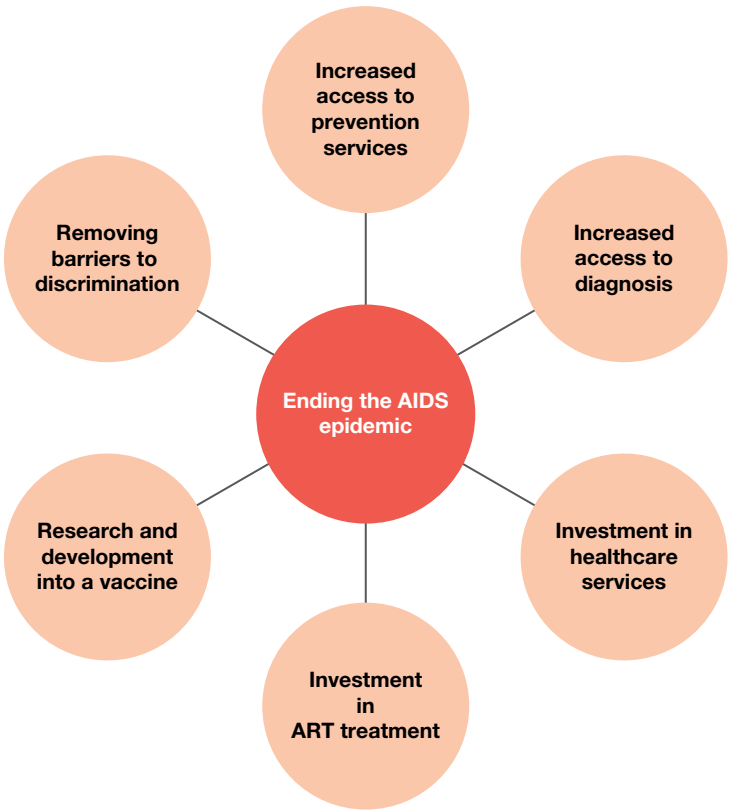
- In 2017 there were around 1.8 million new HIV infections, with around 36.9 million people living with HIV. Of these, 1.8 million were children less than 15 years old. Most of these children live in sub-Saharan Africa and were infected by their HIV-positive mothers during pregnancy, childbirth or breastfeeding.
- Of the 36.9 million people living with HIV, 25 per cent do not know their HIV status.
- In 2017, global ART coverage of adults and children was 59 per cent, however only 52 per cent children and adolescents living with HIV were receiving ART.
- Approximately 20 per cent of pregnant women living with HIV do not have access to ART.

Ending the AIDS epidemic

Ending the AIDS epidemic requires all population groups to have access to prevention, diagnosis and ART. This requires continued investment in healthcare services and ART, and cost-effective testing and ongoing research and development into a vaccine. Measures are also needed to remove discrimination and stigma which is a key barrier to accessing HIV services (figure 11.17).

The spread of HIV can be prevented by implementing a combination of actions including using condoms; voluntary male circumcision; pre-exposure medication that works to keep the HIV virus from taking hold in the body; promoting gender equality; and providing access to secondary education. There is still a lack of knowledge about HIV, its causes and how it can be prevented, particularly among youth. In sub-Saharan Africa, less than 40 per cent of youth aged 15 to 24 have correct knowledge about HIV.

FIGURE 11.17 Ending the AIDS epidemic requires a range of actions to be taken at a global level.



11.5.2 Malaria

Malaria is a life-threatening disease caused by parasites that are transmitted to people when bitten by infected female mosquitoes. Young children and pregnant women are at greater risk of contracting the disease. Malaria destroys the body's red blood cells and causes fever, headache, diarrhoea and vomiting. If left untreated, malaria can disrupt the blood supply to internal organs, causing death.

FIGURE 11.18 Malaria is a life-threatening disease caused by a bite from a female mosquito infected with malaria parasites.

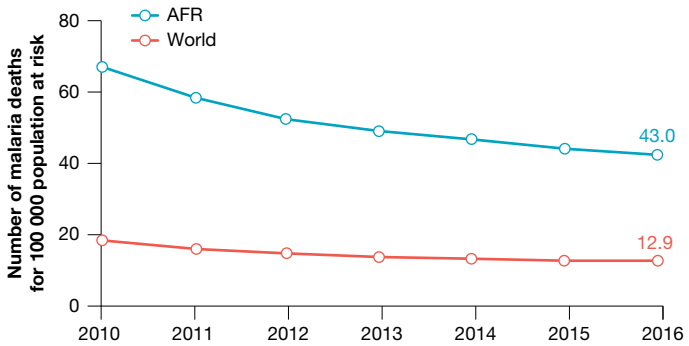


Actions to control and eradicate mosquitoes is the most effective way of preventing malaria. This is known as **vector control** and includes the use of insecticide-treated mosquito nets, which protect a person while they are sleeping; the spraying of the inside walls of homes with insecticide to kill and repel mosquitoes; and the use of antimalarial medicines. Once infected, malaria can be cured with quick diagnosis and treatment.

Improvements in malaria

Between 2000 and 2016, the number of deaths globally from malaria declined by 6.2 million. However, improvements in mortality rates have slowed. In 2016, malaria was responsible for the deaths of 445 000 people which was similar to the previous year. Reductions in mortality rates have been significant in the African region falling by 31 per cent, however, Africa continues to account for a high percentage of malaria cases and deaths worldwide (figure 11.19).

FIGURE 11.19 Globally, deaths from malaria have reduced over time. However, the African region continues to contribute to a high proportion of these deaths.



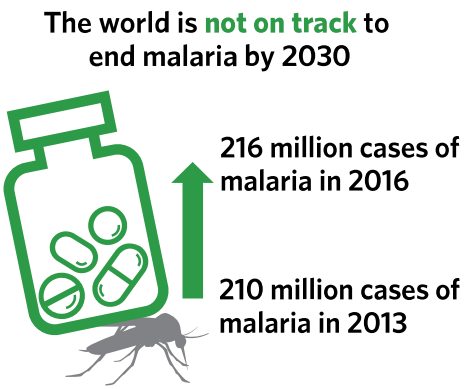
Source: WHO World Malaria Report 2017, p. 43.

In terms of incidence, the rates of malaria have increased since 2013. An estimated 216 million cases of malaria occurred in 2016 compared to 210 million cases in 2013 and 237 million cases in 2010 (figure 11.20).

- The incidence rate of malaria has increased since 2013, yet remains lower than in 2010, decreasing by 18 per cent globally or from 76 to 63 cases per 1000 population at risk, between 2010 and 2016.
- Malaria incidence in the African regions reduced from 256 to 206 cases per 1000 population at risk from 2010 to 2016 representing a 20 per cent reduction.
- Globally, more countries are moving towards the elimination of malaria. In 2016, 44 countries reported fewer than 10 000 malaria cases, up from 37 countries in 2010.

The World Health Organization estimates 6.8 million malaria deaths since 2001 have been prevented through the introduction of antimalarial strategies. The use of insecticide-treated bed nets and internal spraying of homes with insecticide are considered to have made major contributions to the reduction in morbidity and mortality rates. The use of insecticide-treated bed nets was estimated to account for 50 per cent of the decline among children aged 2–10 years in sub-Saharan Africa. Between 2004 and 2015, 900 million insecticide-treated mosquito nets were provided to people living in malaria-prone countries in Africa, which meant 54 per cent of the at-risk population slept under a treated net. However, the number of people protected by insecticide treated bed nets has been decreasing. In 2016, there were 80 million fewer people sleeping under insecticide treated bed nets that in 2010.

FIGURE 11.20 The incidence of malaria has increased since 2013 and questions whether global goal of ending malaria by 2030 is possible.



Source: https://unstats.un.org/sdgs/report/2018/overview/.

The proportion of the population at risk being protected by the internal spraying of homes has also declined from 5.8 per cent in 2010 (180 million people) to 2.9 per cent in 2016 (100 million people).

More effective diagnosis has made it easier and quicker for people suffering from fever caused by malaria to receive treatment, which has also helped reduce mortality rates. The world's first malaria vaccine is in the process of being piloted. Preventative treatment given to pregnant women after the **first trimester** can prevent maternal death, anaemia and low birth weight, a major cause of infant mortality. Between 2010 and 2016, access to preventative malaria treatment for pregnant women increased from 6 per cent to 31 per cent.

Malaria can also be reduced by removing or spraying stagnant water which is a breeding ground for mosquitoes.

FIGURE 11.21 Baby sleeping under a mosquito net in Togo, West Africa



Ending the malaria epidemic

While progress has been made to end the epidemic of malaria by 2030, greater efforts are needed if the target for SDG 3 is to be achieved. Malaria continues to have a devastating impact on people's health and wellbeing. At the beginning of 2016:

- malaria was still endemic in 91 countries
- 100 million people were still not protected by insecticide treated bed nets
- there were 216 million new cases of malaria which was an increase from 2015 and an estimated 445 000 malaria deaths worldwide, most of which were children under five
- malaria claimed the life of one child every two minutes.

Ending the epidemic of malaria requires significant financial investment in healthcare and the health workforce to ensure universal access to diagnose, treat and prevent malaria. Mass-distribution of insecticide-treated bed nets is needed along with more people being protected by the indoor spraying of their homes. Health systems in low-income countries are often under-resourced and not accessible to those most at risk of malaria.

Investment in the research and development of new vector control strategies, improved ways to diagnose the disease and more effective medicines are needed. Access to clean water and sanitation is also important to ensure that breeding grounds for mosquitoes are controlled.

Other challenges affecting the ability of countries to control and eliminate malaria include the risks posed by conflict in malaria endemic zones, changing climate patterns and mosquito resistance to insecticides, particularly those used for indoor residual spraying (figure 11.23).

FIGURE 11.22 Access to necessary healthcare and medicines is needed to prevent, diagnose and treat malaria.



FIGURE 11.23 Ending the malaria epidemic requires action in a range of areas.



11.5.3 Tuberculosis

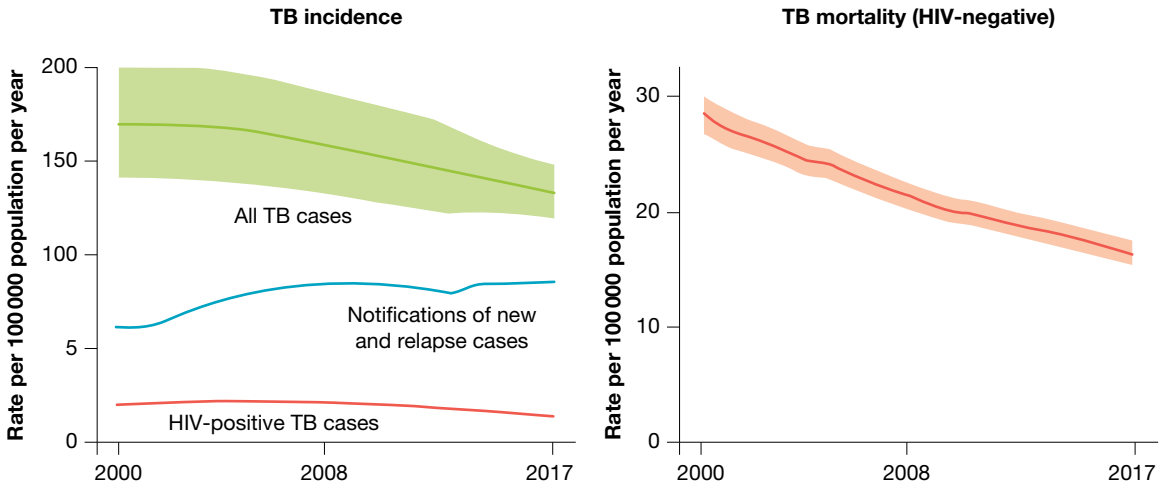
Tuberculosis (TB) is a disease that affects the lungs. It is highly contagious and is caused by bacteria that can spread from person to person via the air through coughing and sneezing. 90 per cent of TB sufferers are adults. Its symptoms include night sweats, persistent cough, tiredness, weight loss and coughing up blood. If left untreated, TB destroys lung tissue and results in death. It mostly affects adults, although all age groups are at risk. The chances of developing TB are much higher among people infected with HIV. TB is preventable with vaccinations and, if diagnosed early, can be treated and cured with appropriate drugs.

Improvements in tuberculosis

In 2017, 10 million people developed TB and the disease was responsible for 1.6 million deaths. This represented a decline in mortality from those suffering from TB from 23 per cent in 2000, to 16 per cent in 2017 which is a reduction from 28 per 100 000 to 17 per 100 000. Worldwide, the incidence of TB is declining by approximately 2 per cent each year falling from 172 per 100 000 population in 2000 to 133 per 100 000 in 2017 (figure 11.24).

Major advances in the prevention, diagnosis and treatment of TB have contributed to these reductions. The BCG vaccine, which was developed almost 100 years ago has been shown to prevent TB in children. In 2017, 158 countries reported providing BCG vaccination as part of their childhood vaccination programs, with 120 of these countries reporting coverage of at least 90 per cent. According to the WHO, effective diagnosis and treatment of TB saved an estimated 54 million lives between 2000 and 2017.

FIGURE 11.24 Global trends in estimated TB incidence and mortality rates, 2000–17



Source: World Health Organization, *Global Tuberculosis Report 2018*.

Note: Shaded areas represent uncertainty intervals.

Ending the tuberculosis epidemic

Whilst the disease burden caused by TB is falling in all regions, it is not fast enough to meet the targets set. Nearly all cases of TB can be cured yet the disease is still one of the top ten causes of death worldwide, and caused more deaths than HIV in 2017.

- Over 95 per cent of TB deaths occur in low- and middle-income countries and the disease is among the top five causes of death for women aged 14–44.
- In 2017, there were an estimated 10.4 million people worldwide who contracted TB, of which 58 per cent were among men, 32 per cent were women and 10 per cent were children.
- Of the 10 million new cases of TB that occurred in 2017 only 6.4 million were officially notified to national authorities and to the WHO. This means many people are not receiving adequate diagnosis and treatment for the disease.
- Regular BCG vaccinations are still not reaching all children, putting many of them at risk.

Ending the TB epidemic depends on the provision of universal health coverage so all people have access to vaccination, early detection and effective treatment, especially the poor. Increased funding is needed for health and wellbeing services for the prevention, diagnosis and treatment of the disease. Increased funding for health and wellbeing services and trained health workers would also ensure that all cases of TB are reported and accurate data can inform health decisions.

Greater investment in research and development is needed for new and better ways to diagnose the disease, and for the development of resistant drugs and vaccines. There is currently no vaccine that is effective in preventing TB in adults, either before or after exposure to TB infection. New TB drugs have begun to emerge, particularly those better able to treat drug-resistant TB, and there are 13 vaccines in various stages of trialing. Funding is needed to enable further development and implementation of these. Access to clean water and sanitation is also important to prevent the spread of TB (figure 11.25).

FIGURE 11.25 Ending the epidemic of TB requires the global community to work together to address a range of factors.

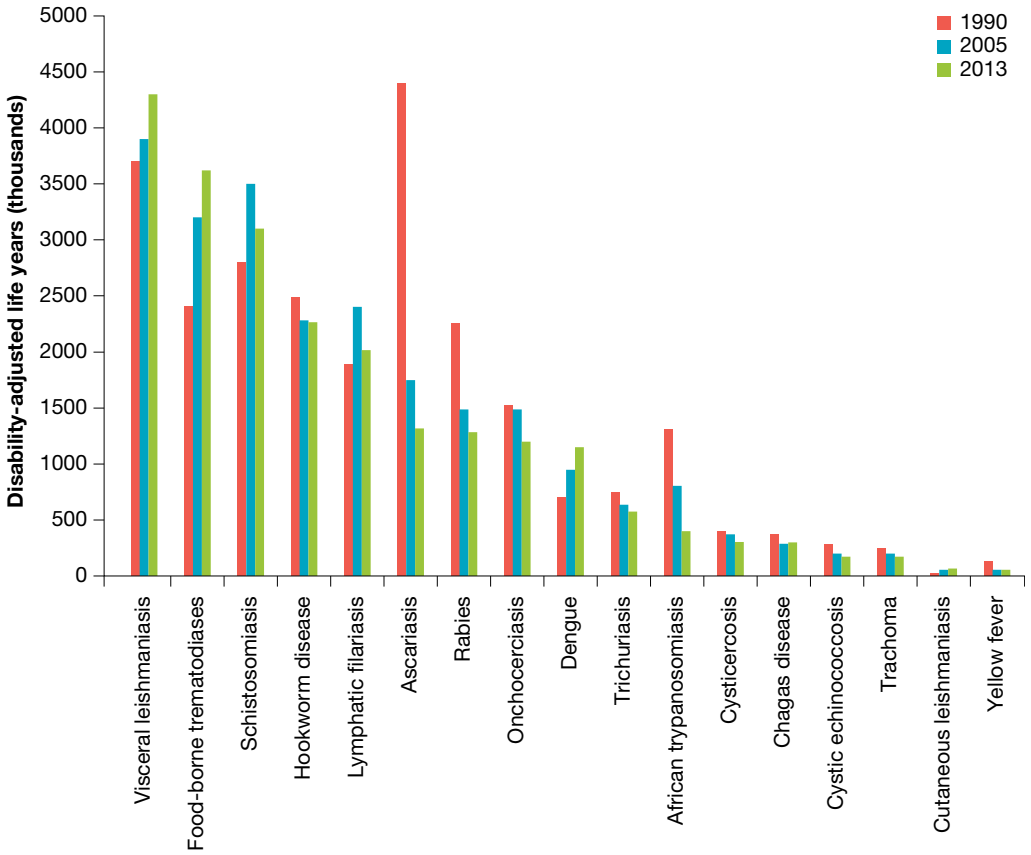


11.5.4 Neglected tropical diseases

Neglected tropical diseases (NTDs) are a diverse group of 18 diseases that mainly occur in tropical and subtropical environments. Their diversity includes the different ways in which they are transmitted as well as their different biological make-up. They all have a significant impact on health and wellbeing. They are referred to as neglected because they have received very little funding from governments and other organisations for research, prevention and control. Neglected tropical diseases thrive in the poorest, most marginalised communities, where people lack access to clean water and sanitation, have limited access to health and wellbeing services and who live in close contact with domestic animals and livestock. People are also at risk when they are in contact with infectious vectors such as mosquitoes, ticks, fleas and other carriers that transmit viruses or parasites.

These diseases can cause severe pain and permanent disability and, together, contribute around 150 000 deaths each year and globally account for 27 million disability-adjusted life years (DALY) (figure 11.26).

FIGURE 11.26 Global burden on NTDs (ranking based on the DALY in 2013)



Source: Qian M-B, Zhou X-N 2016, 'Global burden on neglected tropical diseases', *Lancet Infectious Diseases*, 16, pp. 1113–1114.

In 2016, 1.5 billion people required mass or individual treatment and care for NTDs, down from 1.6 billion in 2015, and 2 billion in 2010. Two parasitic conditions that are responsible for considerable morbidity and disability are **schistosomiasis**, which affects over 240 million people and **trachoma**, which affects 232 million people and is responsible for an estimated 2.2 million people being visually impaired.

FIGURE 11.27 A doctor checks for the eye disease trachoma, which can lead to blindness as a result of the after-effects of conjunctivitis caused by chlamydia infections carried by flies.



Preventing neglected tropical diseases

Strategies that are effective in reducing morbidity and mortality from neglected tropical diseases include:

- safe and effective drugs that can prevent and treat infection
- vector control to remove carriers of these diseases such as mosquitoes, ticks, flies, fleas, bugs and worms
- veterinary public health measures for diseases and infections that are transmitted between animals and humans
- improved water and sanitation.

Improvements in neglected tropical diseases

Vector control and medicines have been successful in reducing several neglected tropical diseases (see figure 11.26). Several of these diseases are close to being eliminated and are no longer a public health problem. All countries have eliminated leprosy as a public health problem since 2010 and guinea-worm disease is also close to being eradicated. Improvements have also been made in addressing **schistosomiasis** with 9.4 million more treatments being provided in 2017 than in 2016.

FIGURE 11.28 Spraying insecticide is an effective method of vector control by killing the mosquitoes that cause dengue fever.



Ending the epidemic of neglected tropical diseases

The SDG target is to reduce by 90 per cent, the number of people needing treatment for these diseases by 2030. To achieve this, research and development for new and effective drugs and cost-effective diagnostic tests is needed. Additional funding to provide universal health coverage is necessary to ensure all those at risk have access to diagnosis, treatment and medication. Funding is required for the development of new forms of insecticides as increasing levels of resistance to the current insecticides being used is threatening the progress that has been made in controlling some of these diseases. Ongoing commitment and funding for vector control and veterinary public health measures is necessary and has already been shown to be effective. Accurate mapping of disease distribution is also important. Actions outside the health sector are needed, such as access to clean water and sanitation, especially in remote areas where these diseases are more prevalent (figure 11.29)

FIGURE 11.29 Ending the epidemic of neglected tropical diseases requires action in a range of areas and ongoing funding and commitment from the global community.

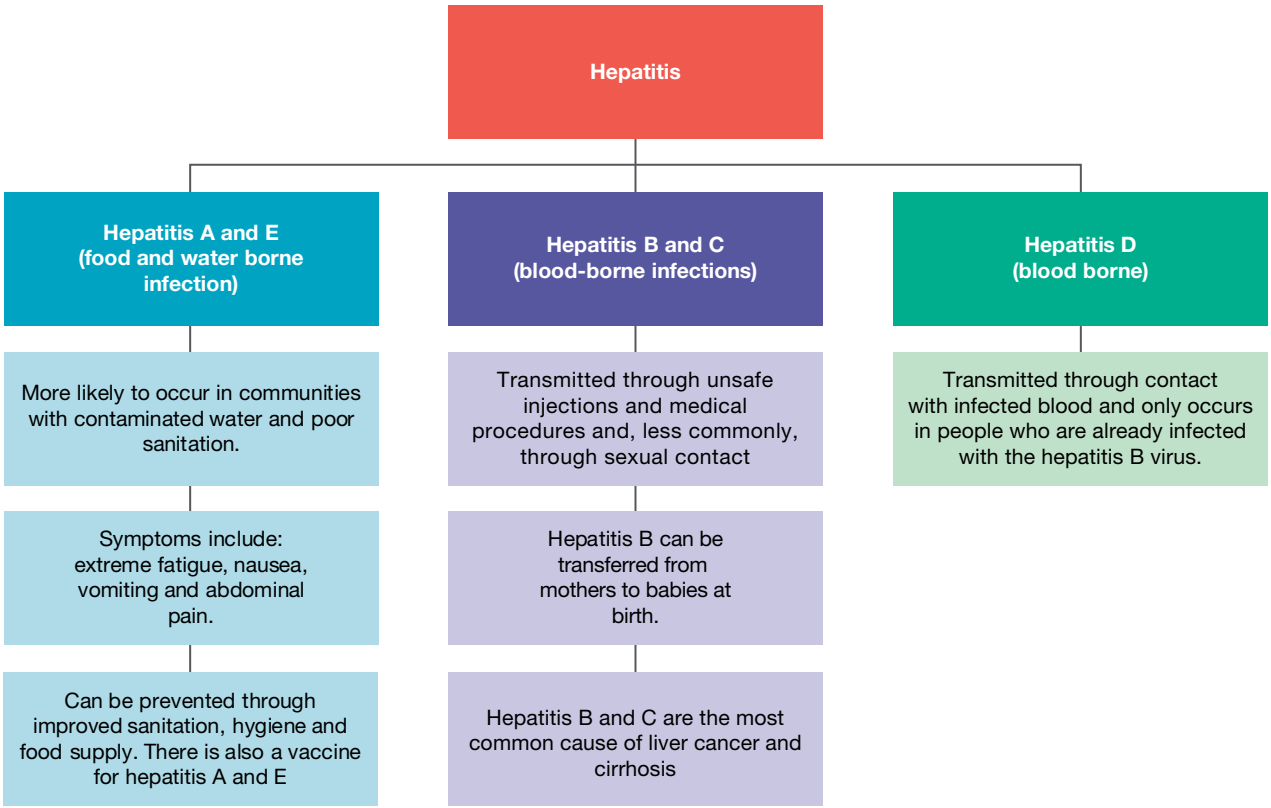


Other barriers to addressing neglected tropical diseases include global warming, climate change, ongoing urbanisation, and the global travel of people and goods — all which have the potential to increase the spread of these diseases.

11.5.5 Hepatitis

Hepatitis is inflammation of the liver caused by a viral infection. There are five types of hepatitis that contribute to the global burden of disease, and have the greatest potential for outbreaks. These are referred to as types A, B, C, D and E. The five hepatitis viruses are very different — they differ in the way they are transmitted, how they affect population groups and health and wellbeing (see figure 11.30).

FIGURE 11.30 Types of hepatitis: causes, symptoms and transmission.



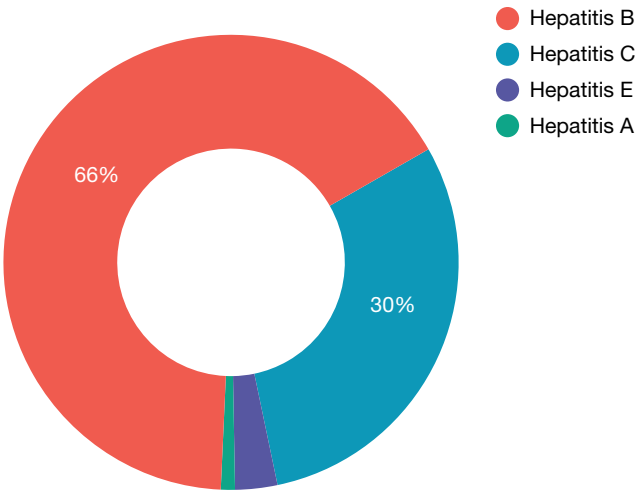
Hepatitis A and E are food- and water-borne infections. Outbreaks of these types of hepatitis are more likely to occur in communities with contaminated water and poor sanitation. Hepatitis A and E can cause extreme fatigue, nausea, vomiting and abdominal pain. They can be prevented through improved sanitation, hygiene and food supply. There is also a vaccine for hepatitis A and E. Treatment includes bed rest and providing fluids to prevent dehydration.

Hepatitis B and C are blood-borne infections, and are transmitted through unsafe injections and medical procedures and, less commonly, through sexual contact. Hepatitis B can be transferred from mothers to babies at birth. Hepatitis B and C are the most common cause of liver cancer and cirrhosis. In 2015 there were approximately 240 million people living with chronic hepatitis B and 130–150 million with chronic hepatitis C. The number of people living with the hepatitis C virus is increasing, despite there being an effective cure. Hepatitis C is found worldwide, but the most affected regions are central and east Asia and north and west Africa. Most infections in these countries are caused by unsafe medical injections and other medical procedures. Hepatitis C epidemics related to injecting drug use occur in all regions, with an estimated 67 per cent of people who inject drugs infected with the hepatitis C virus. Hepatitis D is transmitted through contact with infected blood and only occurs in people who are already infected with the hepatitis B virus.

All forms of hepatitis are responsible for an estimated 1.4 million deaths per year, which is similar to the death rates from HIV and tuberculosis. Hepatitis B accounts for 66 per cent of deaths, hepatitis C 30 per cent and hepatitis A and E are responsible for the remainder (figure 11.31). Hepatitis is also a growing cause of mortality among people living with HIV.

Hepatitis B is the form of hepatitis that contributes to the highest number of deaths from hepatitis. The prevalence of hepatitis B is higher in sub-Saharan Africa and East Asia, where between 5–10 per cent of the adult population is chronically infected and mother-to-child transmission is the most common form of transmission.

FIGURE 11.31 Percentage of deaths attributed to hepatitis viral infections, 2015.



Source: https://unstats.un.org/sdgs/report/2017/goal-03/.

Preventing hepatitis

Hepatitis A and B can be prevented through immunisation and by ensuring blood supplies are screened and safe from the virus before being used for transfusions. Hepatitis A, B and C transmission can also be prevented with safe injection and safe sex practices. An increasing number of countries are now vaccinating infants against hepatitis B as part of their vaccination schedules.

FIGURE 11.32 Hepatitis A and B can be prevented through immunisation.

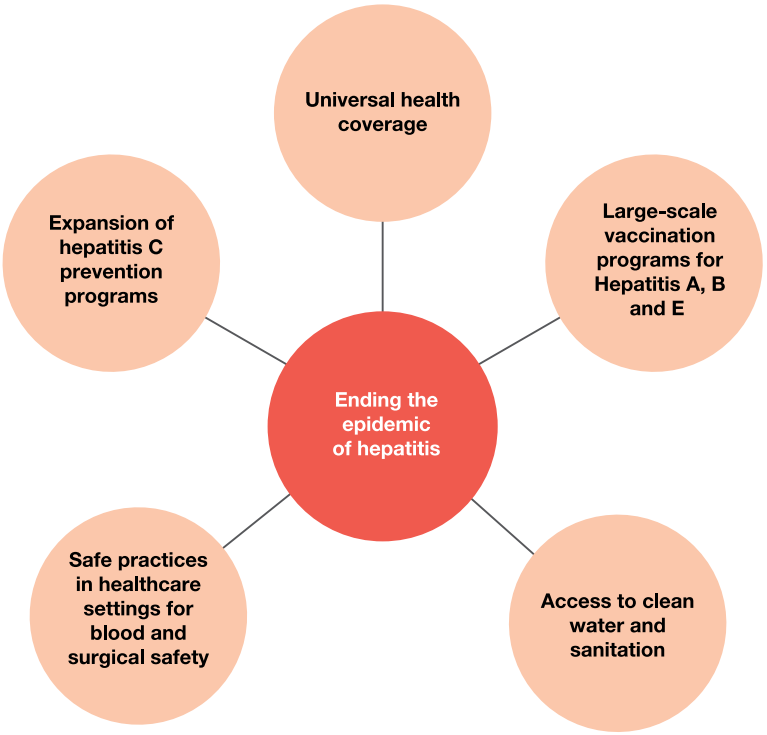


Several blood tests are available to diagnose and monitor people with hepatitis A and B, although no treatments are available. Most sufferers of hepatitis A will recover with bed rest and fluids. Those with chronic hepatitis B infection can be treated with drugs that can slow the progression of cirrhosis, reduce incidence of liver cancer and improve long-term survival, but this generally does not cure hepatitis B infection. Therefore, most people who start hepatitis B treatment must continue it for life. In low- and middle-income countries there is limited access to services for the diagnosis and treatment of hepatitis and those who are diagnosed are often in the late stages of liver disease. In low-income countries, most people with liver cancer die within months of diagnosis. Hepatitis A and E can be prevented with access to clean water and sanitation.

Ending the epidemic of hepatitis

To end the epidemic of hepatitis, large-scale vaccination programs are needed, particularly for those at high risk of hepatitis A, B and E and to prevent mother-to-child transmission. Access to clean water and sanitation is also important. Safe practices in healthcare settings are needed to ensure blood and surgical safety. Prevention programs that are successful in reducing hepatitis C infection rates need to be expanded and more funding for universal health coverage to provide affordable health and wellbeing services is needed to ensure people have access to the healthcare they need. Sufferers of hepatitis B need affordable medicines for the remainder of their lives (figure 11.33).

FIGURE 11.33 A range of actions must be taken to end the epidemic of hepatitis



11.5 Activities

1. Work individually or in pairs and research one neglected tropical disease. Include a description, how it is transmitted, its impact on health and wellbeing and the regions or countries where most people are affected. Share with the rest of the class.
2. Use concept mapping software to create a concept map illustrating each disease group covered in this section. For each disease group include a description of the disease, how it is transmitted, its impact on health and wellbeing and actions taken to reduce its spread.

11.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the relationship between HIV and AIDS?
2. How is HIV transmitted?
3. What factors have contributed to the reduction in new cases and deaths from AIDS?
4. What is malaria and how can it be prevented?
5. What factors have contributed to the reduction in malaria deaths?
6. How can TB be prevented and treated?
7. What are neglected tropical diseases?
8. Explain how neglected tropical diseases can be reduced through vector control.
9. Which neglected tropical diseases cause considerable morbidity and mortality?
10. Which forms of hepatitis cause the greatest number of deaths?

11.5 Exercise 2 APPLY your knowledge

1. Why would the decreasing number of deaths from AIDS result in an increase in the number of people living with HIV?
2. Climate change is a barrier to reducing NTDs. Explain why.
3. Describe three actions that need to be taken to meet the SDG 3 target for malaria.
4. Refer to figures 11.15 and 11.16. Provide two reasons for the trend evident in each of the graphs.

5. Refer to figure 11.26 and identify the neglected tropical disease that saw the greatest reduction in DALY between 1990 and 2013.
6. 'All forms of hepatitis can be treated and prevented.' Discuss this statement.

studyON

11.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

11.6 SDG 3 Key feature of non-communicable diseases

KEY CONCEPT Understanding the key features of SDG 3: Good health and wellbeing: key feature — non-communicable diseases

11.6.1 Non-communicable diseases

Another feature of SDG 3 is to reduce the incidence of non-communicable diseases (NCDs) that occur due to lifestyle or environmental factors. Four non-communicable diseases — cardiovascular disease, cancer, diabetes and chronic respiratory disease account for two thirds of deaths globally. Cardiovascular disease is the most common non-communicable disease (affecting 17.5 million people), followed by cancers (8.2 million people), respiratory diseases (4 million) and diabetes (1.5 million). Together these diseases account for 82 per cent of the 38 million deaths from non-communicable diseases each year.

Traditionally, non-communicable diseases were a problem only for high-income countries. However, 80 per cent of the burden of these diseases now affects low- and middle-income countries where people become ill more quickly, suffer more serious illness, and die earlier than those in high-income countries. More than 5 million deaths from non-communicable diseases are the result of tobacco use, while more than 600 000 are the result of passive smoking. Other common risk factors include poor diets, physical inactivity and the harmful use of alcohol. As you saw in topic 8, tobacco, alcohol and processed foods have become more widely available in low- and middle-income countries due to global marketing. This has led to a rapid increase in non-communicable diseases.

Changes in our lifestyle have contributed to the increased incidence of non-communicable diseases. Levels of physical activity have declined while the consumption of energy dense foods has increased. This has led to a rise in both adult and childhood obesity, a risk factor for many non-communicable diseases (see figure 11.36).

FIGURE 11.34 More than 5 million deaths from non-communicable diseases are the result of direct tobacco use.

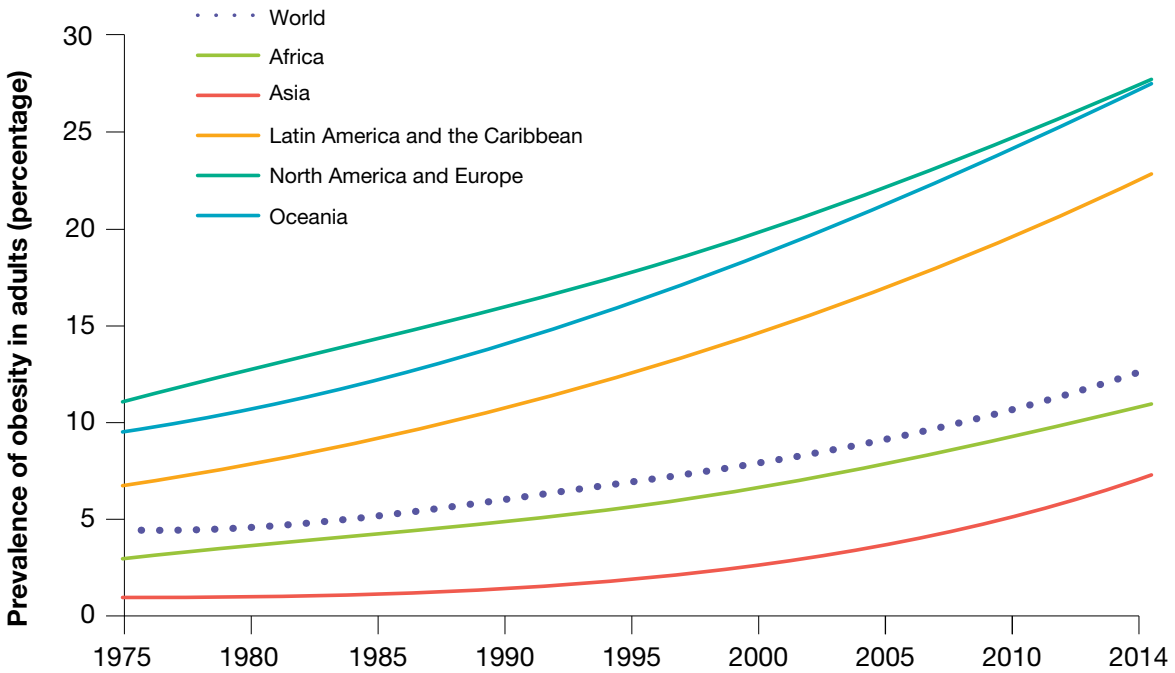


FIGURE 11.35 Rates of adult and childhood obesity are increasing in almost all regions.



Non-communicable diseases are costly to healthcare systems. Some countries spend up to 15 per cent of their total health budget on the treatment of diabetes and its complications alone. In low- and middle-income countries, the rapid rise in non-communicable diseases has the potential to reverse many of the economic gains achieved by the reduction in infectious diseases.

FIGURE 11.36a Adult obesity is rising globally

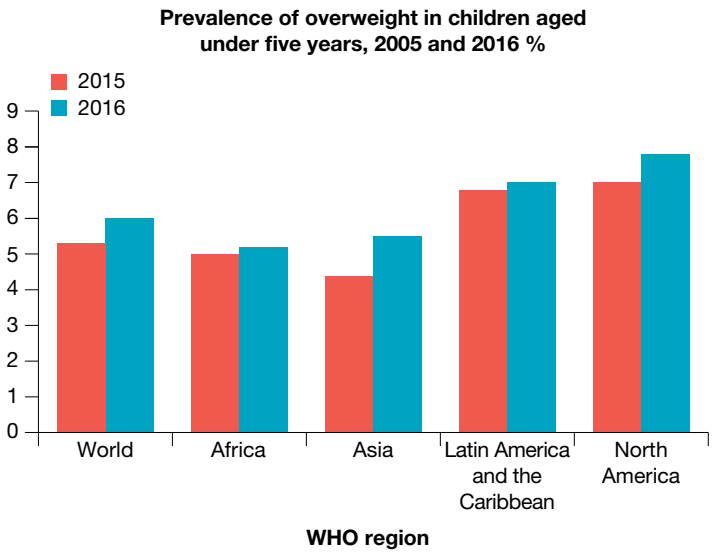


Source: WHO/NCD-RisC and WHO Global Health Observatory Data Repository 2017

Notes: Prevalence of obesity in adults 18 years and over,1975–2014

Many non-communicable diseases can be prevented, and for those already suffering ill health, early disease detection and affordable treatments are available. Inexpensive medicines can reduce the risk of heart attacks and stroke. In countries where the rates of tobacco smoking and alcohol consumption have been reduced, death rates from diseases such as cancer, heart disease, diabetes and stroke have been reduced. Of greater challenge is the need to reduce levels of obesity, where no country has yet been successful.

FIGURE 11.36b Changes in childhood obesity rates 2005–16.

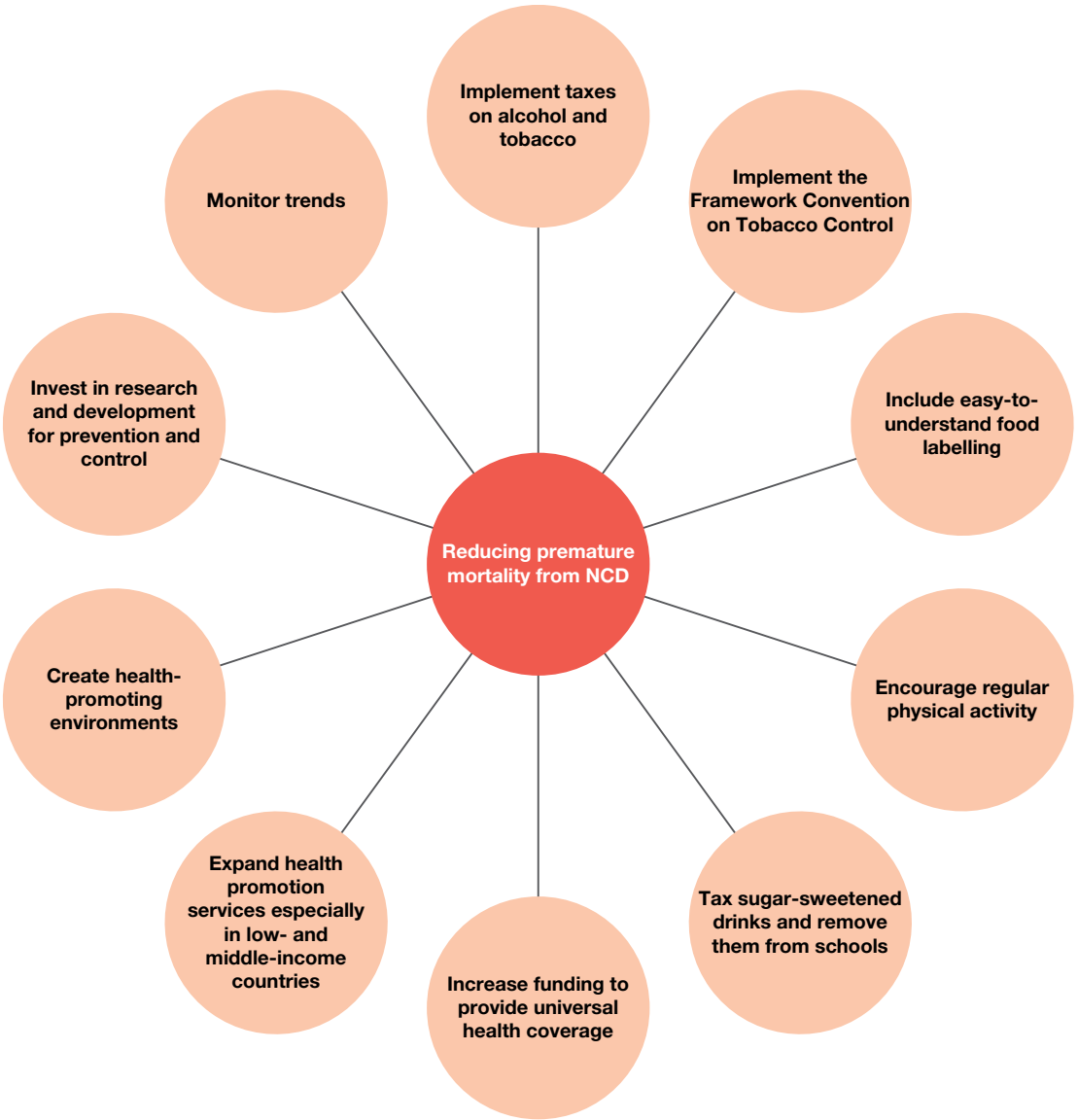


Source: Adapted from http://www.fao.org/3/a-I7695e.pdf, pp. 18 and 20.

Reducing premature mortality from non-communicable diseases

Globally, the risk of dying from any one of the four main NCDs between ages 30 and 70 decreased from 22 per cent in 2000 to 18 per cent in 2016, but if the target for reducing mortality from non-communicable diseases is to be achieved a great deal of effort is needed (see figure 11.37).

FIGURE 11.37 Reducing premature mortality from non-communicable diseases is a global problem and requires a range of actions to be taken.



The World Health Organization recommends that countries:

- implement taxes on alcohol and tobacco products
- implement the Framework Convention on Tobacco Control to substantially reduce deaths due to smoking
- legislate for food labels to include easy to understand information
- encourage schools and workplaces to find ways to encourage regular physical activity
- place taxes on sugar-sweetened drinks, remove them from schools and restrict their marketing to reduce children's exposure to unhealthy food and drinks.

Low-income countries have less capacity to prevent and control non-communicable diseases. The prevalence of hypertension (high blood pressure) in the African region is the highest worldwide, affecting an estimated 46 per cent of adults. High-income countries are nearly four times more likely to have services to treat non-communicable diseases covered by health insurance than low-income countries. Countries with inadequate health insurance coverage are unlikely to provide universal access to essential healthcare for early diagnosis, treatment, management or cure.

Implementation of the WHO Framework Convention on Tobacco Control in all countries would help reduce deaths due to smoking. In 2016, more than 1.1 billion people aged 15 years or older smoked tobacco, 34 per cent of all males and 6 per cent of all females in this age group. Nearly 80 per cent of the world's smokers live in low- and middle-income countries, yet there are no services to help people quit smoking in one quarter of low-income countries. In 2016 some improvements occurred, with more countries passing laws requiring plain packaging for cigarettes or health warnings appearing on tobacco product packaging and improving the national monitoring of tobacco use.

Other measures that need to be taken to reduce deaths from non-communicable diseases include:

- raising the priority for the prevention and control of these diseases in all countries, particularly low- and middle-income countries where the focus has largely been on addressing infectious diseases
- reducing risk factors for NCDs and creating health-promoting environments
- strengthening health systems to address the prevention and control of NCDs and to provide universal health coverage
- investing in research and development for the prevention and control of NCDs and to monitor trends (see figure 11.37).

FIGURE 11.38 The WHO recommends placing taxes on sugar-sweetened drinks, removing them from schools and restricting their marketing to reduce obesity and diseases such as cardiovascular disease, cancer and type 2 diabetes.



FIGURE 11.39 World No Tobacco Day is held each year to raise awareness of the dangers of tobacco smoking and encourage people to quit smoking.



11.6.2 Mental health and wellbeing

When people experience good mental health and wellbeing, they are able to realise their potential, cope with the normal stresses of life, work productively and contribute to their communities. Unfortunately, there are many people who do not enjoy good mental health and wellbeing. Poor mental health and wellbeing is associated with rapid social change, stressful work conditions, gender discrimination, social exclusion, an unhealthy lifestyle, risks of violence, physical ill health and wellbeing and human rights violations.

Mental disorders, such as depression, are among the 20 leading causes of disability worldwide, with an estimated 350 million people affected. Depression is long lasting and causes enormous suffering, reducing the ability of a person to function at work, at school and in the family. At its worst, depression can lead to suicide. Globally, over 800 000 people die due to suicide every year, with suicide being the second leading cause of death in 15- to 29-year-olds.

FIGURE 11.40 Good mental health and wellbeing is promoted when there are good social supports and an environment that respects human rights.



People who have gone through traumatic life events (unemployment, bereavement, psychological trauma) are at greater risk of depression. Mental disorders contribute to poverty and homelessness. People with mental disorders are often stigmatised, suffer discrimination and are denied their basic human rights. Mental disorders often affect, and are affected by, other diseases such as cancer, cardiovascular disease and HIV/AIDS. As a result, those who suffer from mental disorders often experience higher rates of morbidity and mortality and lower life expectancy.

Mental disorders such as depression can be treated effectively with appropriate medication and psychological support. An environment that respects and supports people's rights and provides strong social support is important for good mental health and wellbeing and can help prevent some mental disorders. Preventing depression is also possible when positive thinking programs are integrated into school-based curriculum; support programs are put in place for parents of children with behavioural problems to reduce the level of depression affecting adults; and exercise programs for the elderly are put in place.

The burden of depression and other mental health and wellbeing conditions is on the rise globally and while depression can be treated with antidepressants, fewer than half of those affected worldwide have access to these treatments (in many countries, it is fewer than 10 per cent). Mental disorders such as depression also need to be accurately diagnosed. The availability of specialised and general mental health workers in low- and middle-income countries is extremely low, which means that most mental disorders go undiagnosed and untreated. Almost half the world's population lives in countries where, on average, there is one psychiatrist to serve approximately 200 000 people.

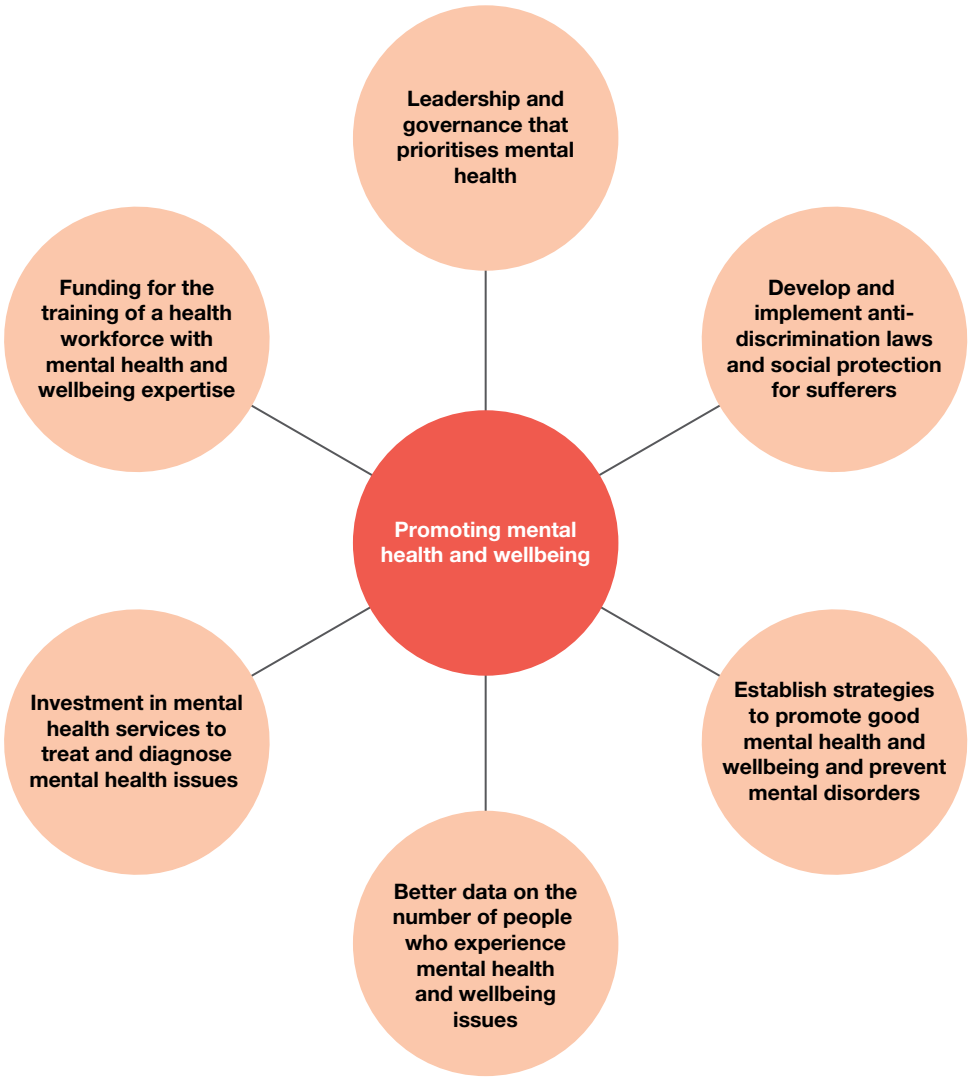
Promoting mental health and wellbeing

To promote mental health and wellbeing and achieve the targets of SDG 3 there needs to be:

- more effective leadership and governance for mental health and wellbeing. It needs to be a high priority of governments of all countries, but particularly low- and middle-income countries. This includes putting in place anti-discrimination laws and social protection for those who suffer from mental disorders
- the development and implementation of a range of strategies to promote good mental health and wellbeing and prevent mental disorders
- more data on the number of people who experience mental health and wellbeing issues

- more investment in providing a range of mental health services that are accessible to those who need them and provide treatment for those affected
- increased funding for the training of a health workforce with expertise in mental health and wellbeing (figure 11.41).

FIGURE 11.41 Promoting mental health and wellbeing requires countries, especially low and middle-income countries, to implement a range of measures.



11.6.3 Road traffic accidents

Around 1.25 million people die each year from road traffic accidents — around 3500 people lose their lives each day. A further 20–50 million people suffer non-fatal injuries, with many suffering long-term disability as a result. Road traffic injuries are the ninth leading cause of death globally, and the leading cause of mortality among people aged 15–29 years. Almost three-quarters of all road deaths are males. Ninety per cent of these deaths occur in low- and middle-income countries, with Africa being overrepresented.

Poor quality roads, unsafe vehicles and driver behaviour are responsible for most of the road traffic accidents worldwide, with driver behaviour being a significant factor. Speed, driving while under the influence of alcohol and other risk-taking behaviours put people at risk of injury, disability or death.

Reducing the burden of disease from road traffic accidents

SDG 3 aims to halve the number of global deaths and injuries from road traffic accidents by 2020 (rather than 2030). This is an ambitious goal as the number of vehicles on the road increases each year. To achieve this, a coordinated approach is needed, involving the transport sector, police, health and education sectors. Good road infrastructure is important along with ensuring that vehicles on the road are safe and in good working condition. Education, healthy public policy and law enforcement are needed to modify driver behaviour and, in the event of a road accident, emergency services and quality healthcare are needed to ensure those who are injured can get immediate and longer-term treatment. In many low- and middle-income countries, there is a lack of resources and political interest to invest in health promotion and law enforcement and limited healthcare services means many victims of road accidents are not provided with the necessary emergency services and treatment they need.

FIGURE 11.42 The number of vehicles on the roads increases each year, and the aim to halve the number of deaths and injuries by 2020 is ambitious.



11.6.4 Drug and alcohol misuse

Alcohol

Substance misuse is a significant public health issue worldwide, particularly alcohol. Alcohol is responsible for 3.3 million deaths each year. It increases a person's risk of developing over 200 diseases, including cirrhosis of the liver and several forms of cancer. Harmful alcohol consumption can also lead to death, injury and disability from violence, drowning and accidents.

The worldwide level of alcohol consumption in 2016 was 6.4 litres of pure alcohol per person aged 15 years or older, a level that has remained stable since 2010. Europe has the highest consumption per person and increasing rates of alcohol consumption are occurring in South-East Asia and countries in the Western Pacific region. Each year, alcohol accounts for approximately 7.6 per cent of deaths for males and 4 per cent for females. Of concern is the increasing rate of consumption of alcohol by females. Alcohol is a drug of dependence and many people need specialised medical assistance to help them change their behaviour. However, only one in six people worldwide have access to healthcare services capable of supporting them with alcohol issues.

FIGURE 11.43 Drug and alcohol misuse are significant public health issues worldwide, with drug use increasing among adolescent boys.



Illicit drugs

It has been estimated that 150–250 million people, or between 3.5 and 5.7 per cent of people aged 15–64, worldwide have used illicit drugs. Illicit drugs are responsible for more than 450 000 deaths each year. Between 15 and 27 million people are considered to have drug-use disorders. The most common illicit drug being used is cannabis, followed by amphetamines, cocaine and opioids.

Illicit drugs affect economic and social development. They contribute to crime, instability, insecurity and the spread of HIV. Injecting drugs carries a high risk of contracting blood-borne viruses such as HIV, hepatitis C and hepatitis B. Injecting drug use accounts for an estimated 30 per cent of new HIV infections outside sub-Saharan Africa. Illicit drug use is a major public health concern and results in considerable healthcare costs.

FIGURE 11.44 Illicit drug use is a major public health concern and results in considerable costs to healthcare services.



In some countries the use of illicit drugs has remained stable, while in other countries, including many low- and middle-income countries, the rates of illicit drug use have been increasing. Illicit drug use is also becoming more concentrated among youth, particularly male youth living in urban areas. Children and youth who suffer from neglect, abuse, household dysfunction, exposure to violence and instability are at greater risk of substance abuse.

Reducing the burden of disease from alcohol and illicit drugs

It has been estimated that the cost of treating all drug-dependent people worldwide would be $US200–250 billion. Therefore, greater funding is required to strengthen prevention and treatment services and reduce the burden of disease associated with drug and alcohol misuse. Drug and alcohol dependent people require treatment, which is only accessible to around one in six (4.5 million) people worldwide. In Africa, this is much less at 1 in 18.

Governments also need to implement strong policies in relation to drug and alcohol use, and work with police, and the health and education sectors to ensure enforcement of legislation, the provision of resources for the prevention and treatment of alcohol and drug disorders and access more accurate data. International cooperation is also needed to address the illegal movement of drugs and alcohol between countries.

11.6.5 Hazardous chemicals and air, water and soil pollution and contamination

Every year, almost 12.6 million people die from diseases associated with environmental hazards, such as air, water or soil pollution. This represents one in four deaths worldwide. In addition, 22 per cent of the global disease burden (in DALYs) is attributable to environmental risks that can be prevented.

Low- and middle-income countries experience the largest environment-related disease burden with a total of 7.3 million deaths. Young children under five and adults aged 50–75 are at greatest risk. As more people move to cities, pollution from heavy traffic, poor housing and limited access to water and sanitation services bring about significant health and wellbeing risks. Environmental risk factors contribute to more than 100 diseases and injuries, two-thirds of which are due to indoor and external air pollution.

Air pollution

In 2016, 91 per cent of the world's population did not breathe clean air, and more than half of urban population were exposed to external air pollution levels at least 2.5 times above the safety standard set by the WHO. Indoor and external air pollution resulted in around 7 million deaths, mainly from heart and lung diseases such as stroke, heart disease and respiratory infections and cancer (see figure 11.45).

FIGURE 11.45 Air pollution is responsible for around 7 million deaths, in particular stroke, heart disease and diseases of the lungs, including lung cancer.



Indoor air pollution

Around 3 billion people, mainly in low- and middle-income countries, cook and heat their homes using solid fuels, such as wood, charcoal, coal and dung, in open fires and poorly functioning stoves. These fuels produce small soot particles that penetrate deep into the lungs. Where there is limited ventilation, indoor smoke can contain extremely high levels of damaging fine particles. Women and children are at greatest risk as they are usually responsible for most of the cooking. Exposure to indoor air pollution almost doubles the risk for childhood pneumonia and acute lower respiratory infections. In adults, indoor air pollution is responsible for almost one-quarter of all premature deaths from stroke, 15 per cent of all deaths due to ischaemic heart disease, more than one-third of deaths from chronic obstructive pulmonary disease and 17 per cent of lung cancer deaths. The small particles also inflame the airways and lungs and impair immune functioning.

External air pollution

External air pollution is caused by energy production and traffic fumes, which release deadly air pollutants, such as black carbon and greenhouse gases. External air pollution contributes to increased morbidity and mortality. As cities become larger, the quality of air in many of them is becoming a global concern.

Reducing air pollution relies on the use of clean technologies and fuels for cooking, heating and lighting and for transport, as well as improved urban design and energy-efficient housing.

FIGURE 11.46 As cities become larger, the quality of air in many of them is becoming a global concern.



Water pollution

Contamination of drinking water and soil, mainly through poor sanitation, is responsible for an estimated 871 000 deaths, half of which occur in Africa. Unsafe water, sanitation and hygiene is responsible for many deaths from diarrhoeal diseases, as well as contributing to deaths from malnutrition, intestinal worm infections and schistosomiasis. As global access to clean water and sanitation increases, deaths resulting from these diseases are declining.

Reducing deaths and illness from environmental pollution

Reducing the level of environmental pollution is a challenge for all countries. Its success relies on decreasing the world's reliance on fossil fuels and increasing access to clean fuels and efficient technologies. Reducing vehicle emissions by investing in rapid transit systems that can move large numbers of people in cities will reduce reliance on cars and decrease air pollution. Tobacco smoke-free legislation is also effective in reducing exposure to second-hand tobacco smoke.

Governments need to provide incentives for the use of clean energy and ensure that environmental considerations are included in decisions made by the transport, waste management and industry sectors as well as implementing rigorous monitoring of air pollution levels. Increasing access to safe water and adequate sanitation and promoting hand washing would further reduce deaths from diarrhoeal diseases.

11.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is meant by non-communicable diseases?
2. What are the four major risk factors that account for most of the burden of disease associated with non-communicable diseases worldwide?
3. Outline three ways that premature mortality from non-communicable diseases could be reduced globally.
4. Why do those suffering from mental disorders often experience higher rates of morbidity and mortality?
5. How can mental health and wellbeing be improved?
6. What factors are responsible for road traffic accidents?
7. Which type of environmental contamination is responsible for the largest burden of disease worldwide?
8. What diseases can be attributed to environmental contamination?

11.6 Exercise 2 APPLY your knowledge

1. Refer to figure 11.36 and identify two regions where the prevalence of overweight in children and in adults has increased the most between 2005 and 2016.
2. Using the information in figure 11.36, explain why these trends are a significant issue for low- and middle-income countries.
3. Reducing road traffic accidents requires a coordinated approach. Discuss.
4. Explain how reducing drug and alcohol misuse could positively affect three non-communicable diseases that are part of SDG 3.

studyON

11.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

11.7 The relationships between SDG 3 and SDG 1

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 1: No poverty

SDG 3: Good health and wellbeing can be explored as a single goal but, as you saw previously in this topic, the SDGs are interconnected and indivisible. It is therefore important to consider how the achievement of SDG 3 is both dependent upon and underpins other SDGs. Without good health and wellbeing, achieving many of the SDGs will be difficult. In a similar way, the achievement of SDG 3 is dependent upon the achievement of other SDGs. The social model of health recognises that health and wellbeing is determined by a range of economic, sociocultural and environmental conditions and, as such, good health and wellbeing is connected to issues such as poverty, good nutrition, gender equality, education, access to safe water and sanitation, and climate change. The social model of health also emphasises the importance of intersectoral collaboration. Political decisions and policies in the non-health sectors such as water and sanitation, food and agriculture, education, urban planning, transport and social protection are all connected to the achievement of Goal 3: Good health and wellbeing.

on Resources

Teacher-led video Interrelationships between the Sustainable Development Goals (SDGs) (tlvd-0257)

The next few sub-topics will focus on the relationship between SDG 3: Good health and wellbeing and SDG 1, 2, 4, 5, 6 and 13 (figure 11.47).

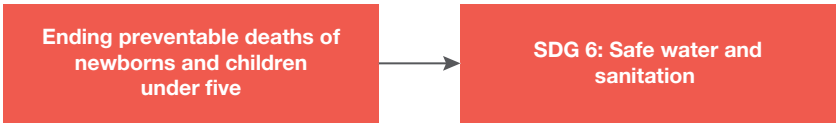
FIGURE 11.47 The achievement of SDG 3 is interconnected with the achievement of other Sustainable Development Goals.



EXAM TIP

When showing the relationship between actions taken to achieve SDG 3 and actions taken to achieve other SDGs, it is important that you are familiar with the other SDGs so you can show how they are interdependent.

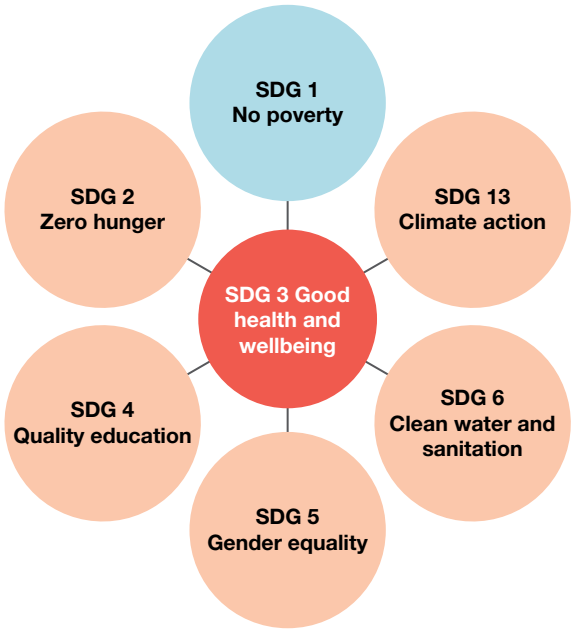
For example:



The following provides an example of this:

Actions taken to end preventable deaths of newborns and children under five will not be successful unless actions are taken to address SDG 6: Safe water and sanitation. One of the major causes of deaths in newborn and children under five is dehydration due to diarrhoea caused by drinking contaminated water. Therefore, achieving the targets for SDG 3 is dependent upon actions taken to achieve the targets included in SDG 6.

FIGURE 11.48 SDG 1: No poverty and SDG 3 are interconnected.





NO POVERTY: END POVERTY IN ALL ITS FORMS EVERYWHERE

Goal 1 seeks to remove poverty and inequality within and among nations. The aim is to end poverty in all its forms by 2030 and includes:

- eradicating extreme poverty currently measured as people living on less than US$1.90 a day
- reducing by half the proportion of men, women and children living in poverty
- implementing social protection systems
- ensuring equal rights and access to essential resources, services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including **microfinance**
- building the resilience of those in vulnerable situations and reducing exposure to environmental disasters that result in poverty.

11.7.1 The meaning of SDG 1

SDG 1 aims to end poverty in all its forms by 2030. The World Bank defines **extreme poverty** as living on less than US$1.90 a day. **Poverty** is a major cause of ill health and ill health is a major cause of poverty. When individuals and families are poor, they can't afford to purchase food, clean water, clothing, shelter and healthcare. They also struggle to afford to educate themselves and their children, are less able to find and remain in a job, and to access services that would help them escape poverty. Those who are poor are also more vulnerable to air and water pollution and other hazards such as landslides, drought and flooding, all of which carry physical and mental health and wellbeing risks. Without the necessary resources, people are unable to access medical care and protect their children through vaccination. Poverty, therefore, is the main factor contributing to low levels of childhood immunisation, low levels of literacy and high death rates from infectious diseases such as tuberculosis, measles, whooping cough (pertussis), cholera, malaria and tetanus. Children born into poverty are almost twice as likely to die before the age of five compared to children born to wealthier families.

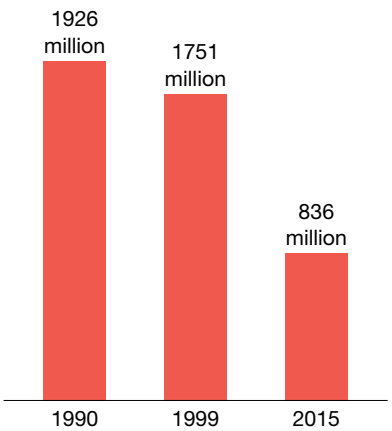
FIGURE 11.49 In many countries, women are often poor due to discrimination.



Effects on health and wellbeing and human development

Poverty can be caused by more than a lack of income and resources. It can arise due to discrimination and social exclusion. In many countries, women, youth, the elderly, migrants and those with a disability are often poor because of discrimination. Women are more likely than men to live in poverty due to less access to paid work, fewer educational opportunities, a lack of rights in relation to property ownership and inheritance, and a lack of access to natural resources, new technologies and finance. This has an impact on mental and spiritual health and wellbeing and affects human development by reducing people's standard of living as well as leaving them politically and economically vulnerable. Women often lack opportunities to participate in making decisions that affect their lives and those of their community. This also reduces spiritual health and wellbeing.

FIGURE 11.50 Global number of extreme poor



Source: Millennium Goals Report 2015, United Nations, p. 4.

Globally, the number of people living in extreme poverty has been halved since 1990, but there are still over 800 million people struggling to afford their most basic human needs (figure 11.50). Poverty not only affects those living in low- and middle-income countries, but also people in high-income countries. There are currently 30 million children living in poverty in high-income countries. The health and wellbeing and human development of these people is directly affected by poverty.

11.7.2 Links between SDG 1 and SDG 3

The governments of poor countries often do not invest resources to provide public health and wellbeing services, such as safe water and sanitation, health promotion programs, universal health coverage, education and social security benefits, all of which affect people's ability to enjoy good health and wellbeing. The target of providing universal health coverage as part of SDG 3 helps to end poverty by ensuring all people have access to essential medicines, vaccines and healthcare services at an affordable price.

Natural disasters and outbreaks of disease can result in people, communities and countries being plunged into poverty. Ending poverty and achieving good health and wellbeing relies upon countries having strategies in place to help reduce such risks, minimise the impact of events and ensure people do not experience poverty because of an event. **Social protection measures** are important to ensure that, regardless of economic situation, all people will have access to high quality healthcare at no cost, will be able to care for their children and provide food, shelter and education, and in the event of unemployment, illness, pregnancy, disability or old age, will have income security.

FIGURE 11.51 Natural disasters and outbreaks of disease can result in people, communities and countries being plunged into poverty due to infrastructure and crop loss.



Good health and wellbeing is a major contributor to human development, economic growth and poverty reduction. Many of the economic, sociocultural and environmental actions that need to be taken to achieve both goals require collaboration across different sectors, such as welfare, finance, legal, health, water and sanitation, and industry. For example, implementing social protection measures has been successful in reducing the levels of poverty in many countries such as Brazil and Argentina.

11.7 Activity

Access the **Neglected tropical diseases** weblink and worksheet in the Resources tab then complete the worksheet that demonstrates the interrelationships between good health and wellbeing and poverty.

11.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Define 'extreme poverty'.
2. Apart from income, what are two other causes of poverty and who is most at risk?
3. What are social protection measures and why are they important?
4. How does poverty affect health and wellbeing and human development?
5. Why would a focus of Goal 1 include strengthening community resilience and reducing exposure to environmental disasters?

11.7 Exercise 2 APPLY your knowledge

1. Why are children born into poverty almost twice as likely to die before the age of five compared to those born into wealthier families?
2. Outline four examples that show how SDG 1 and SDG 3 are related and require collaboration across sectors to achieve both goals.

studyON

11.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

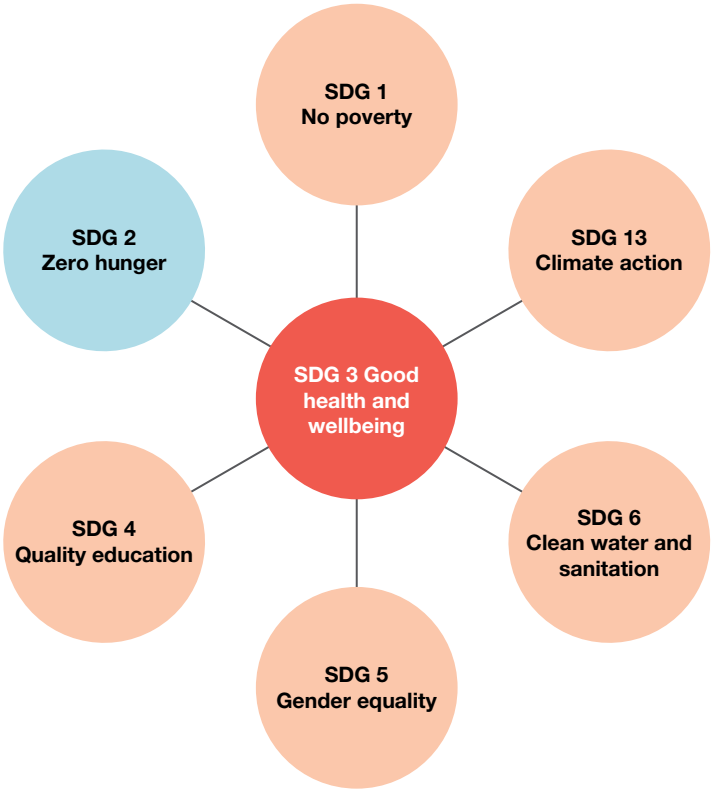
on Resources

Digital document Neglected tropical diseases worksheet (doc-32231)
Weblink Neglected tropical diseases

11.8 The relationships between SDG 3 and SDG 2

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 2: Zero hunger

FIGURE 11.52 SDG 2: Zero hunger and SDG 3 are interconnected.



ZERO HUNGER: END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION, AND PROMOTE SUSTAINABLE AGRICULTURE

Goal 2 aims to end all forms of hunger and malnutrition, making sure all people — especially children and the more vulnerable — have access to nutritious food all year round by promoting **sustainable agriculture**. By 2030 the aim of this goal is to:

- end hunger and ensure access for all people, in particular the poor and people in vulnerable situations, such as infants, to safe, nutritious and sufficient food
- end all forms of malnutrition
- double agricultural productivity and incomes of small-scale food producers, and ensure equal access to land and resources
- ensure sustainable food production systems and resilient agricultural practices that increase productivity and production, maintain ecosystems, and adapt to climate change and extreme weather, are implemented
- maintain the genetic diversity of seeds, plants and animals and ensure access for all
- increase investment in agriculture infrastructure, research and technology
- address trade restrictions that disadvantage farmers, particularly in low- and middle-income countries
- adopt measures to ensure the proper functioning of global food commodity markets and ensure access to market information.

FIGURE 11.53 Around 160 million children have stunted growth due to lack of food. Pregnant and lactating women and the elderly are also at risk.

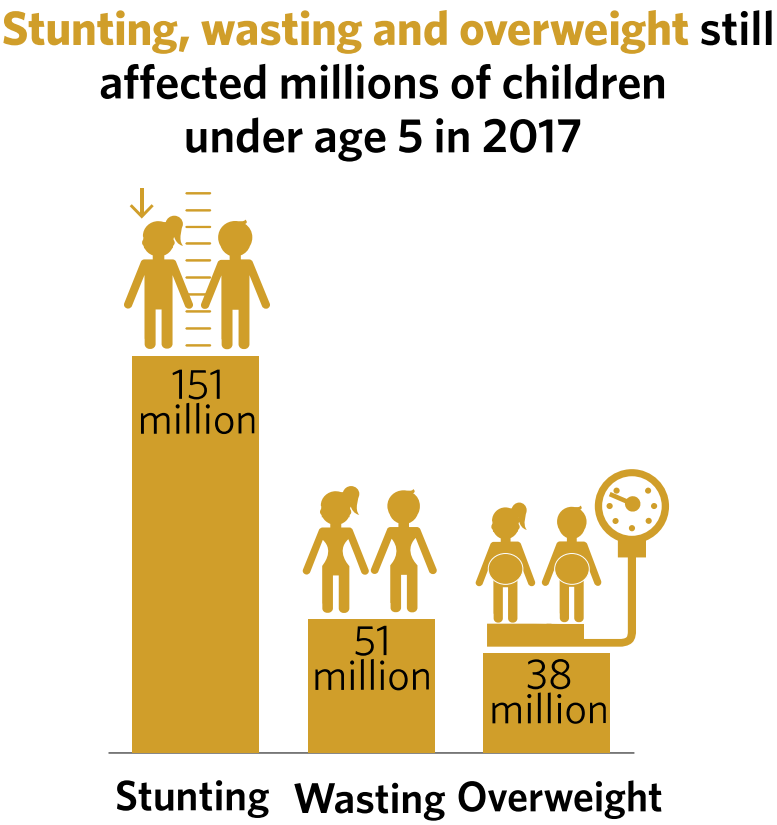


11.8.1 The meaning of SDG 2

SDG 2 aims to end all forms of hunger and malnutrition by ensuring that everyone has access to nutritious food. This is referred to as **food security**. Hunger is defined as the continuing lack of food needed for an active and healthy life. Having access to food is essential for achieving good health and wellbeing and for improving human development. Food scarcity and hunger results in malnutrition and ill health. Being malnourished can lead to an inadequate intake of micronutrients such as iron, vitamin A, iodine and zinc.

Those most at risk of the effects of malnutrition are children, particularly up until five years of age, pregnant and lactating women, and the elderly. Globally, there are over 150 million children whose growth is stunted due to being undernourished (figure 11.54).

FIGURE 11.54 Over 150 million children experienced stunted growth due to malnutrition and a further 51 million children experienced wasting as a result of a lack of food and nutrition.



Source: https://unstats.un.org/sdgs/report/2018/overview/.

Impact of hunger on health and wellbeing and human development

Hunger and malnutrition is the biggest contributor to child mortality, causing 45 per cent of the 6.3 million preventable deaths in children under five. This is approximately 2.8 million children. Hunger weakens the immune system and children become too weak to fight off disease. Children suffering from hunger have increased frequency and severity of diseases such as pneumonia, measles, malaria and diarrhoea, and are at greater risk of dying from these conditions. Hunger is an underlying cause in 61 per cent of deaths from diarrhoea, 57 per cent from malaria, 52 per cent from pneumonia and 45 per cent from measles. Malnutrition in infants can be prevented by mothers exclusively breastfeeding their babies for the first six months.

Micronutrients, especially iron, vitamin A, and iodine are particularly important for good health and wellbeing. According to the World Health Organization, deficiencies in iron, and vitamin A, rank among the top ten leading causes of death and disease in low-income countries. A deficiency of iron during pregnancy can lead to maternal death and impairs children's physical and cognitive development. Iron-deficiency anaemia contributes to 20 per cent of all maternal deaths. Serious iodine deficiency during pregnancy can result in stillbirth, spontaneous abortion, and congenital abnormalities such as cretinism, a form of mental impairment. Iodine deficiency, especially during pregnancy, affects 780 million people worldwide. Vitamin A deficiency can lead to blindness, poor immune function and reduced cell function needed for normal growth to occur. Pregnant women and children with vitamin A deficiency have a higher rate of morbidity and mortality (see figure 11.55).

FIGURE 11.55 Deficiencies in iron, and vitamin A

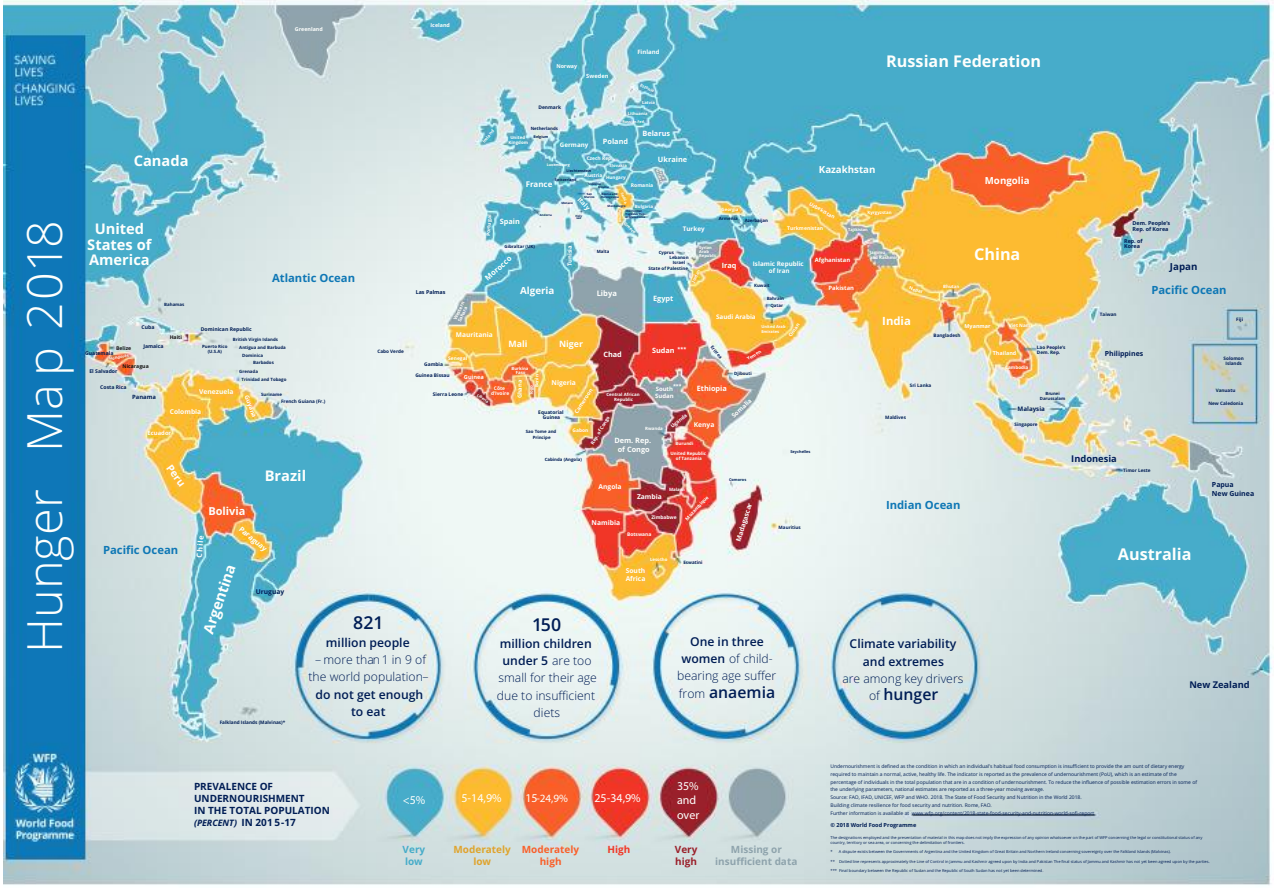
Iron	Iodine	Vitamin A
• Deficiency in pregnancy can lead to maternal death and impairs children's physical and cognitive development • Contributes to 20 per cent of all maternal deaths	• Deficiency in pregnancy can result in stillbirth, spontaneous abortion and cretinism, a form of mental impairment • Affects 780 million people world wide	• Deficiency can lead to blindness, poor immunity and reduced growth • Pregnant women and children with vitamin A deficiency have higher rates of morbidity and mortality

Globally, one in nine people (815 million) are undernourished and do not have enough food to lead a healthy, active life. As hunger causes poor health and wellbeing, stunted growth, low levels of energy, and reductions in mental functioning, it can lead to poverty by reducing people's ability to work and learn. Extreme hunger and malnutrition are major barriers to human development. Most of the world's hungry people live in low- and middle-income countries, where 12.9 per cent of the population is undernourished (see figure 11.56). Southern Asia faces the greatest hunger burden, with approximately 281 million undernourished people. In sub-Saharan Africa, undernourishment is estimated to affect 23 per cent of the population.

Rates of undernourishment increased in 2016 from 777 million in 2015 to 815 million (figure 11.57).

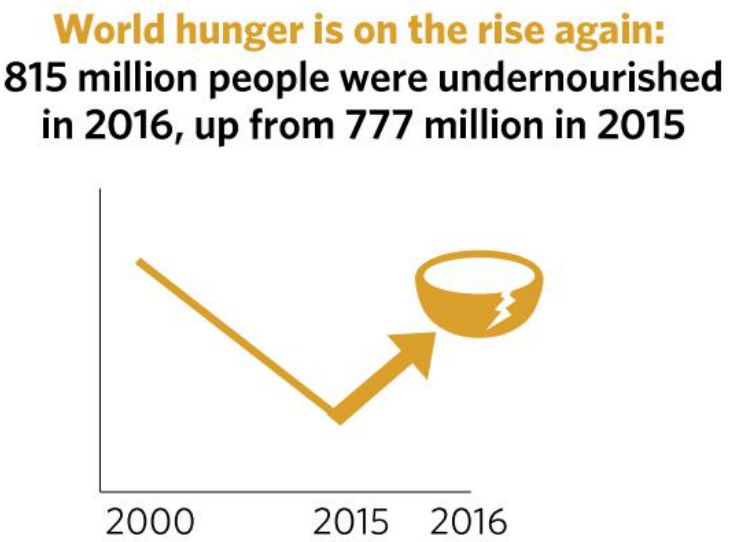
As you have seen, hunger and malnutrition has a significant impact on physical health and wellbeing. When people are malnourished and suffer ill health, human development is impaired. Without food, people are unable to live a long and healthy life and pursue their interests. They will be unable to achieve a decent standard of living and lack the basic human right of having adequate food. Children who are hungry and malnourished will not be able to attend school, and will not have the opportunity to develop the skills and knowledge needed to get decent work and to participate in the social and political lives of their communities.

FIGURE 11.56 World Hunger Map



Source: World Food Programme, 2018. https://www.wfp.org/content/2018-hunger-map.

FIGURE 11.57 The rates of world hunger increased in 2016 compared to 2015 with conflict, drought and disasters linked to climate change being the key reasons.



Source: https://unstats.un.org/sdgs/report/2018/overview/.

11.8.2 Links between SDG 2 and SDG 3

Actions designed to achieve zero hunger will also help achieve SDG 3. Maternal and child health and wellbeing will be improved with access to nutritious food, contributing to reductions in under-five and maternal mortality rates. With improved nutrition, children will be at reduced risk of contracting and dying from communicable diseases such as malaria and hepatitis, and vaccine-preventable diseases such as measles and tuberculosis. Well-nourished mothers are more likely to give birth to healthier babies and to experience good health and wellbeing during pregnancy and childbirth. A well-nourished population is a healthier one, which may help reduce the demand for health services and corresponding costs to the healthcare system.

Achieving good health and wellbeing will also contribute to the achievement of zero hunger. Adults who enjoy good health and wellbeing are able to work and produce their own food for the family or to work and earn an income. Earning an income means that families can purchase healthy food to eat which helps reduce the level of hunger.

FIGURE 11.58 Well-nourished mothers are more likely to experience good health and wellbeing during pregnancy and give birth to healthier babies.



CASE STUDY

Edible Insects — A solution to malnutrition

Incorporating edible insects and other emerging innovations in Africa could help address malnutrition. According to Ms Dorothy Murugu, a nutritionist and public health consultant, 'edible insects including crickets, black soldier flies, termites and grasshoppers contain high protein levels and are environmentally friendly.'

'For instance, grasshoppers contain 70 per cent of protein content per 100 grams which is three times more than what we acquire from eating fish.'

This has contributed to a growth in small farm holder in the dry and semi-dry areas of Africa to rear edible insects which require small amounts of water. Overcoming malnutrition requires a focus on the need to be well nourished, ensure that food systems are compatible with climate change, help improve the livelihoods of the millions of people and also put women at the center of the food systems as they form the greatest share of the population and most of them are farmers.

Source: Adapted from: https://agrf.org/edible-insects-an-overlooked-solution-to-malnutrition/ 6 Sep, 2018.

Case study review

1. Which insects are considered to be edible?
2. How will eating edible insects help achieve good health and wellbeing?
3. Why is it considered important to put women at the centre of the food system if malnutrition is to be addressed?

11.8 Activities

1. Access the **Undernutrition** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **End malnutrition** weblink and worksheet in Resources tab then complete the worksheet.

11.8 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is hunger?
2. What does food security mean?
3. Which micronutrients are of concern when people are undernourished?
4. How does hunger and malnutrition affect human development?

11.8 Exercise 2 APPLY your knowledge

1. How are poverty and hunger interrelated?
2. Outline the relationship between hunger, immunity and disease.
3. Justify why collaborative action between SDG 2 and SDG 3 is necessary to promote health and wellbeing and human development.

studyON

11.8 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents	Undernutrition worksheet (doc-32232)
	End malnutrition worksheet (doc-32227)
Weblinks	Undernutrition
	End malnutrition

11.9 The relationships between SDG 3 and SDG 4

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 4: Quality education

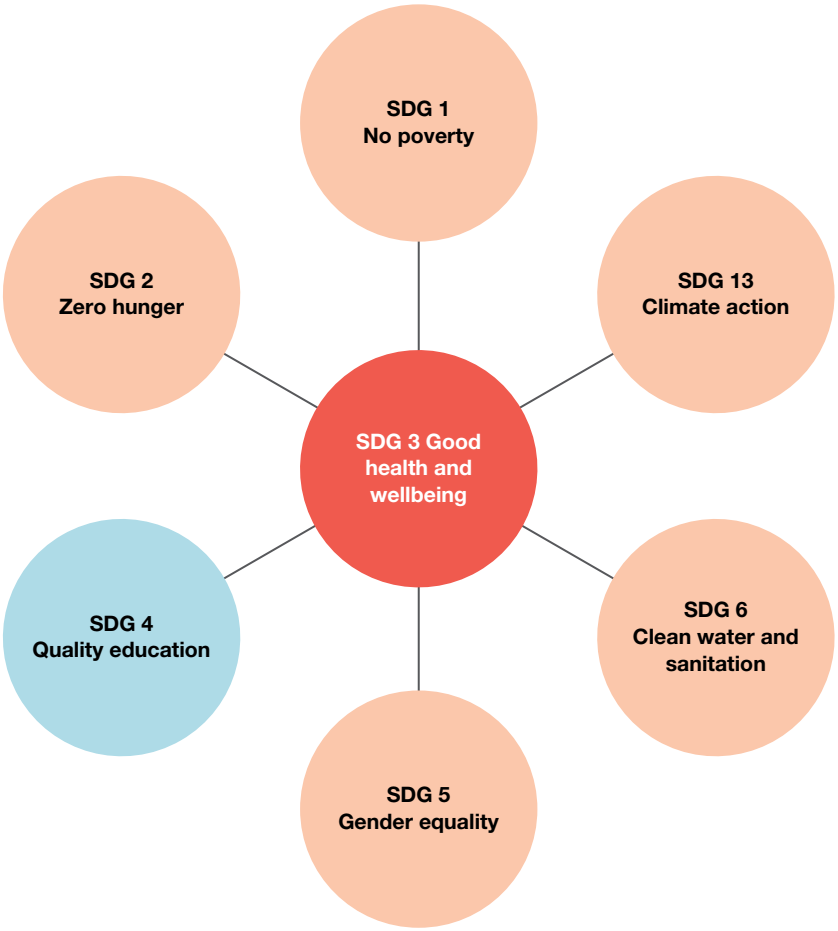


QUALITY EDUCATION: ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

Goal 4 addresses the need for girls and boys to have equal access to high quality education at all levels, from pre-primary through to tertiary and to develop the vocational skills needed for employment. By 2030 the aim is to:

- ensure all children complete free, equitable and quality primary and secondary education
- ensure all children have access to quality early childhood development, care and pre-primary education
- ensure all adults have equal access to affordable and quality technical, vocational and tertiary education
- increase the number of youth and adults who have relevant skills for employment
- eliminate all disparities in education and vocational training, including people with disabilities, indigenous people and vulnerable children
- ensure all youth and adults have adequate literacy and numeracy skills
- ensure all learners are taught curriculum that promotes sustainable development
- build and upgrade education facilities
- expand the number of scholarships available to low- and middle-income countries for essential skills training
- increase the number of qualified teachers.

FIGURE 11.59 SDG 4: Quality education and SDG 3 are interconnected.



11.9.1 The meaning of SDG 4

SDG 4 addresses the importance of girls and boys having equal access to high quality education at all levels, from pre-primary (early childhood) through to tertiary, and to develop the vocational skills needed for employment. The emphasis is on the completion of 12 years of publicly funded, high-quality primary and secondary education, of which at least 9 years are compulsory. This goal also focuses on building a qualified teacher workforce and the delivery of a relevant curriculum to ensure the educational experience is productive and helps build the necessary knowledge and skills.

FIGURE 11.60 Schoolgirls walking to school in East Timor



Education and girls

Girls are less likely to enrol in or complete primary and secondary education. Factors such as drought, food shortages, armed conflict, poverty, child labour and HIV/AIDS contribute to low school enrolment and high drop-out rates for both boys and girls; however, they tend to have a greater impact on girls. Lack of access to water and sanitation means girls must spend a significant proportion of their day fetching water. This means they are not able to attend school. The lack of sanitation facilities also has an impact on girls' enrolment at school. Families are less likely to send their female children to school if separate and private toileting facilities are not provided for girls. For families on limited incomes, male children are often provided with educational opportunities before their female siblings.

Progress in achieving quality education

There has been progress in achieving universal primary education. At the global level, the participation rate in early childhood and primary education was 70 per cent in 2016, up from 63 per cent in 2010, however, there is a lot of variation across countries and regions. The lowest rates are in sub-Saharan Africa (41 per cent) and Northern Africa and Western Asia (52 per cent).

Youth literacy rates were estimated to be 93 per cent for young men and 82 per cent for young women in 2016. However, there remained an estimated 103 million illiterate youth and 124 million children and youth not enrolled in school. In addition, 757 million adults, two-thirds of whom were women, could not read or write. Children from the poorest households are still four times less likely to be enrolled in school than those from the wealthier households. Differences between rural and urban areas also remain high.

Whilst more students are attending school, 617 million or 58 per cent of children and adolescents of primary and lower-secondary level are not meeting minimum standards in reading and mathematics.

In 2016, an estimated 85 per cent of primary school teachers worldwide were trained; the proportion was only 71 per cent for southern Asia and 61 per cent for sub-Saharan Africa (figure 11.62)

A challenge for low-income countries is providing schools that have basic infrastructure. In 2016, only 34 per cent of primary schools in low-income countries had electricity and less than 40 per cent were equipped with basic handwashing facilities.

FIGURE 11.61 It is important that youth (those aged 15–24) be provided with the skills necessary to enable them to gain employment. However, there were 103 million illiterate youth in 2015.

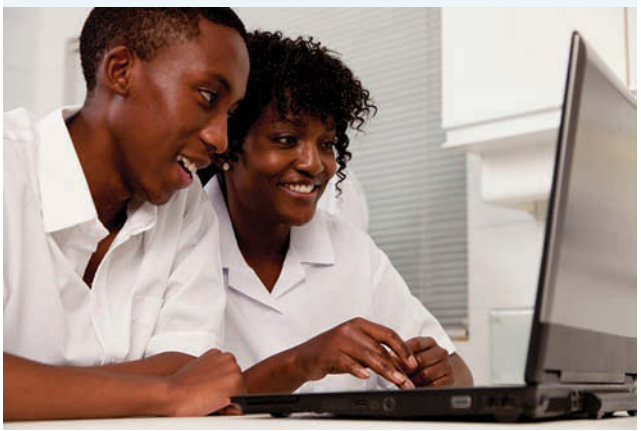
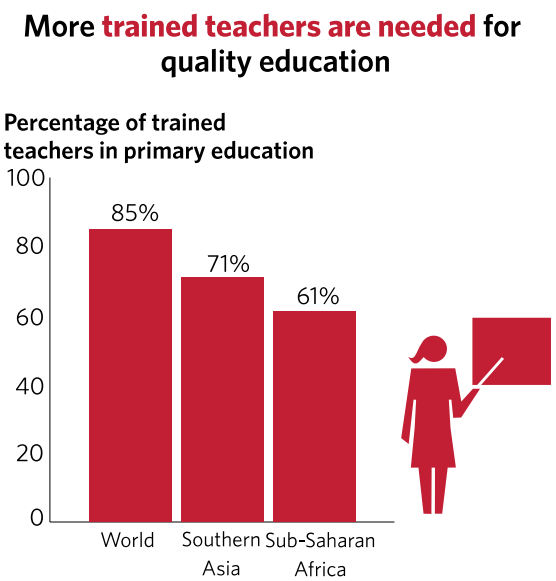


FIGURE 11.62 Improving literacy and numeracy and developing vocational skills is dependent upon having qualified and skilled teachers.



Source: https://unstats.un.org/sdgs/report/2018/overview/.

11.9.2 Links between SDG 4 and SDG 3

Actions to achieve SDG 4 will also help achieve SDG 3. Quality education is the foundation for improving people's lives and achieving good health and wellbeing. On the other hand, good health and wellbeing is essential to achieve high levels of educational attainment for all men, women and children and for increasing opportunities for employment and income. When people experience poor levels of health and wellbeing, opportunities to attend school are reduced. This reduces opportunities for employment and to receive an income. An income provides the capacity to purchase nutritious food, shelter, clean water, healthcare and education, all of which contribute to good health and wellbeing.

FIGURE 11.63 Educated mothers have fewer and healthier children and their children have a 40 per cent higher survival rate.



An educated and skilled workforce brings about greater economic growth. Economic growth provides more resources for governments to invest in universal health coverage, essential medicines and social protection measures. People are able to access preventative and curative health services, which helps reduce morbidity and mortality from communicable and non-communicable diseases. Educating women and girls also results in falling fertility rates and stable population growth. A mother's income has 20 times more impact on child survival than a father's income. Educated mothers have fewer and healthier children, they are 50 per cent more likely to immunise their children than uneducated mothers, and their children have a 40 per cent higher survival rate. They are also twice as likely to send their own children to school as mothers without an education.

Quality education is important for promoting human development and, as you saw in topic 9, education is one of the factors used to determine the Human Development Index.

Impact of education on health and wellbeing and human development

Education provides opportunities for employment which means families can purchase nutritious food, water, clothing and shelter as well as being able to afford healthcare when needed. Educated girls also marry later, are less likely to experience sexual violence, and are more likely to be able to protect themselves from HIV/AIDS and other diseases, all of which contribute to improved physical health and wellbeing. Improved physical health and wellbeing brings opportunities to develop relationships with others which improves social health and wellbeing. People are more likely to be happier, feel more empowered and confident which promotes mental health and wellbeing. Education and employment can provide a sense of purpose and belonging which promotes spiritual health and wellbeing.

11.9 Activity

Access the **Quality education** weblink and worksheet in Resources tab then complete the worksheet.

11.9 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the focus of SDG 4?
2. Why are girls less likely to enrol in and complete primary and secondary education?
3. Why are trained and qualified teachers important for the achievement of quality education?
4. How does education impact human development?
5. Why would children from poorer households be four times more likely not to be in school than those from wealthier households?

6. What progress has been made in achieving SDG 4? Use data to support your answer.
7. What percentage of children and adolescents are not meeting minimum standards in reading and mathematics and why is this important?

11.9 Exercise 2 APPLY your knowledge

1. Explain why children in rural areas are less likely to be in school than those in urban areas.
2. Explain how actions taken to achieve SDG 4 will also contribute to the achievement of SDG 3.

studyON

11.9 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

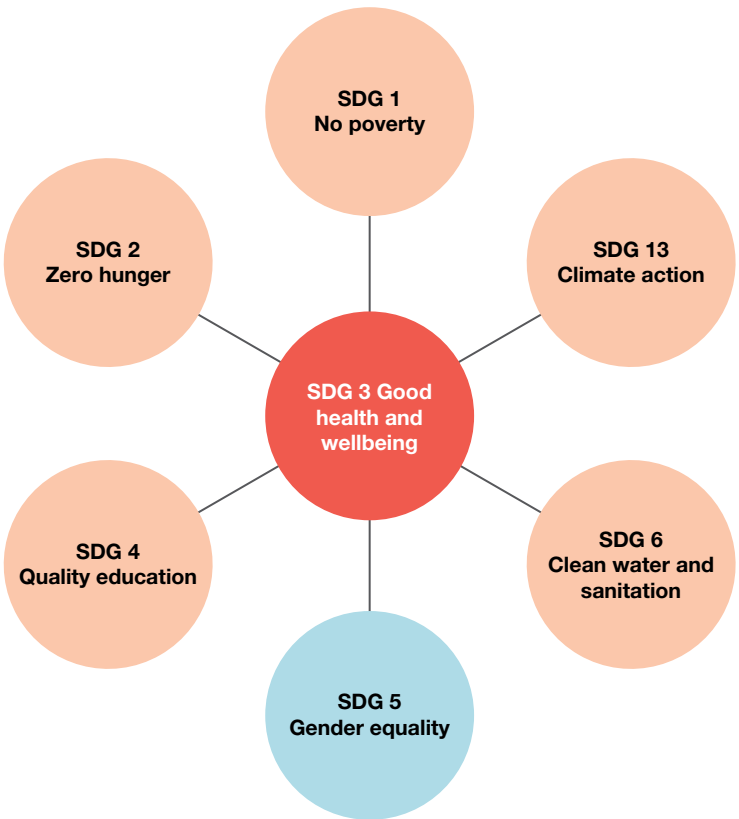
on Resources

Digital document Quality education worksheet (doc-32233)
Weblink Quality education

11.10 The relationships between SDG 3 and SDG 5

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 5: Gender equality

FIGURE 11.64 SDG 5: Gender equality and SDG 3 are interconnected.





GENDER EQUALITY: ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

This goal seeks to end discrimination and violence against women and girls by addressing the barriers that exist to gender equality. Gender equality is not only a social issue but also an economic one. By 2030 the aim is to:

- end all forms of discrimination against all women and girls everywhere
- end all forms of violence against women and girls, including **human trafficking** and sexual exploitation
- eliminate harmful practices, such as child, early and forced marriage and female genital mutilation
- recognise and value unpaid domestic work
- ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life
- ensure universal access to sexual and reproductive health
- ensure women have equal rights to economic resources, access to ownership and control over land and other forms of property, financial services, inheritance and natural resources
- improve the use of ICT to support equality and empower women
- adopt policies and legislation that support gender equality and empowerment of all women.

11.10.1 The meaning of SDG 5: gender equality

SDG 5 aims to end discrimination and violence against women and girls by addressing the barriers that exist to gender equality. Gender equality is where women and men have the same level of power and control over all aspects of their lives. Gender equality is a basic human right yet, despite comprising half of the world's population, women and girls do not experience gender equality.

FIGURE 11.65 Women's access to mobile phone technology is a way of bridging the gender gap. They help women feel safer, can be used to access finances and provide access to information, education and employment.



Women face discrimination in all areas of political, economic and social life. In many low- and middle-income countries women and girls are denied access to basic education and healthcare and are victims of violence and discrimination. One in three women worldwide has been subject to physical or sexual violence. Women are underrepresented in political and economic decision-making processes and lack access to work beyond the agricultural sector, where they tend to undertake almost 80 per cent of the unpaid work. Unpaid work includes housework such as preparing meals, fetching firewood, collecting water and caring for children, the sick and elderly in the home and community. Therefore, women have less time than men for other activities, including paid work and education. Women spend approximately three times as many hours in unpaid domestic work as men.

Women earn 10 to 30 per cent less than men for the same work and women and girls are 16 per cent less likely to have access to information communication technologies, such as mobile phones and computers. Mobile phones help women feel safer and more connected, save time and enable access to key services such mobile finances and health information. They offer a way of delivering services and have the potential to increase access to education and employment opportunities.

CASE STUDY

Digital technologies can reduce the gender gap

Eighty per cent of the population in developing countries owns a mobile phone, but few of these are women. On average, women are 14 per cent less likely to own a mobile phone than men and this increases to 38 per cent in South Asia.

The gender gap is more pronounced in the use of the internet. In Africa, women are 50 per cent less likely to use the internet than men. In addition to ownership and access, lack of control over the use of the technology is an additional barrier for women. In India, it has been found that 12 per cent of women did not access the internet more often because they did not think it was appropriate, and more than 8 per cent did not access it more often because family or friends would disapprove.

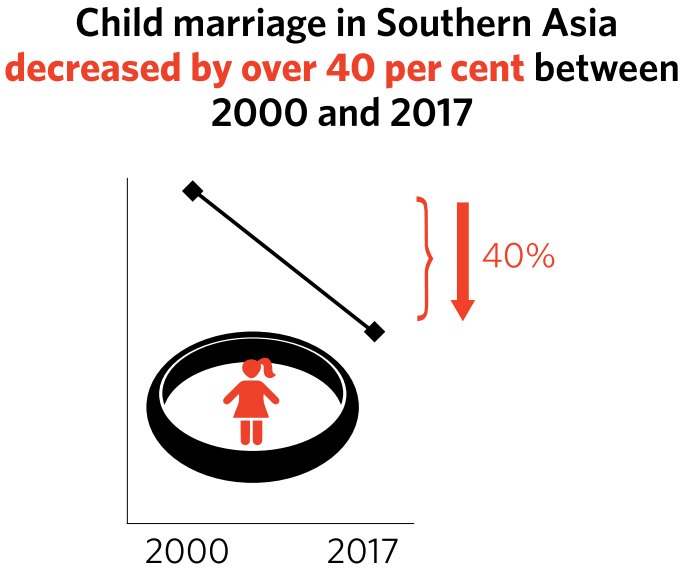
However, digital technologies have the potential to reduce gender inequality in relation to employment as they can make work arrangements more flexible, can connect women to work, and generate new opportunities in online work, e-commerce, and the sharing economy. Digital technologies can also promote women's voice and agency. Social media can be an outlet for women to participate in public discussions and voice their opinions, which helps empower women and reduce the gender gap.

Case study review

1. How does mobile phone ownership of women in developing (low-income) countries compare to that of men?
2. What barriers exist in relation to women accessing the internet?
3. How can digital technologies reduce the gender gap in the world?
4. Explain how digital technologies can advance women's voice and agency.

In some countries, the law discriminates against women. Women are not permitted to vote, own property, take out loans from banks, or take ownership of possessions arising from an inheritance. In other words, if a woman's husband dies, she does not have the legal right to take ownership of any land he owned. In some countries, women and girls are the property of their husband or father. A man has the right to marry off his daughters at a young age or sell them into prostitution. With no legal right to ownership of property or access to finance, women can find themselves victims of human trafficking and sexual exploitation. In 2017, an estimated 21 per cent of women between 20–24 years of age reported they were married or in a partnership before they were 18 years of age. Whilst the rates of child marriage have declined, there are around 650 million girls and women who were married in childhood (figure 11.66).

FIGURE 11.66 The rates of child marriage have declined, particularly in Southern Asia however, around 650 million girls and women today, were married in childhood.



Source: https://unstats.un.org/sdgs/report/2018/overview/.

Goal 5 also aims to end violent and harmful practices, such as female genital mutilation, which is the practice of partially or totally removing girl's external genital organs for non-medical reasons. Genital mutilation has serious effects on girls' physical, emotional and mental health and wellbeing. It can increase the risk of contracting HIV and cause complications during pregnancy and childbirth, leading to the death of the mother and baby. In 2017, one in three girls aged 15 to 19 years had been subjected to female genital mutilation in 30 countries where this practice is most common.

11.10.2 Links between SDG 5 and SDG 3

Actions taken to achieve gender equality empowers women and girls. This is important for economic growth, ending poverty and promoting good health and wellbeing. Small loans to women in Bangladesh have been shown to increase family income twice as much as similar loans to men. Water and sanitation systems controlled by women have been shown to be more sustainable and effective than those controlled by men. This contributes to good health and wellbeing for all members of the community and for all ages.

FIGURE 11.67 Empowering women and girls is important for economic growth and ending poverty.



Action taken to end violence against women and girls promotes good physical, mental and spiritual health and wellbeing. Violence results in injuries and, at its worst, death for women and children. Living in fear reduces mental, spiritual and social health and wellbeing. Ending violence will also help end the sexual assault of women and children, which will promote good physical, spiritual, social and mental health and wellbeing.

Achieving gender equality means girls can access education and women can gain employment. Educating women and girls is the single most effective measure to raise overall economic productivity, lower infant and maternal mortality, educate the next generation, improve nutrition, and promote health and wellbeing. Gender equality provides opportunities for women to participate in their society, to vote and become leaders in the community. This promotes social and spiritual health and wellbeing and human development. SDG 5 is clearly interconnected with the achievement of other SDGs, particularly SDG 3.

11.10 Activity

Access the **Gender equality** weblink and worksheet in the Resources tab then complete the worksheet.

11.10 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is meant by gender equality?
2. What is the aim of SDG 5?
3. In what areas do women face discrimination?
4. Why are women often victims of trafficking and sexual exploitation?
5. Why do women have less time than men for paid work and education?
6. Why is access to technology such as mobile phones important for achieving gender equality?

11.10 Exercise 2 APPLY your knowledge

1. Women spend approximately three times as many hours in unpaid domestic work as men. Explain why this is a problem.
2. Why is it important for women to have leadership roles in government?
3. Why is it important to reduce the rates of child marriage?

4. Explain the relationship between girls' education and fertility rates.
5. Justify why collaborative action between SDG 5 and SDG 3 is necessary to promote health and wellbeing and human development.

studyON

11.10 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

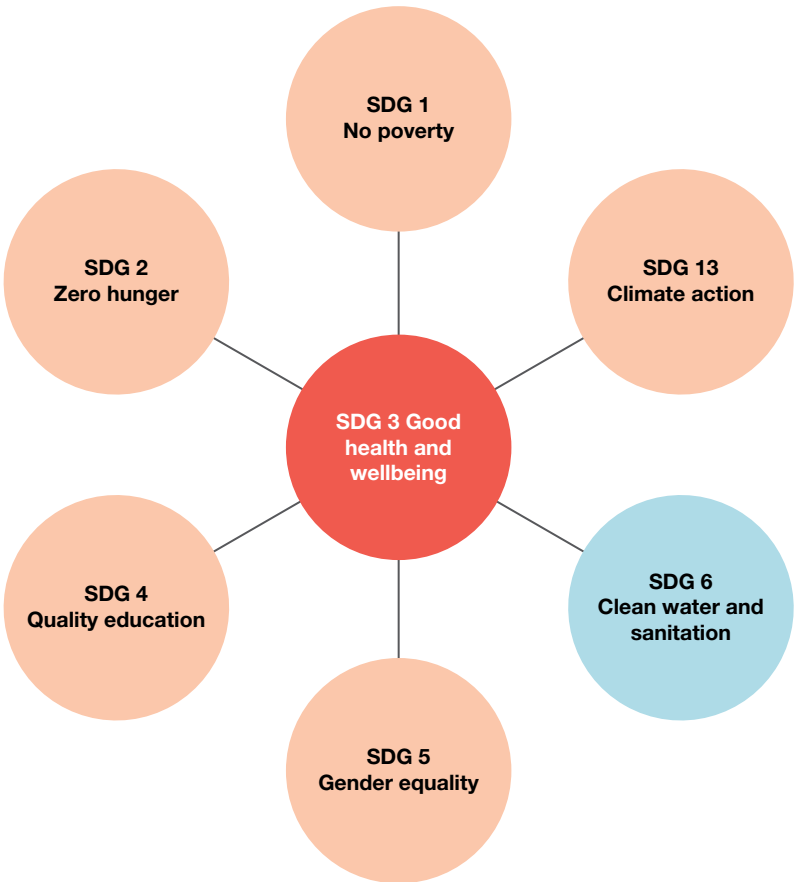
on Resources

Digital document Gender equality worksheet (doc-32234)
Weblink Gender equality

11.11 The relationships between SDG 3 and SDG 6

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 6: Clean water and sanitation

FIGURE 11.68 SDG 6: Clean water and sanitation and SDG 3 are interconnected.



CLEAN WATER AND SANITATION: ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

This goal is about ensuring that all people are able to enjoy clean water and adequate sanitation. By 2030 the aim is to:

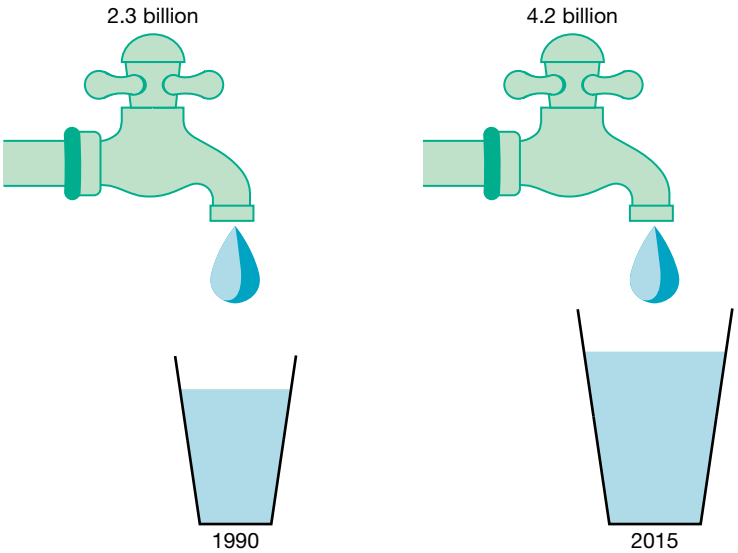
- achieve universal and equitable access to safe and affordable drinking water
- enable access to adequate and equitable sanitation and hygiene for all
- improve water quality by reducing pollution, eliminating dumping and minimising the release of hazardous chemicals and materials
- increase the efficient use of water and ensure sustainable access to clean water
- implement integrated water resources management at all levels, including across borders
- protect and restore water-related ecosystems
- expand international cooperation and capacity to support low- and middle-income countries to achieve their targets
- support the participation of local communities in water and sanitation management.

11.11.1 The meaning of SDG 6: clean water and sanitation

SDG 6 is about ensuring that all people can enjoy clean water and adequate sanitation. Clean water and sanitation is essential for the health and wellbeing of individuals and communities. It reduces pollution and the risk of communicable and non- communicable diseases including diarrhoeal and vector-borne diseases, improves housing quality and environmental conditions by reducing water and soil contamination.

Each person requires 20–50 litres of water for drinking, cooking and hygiene each day. Sanitation is the safe disposal of human wastes, as well as the maintenance of hygienic conditions through garbage collection and the disposal of wastewater. Having access to clean water and sanitation is a basic human right, yet 663 million people, most of them living in low-and middle-income countries, do not have access to clean water and 2.4 billion do not have access to sanitation facilities such as toilets. In 2015, 892 million people were practising **open defecation**. Over 800 000 people die each year due to inadequate water, sanitation and hygiene. There has however, been significant improvements made since 1990 with 1.9 billion people gaining access to safe drinking water across this time (see figure 11.69).

FIGURE 11.69 Since 1990, 1.9 billion people have gained access to piped drinking water.



Source: Millennium Development Goals Report, United Nations, p. 7.

Water transmits disease when it is contaminated by bacteria, viruses, parasites or other micro-organisms. These contaminants enter drinking water through animals and humans excreting into a catchment area, contaminated water seeping into leaky or damaged pipes in a distribution system, and from unhygienic handling of stored household water. Contamination from industrial and agricultural waste, such as pesticides, arsenic and other chemicals, also causes water to become unsafe. It is estimated that every day 2 million tons of waste including human excreta and agricultural wastes is dumped into lakes and rivers and almost 70 per cent of the water taken from rivers, lakes and aquifers is used for irrigation. Ten per cent of the world's population is thought to consume food irrigated by wastewater.

Effects on health and wellbeing and human development

Without safe water, people cannot bathe, or clean their clothes or homes properly. Diarrhoea is the most widely known disease linked to contaminated water, with almost 1000 children dying every day from diarrhoea caused by contaminated water and poor sanitation. Many others suffer from a range of neglected tropical diseases, such as schistosomiasis and other worm infestations, as well as cholera, dysentery, hepatitis A, typhoid and trachoma, all of which are caused by unsafe water and sanitation.

Water scarcity also affects one in three people globally. It can be caused by drought or conflict or the lack of adequate infrastructure, which means women and children must walk long distances to collect water. When water is scarce, people use unsafe sources of drinking water and may decide hand washing is not a priority, which adds to the likelihood of diarrhoea and other diseases. Lack of access to clean water and sanitation is also a major contributor to malnutrition and poverty.

Ensuring everyone has access to safe water and sanitation by 2030 means countries need to invest in adequate infrastructure, provide sanitation facilities and encourage hygiene practices. Infrastructure on its own will not solve the problem. People need to be educated so they understand the links between clean water, sanitation and health and wellbeing. This is more likely to be successful with participation from local communities to ensure culturally appropriate communication tools are used and school-based programs are implemented.

FIGURE 11.70 Countries will need to invest in water infrastructure if everyone is to achieve access to safe water by 2030. Achieving this is important if SDG 3 is to be realised.



FIGURE 11.71 Improving the quality of water and sanitation services contributes to poverty reduction and is critical for the achievement of SDG 3: Good health and wellbeing.



Source: https://unstats.un.org/sdgs/report/2018/overview/.

11.11.2 Links between SDG 6 and SDG 3

Actions taken by the water and sanitation sector to achieve SDG 6 underpin the ability to achieve SDG 3. Without clean water and sanitation, reductions in maternal and child mortality, communicable diseases and diseases caused by soil and water pollution and contamination will not be achieved.

Ensuring people have access to high quality healthcare services is also affected by achieving SDG 6. In low- and middle-income countries, 38 per cent of healthcare facilities lack any water source, 19 per cent do not have improved sanitation and 35 per cent lack water and soap for hand washing (figure 11.71).

Improved water and sanitation along with better management of water resources can increase economic growth and contribute to poverty reduction. Every $1 spent on sanitation brings a $5.50 return from keeping people healthy and productive. The potential global economic gains from investing in sanitation and water are estimated to be $260 billion per year. These economic gains provide greater capacity for countries to invest resources into providing universal health coverage, sexual and reproductive health services, and access to essential and affordable medicines and vaccines.

Good health and wellbeing can also contribute to the achievement of SDG 6. Where people enjoy good health and wellbeing, they are more able to work and contribute to the economic growth of their country by contributing to the taxation system. This provides increased funding for governments to invest in water and sanitation infrastructure for all people, not just those living in urban areas.

11.11 Activity

Access the **Clean water and sanitation** weblink and worksheet in the Resources tab then complete the worksheet.

11.11 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. How much water does each person need each day? What is this water used for?
2. What is meant by the term 'sanitation'?
3. What are the ways in which water can become contaminated?
4. What diseases are associated with a lack of access to safe water and sanitation?
5. Why is water scarcity a problem?
6. What is needed to ensure everyone has access to safe water and sanitation by 2030?

11.11 Exercise 2 APPLY your knowledge

1. Why is access to safe water and sanitation a basic human right?
2. Explain how safe water and sanitation contributes to the elimination of malnutrition and poverty.
3. Justify why collaborative action between programs addressing SDG 6 and SDG 3 is necessary to promote health and wellbeing and human development.

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11.11 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

ON Resources

Digital document Clean water and sanitation worksheet (doc-32235)

Weblink Clean water and sanitation

11.12 The relationships between SDG 3 and SDG 13

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 13: Climate action

FIGURE 11.72 SDG 13: Climate action and SDG 3 are interconnected.



CLIMATE ACTION: TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Goal 13 is about taking urgent action to combat climate change and its impacts. By 2030 the aim is to:

- strengthen the resilience and capacity of all countries to adapt to climate-related hazards and natural disasters
- integrate climate change measures into national policies, strategies and planning
- improve education, awareness-raising and the capacity of people and organisations to take actions that reduce or prevent environmental degradation
- implement the commitment by high-income countries to frameworks developed by the United Nations to take action to reduce climate change and to provide funds to support low-and middle-income countries to implement strategies to reduce climate change
- promote ways of raising capacity for effective climate change-related planning and management in low-income countries and small island developing states, including focusing on women, youth and local and marginalised communities.

11.12.1 The meaning of SDG 13

SDG 13 is concerned with the impact of climate change and the need for all countries to take urgent action to reduce its impact. Climate change is caused by human activities. The over-reliance on fossil fuels and the resulting greenhouse gases have contributed to global warming and rising sea levels. This has brought about an increase in the frequency of weather-related natural disasters. Severe weather and rising sea levels are affecting people, their homes and their health and wellbeing regardless of where they live. The year 2017 was one of the three warmest years on record. The five-year average global temperature from 2013 to 2017 was also the highest on record. The world continues to experience rising sea levels, extreme weather conditions and increasing concentrations of greenhouse gases. Between 1998 and 2017, climate-related disasters killed 1.3 million people and left a further 4.4 billion injured, homeless, displaced or in need of emergency assistance. While the majority of fatalities were due to events such as earthquakes and tsunamis, 91 per cent of all disasters were caused by floods, storms, droughts, heatwaves and other extreme weather events.

Effects on health and wellbeing and human development

Climate change is a threat to health and wellbeing and human development. It affects the sociocultural and environmental factors that impact health and wellbeing, including clean air, safe drinking water, and adequate food and secure shelter. With rising sea levels, those living in small island states and other coastal regions and those living in cities built on the coast are at risk of losing their homes and livelihoods. More than half of the world's population lives within 60 km of the coast.

FIGURE 11.73 Using public transport and alternatives, such as cycling or walking, rather than private vehicles could reduce carbon emissions and air pollution.



Countries with weak health infrastructure are most at risk of the effects of climate change and have less ability to cope with its effects. Children and the elderly, especially those living in low- and middle-income countries, are among the most vulnerable to the health and wellbeing risks that will occur. It has been estimated that, between 2030 and 2050, climate change will cause approximately 250 000 additional deaths each year from malnutrition, malaria, diarrhoea and heat stress. Climate change is expected to bring about an increase in:

- infectious diseases due to increased humidity and heat from droughts, flood and heat waves. This increase in heat and humidity will provide ideal breeding grounds for vector-borne diseases such as malaria, dengue fever and other neglected tropical diseases.
- allergies and asthma due to an increase in air pollution and pollen seasons.
- deaths from cardiovascular and respiratory disease, particularly among elderly people. This is due to extreme high air temperatures which raises the levels of ozone and pollutants in the air.
- hunger and malnutrition as food production is affected by increased drought in some areas and flooding in others. Drought significantly limits food production while flooding can contaminate sources of fresh water and increase the risk of diarrhoeal diseases.
- reduced mental, social, spiritual and emotional health and wellbeing due to displacement as a result of the loss of homes and livelihoods.

A lack of action on climate change has the potential to undo the progress made in reducing poverty, increasing access to safe water and food security. SDG 13 recognises that climate change can be addressed but requires global action. All countries must commit to transforming existing energy, industry, transport, food, agriculture and forestry systems to reduce greenhouse gas emissions and global warming. This will take time and countries also need to develop their capacity to anticipate extreme weather events through early warning systems. Countries need to become more resilient to the effects of climate change and put in place strategies to reduce the effects of extreme weather events when they do occur, such as the protection of water and sanitation systems.

FIGURE 11.74 In Southern Sudan in Africa a family uses a home solar system to supply electricity to their home where they previously had no access to electricity.



In 2014 at the UN Climate Summit in New York, governments, businesses and others in the private sector made a commitment to take action to address climate change. At this summit, it was recognised that low- and middle-income countries need financial and technical support for the development and implementation of new initiatives. In response, a Green Climate Fund was created designed to generate funds to support international action.

11.12.2 Links between SDG 13 and SDG 3

Many policies and individual actions have the potential to reduce greenhouse gas emissions and improve health and wellbeing. Cleaner energy systems, promoting energy efficient public transport and alternatives, such as cycling or walking, rather than private vehicles, could reduce carbon emissions and air pollution, all of which would help reduce current morbidity and mortality rates due to communicable diseases and a range of non-communicable diseases.

The achievement of SDG 3 is dependent upon action being taken to address climate change. Clean water and sanitation underpin the achievement of reducing child deaths from diseases such as diarrhoea. Ending the epidemics of infectious diseases cannot be achieved if climate change produces conditions that increase the risk of these diseases. Similarly, reducing premature mortality from non-communicable diseases is compromised when climate change produces conditions that increase the risk of these diseases. Reducing deaths and illnesses from hazardous chemicals, air, water and soil pollution will not be achieved if the effects of climate change are not addressed.

Actions to address climate change will also protect and promote health and wellbeing and achieve SDG 3. It will bring about a planet that is not only more environmentally intact, but also has cleaner air, safer water, more food, more effective and fairer health and social protection systems and healthier people — what is good for the planet is also good for people's health and wellbeing.

11.12 Activity

Access the **Climate change** weblinks and worksheet in the Resources tab then complete the worksheet.

11.12 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What has contributed to global warming and rising sea levels?
2. Why are rising sea levels of concern?
3. What diseases are expected to increase due to climate change?
4. What action can be taken to reduce carbon emissions and household air pollution?

11.12 Exercise 2 APPLY your knowledge

1. Why would the establishment of a Green Climate Fund be important for acting on climate change?
2. Refer to figure 11.74. How might the home solar system in Africa assist in promoting health and wellbeing and human development?
3. Explain how the achievement of SDG 3 is interdependent with the achievement of SDG 13.

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11.12 Exercise 3 studyON: Past VCAA exam questions online only

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on Resources

Digital document Climate change worksheet (doc-32228)

Weblinks Climate change 1

Climate change 2

11.13 The UN's Sustainable Development Goals and the World Health Organization

KEY CONCEPT Understanding the priorities and the work of the World Health Organization

The World Health Organization (WHO) is a branch of the United Nations. It was established in 1948 and works with governments and other agencies in 194 countries, in six regions and from 150 offices around the world to achieve better health for everyone, everywhere. The WHO brings together the world's top health experts to provide leadership in supporting countries to respond to a range of global health issues to improve the health and wellbeing of all people. Its work is relevant to all countries — low, middle and high income and is based on achieving all health-related SDG targets.

The WHO's vision is a world in which all people achieve the highest possible standard of health and wellbeing. Its mission is to promote health, keep the world safe and serve the vulnerable. There are three main principles that underpin their work:

FIGURE 11.75 The United Nations was established in 1948; it works to create a world in which all people achieve the highest possible standard of health and wellbeing.



1. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political beliefs, economic or social condition.
2. The health of all peoples is fundamental to the attainment of peace and security and is dependent on the fullest cooperation of individuals and States.
3. Unequal development in different countries in the promotion of health and control of diseases, especially communicable disease, is a common danger.

on Resources

Teacher-led video WHO's new priorities (tlvd-0258)

11.13.1 The work of the World Health Organization

As the authority on international health, the WHO has six main functions, which are set out in figure 11.76.

FIGURE 11.76 The main functions of the World Health Organization



TABLE 11.1 Six main functions of the WHO

Function	Explanation	Example
Provide leadership and create partnerships to promote health and wellbeing	The WHO works with member states and other agencies to develop international policies and regulations to prevent and manage disease outbreaks and coordinate relief efforts in times of disaster.	• Partnerships have helped produce effective vaccines against meningitis, Ebola and the first malaria vaccine.
Conduct research and provide health and wellbeing information	The WHO works with others to ensure the most up-to-date research is available to help inform decisions that promote health and wellbeing; prevent and control diseases, improve health systems; and help achieve universal access to healthcare. The WHO provides expertise in research and development to improve the way in which diseases can be prevented, diagnosed, managed and treated.	• Their work has led to guidelines and advice on preventing and treating conditions such as asthma, hepatitis and Zika.
Set norms and standards, and promote and monitor their implementation	The WHO works with other agencies and governments to standardise the way research is carried out, the use of common indicators for the collection of data and the health and wellbeing terminology that is used. This makes it more effective and efficient to share information, monitor the impact of disease and evaluate the effectiveness of programs and initiatives.	• International Classification of Diseases, which enables all countries to use a common standard for reporting diseases • The WHO Essential Medicine List that provides a guide for countries on the main medicines that a health system needs. • The WHOs work has led to global standards for air and water quality and safe and effective medicines. An emerging challenge is the protection of the effectiveness of antibiotics as a result of drug resistance.
Develop policies to help countries take action to promote health and wellbeing	Policies help governments and the global community implement action that is known to be effective in bringing about improvements in health and wellbeing. The WHO helps countries adapt these policies to meet their local context and helps governments implement them.	• Global Framework Convention on Tobacco Control • The Stop TB Strategy • Healthy Eating and Physical Activity Guidelines • Guidelines on the intake of sugars to reduce the risk of non-communicable diseases in adults and children.

Function	Explanation	Example
Provide technical support and help build sustainable health systems	The WHO provides advice and support to countries to implement changes in areas such as the provision of universal healthcare, health financing and a trained workforce. They help countries strengthen their capacity for early warning, risk reduction and the management of health and wellbeing risks.	• Assisting countries with health finance through developing a national health finance strategy • Providing policy briefs on the importance of free healthcare
Monitor health and wellbeing and assess health and wellbeing trends	The WHO has developed a Global Health Observatory which stores and shares health related data. It helps countries identify who is getting ill, from which diseases and how and where they are getting ill so resources can be targeted to where they are needed most.	• Each year, the WHO studies influenza trends to determine what should be included in the following season's influenza vaccine.

In 2018, through the Thirteenth General Programme of Work, 2019–2023, the WHO established three strategic priorities. Each of these priorities is aligned to the achievement of Sustainable Development Goal 3: Good health and wellbeing and are relevant to low, middle and high-income countries. It provides a vision for a world in which all people attain the highest possible standard of health and wellbeing and summarises the WHO's mission to promote health, keep the world safe and serve the vulnerable.

FIGURE 11.77 The World Health Organization's strategic priorities and goals



Source: World Health Organization. Draft thirteenth general programme of work, 2019–2023: Report by the Director-General http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_4-en.pdf?ua=1>.

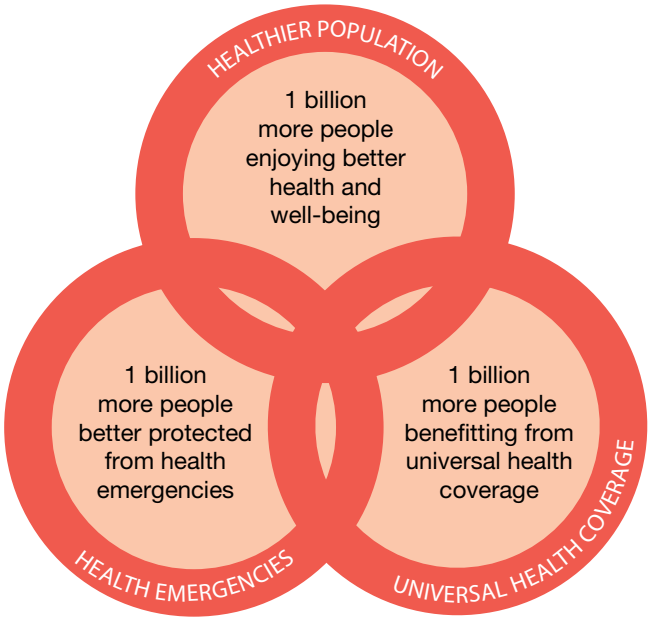
Each of the three strategic priorities are accompanied by ambitious goals to be achieved by 2023. (see figure 11.78) These goals are referred to as the 'triple billion' goals.

The strategic priorities and goals are:

1. Achieving universal health coverage — 1 billion more people benefitting from universal health coverage
2. Addressing health emergencies — 1 billion more people better protected from health emergencies
3. Promoting healthier populations — 1 billion people enjoying better health and wellbeing.

These strategic priorities are interconnected and together provide a way to achieve the mission of the WHO.

FIGURE 11.78 The World Health Organization's strategic priorities and goals are interconnected.



Source: World Health Organization. Draft thirteenth general programme of work, 2019–2023: Report by the Director-General http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_4-en.pdf?ua=1.

11.13.2 The World Health Organization's priorities

A. Achieving universal health coverage — 1 billion more people benefitting from universal health coverage

FIGURE 11.79 It is important that people have access to health services and vaccines at an affordable cost.



Universal health coverage refers to every country having a strong and resilient people-centred health system based on primary care, health promotion and disease prevention. There are many countries around the world that do not provide affordable health services, and people are either unable to access the healthcare they need or face poverty because they have to pay large amounts of money to receive medical assistance. In addition to economic barriers, achieving universal health coverage is also affected by geographical barriers where services are not available in areas where people live, and cultural barriers where the services provided do not have the cultural sensitivity for effective delivery or use.

Universal health coverage is therefore focused around providing access to essential health care services, including medicines and vaccines at a cost that is affordable for all.

Universal health coverage is important in reducing poverty, achieving equity in health and wellbeing outcomes and promoting a stable and secure society.

The WHO aims to progress this goal by addressing the following seven main areas (figure 11.80):

1. *Service access and quality* — work with countries to provide all people, regardless of where they live, with access to quality essential healthcare services that meet the main health and wellbeing needs of the community
2. *Health workforce* — Ensure there are sufficient trained health workers available to provide health care services to everyone who needs them
3. *Access to medicines, vaccines and health products* — work with countries to provide safe and effective essential medicines and vaccines. **Essential medicines** are those that meet the main healthcare needs of a population and assist them to overcome disease and illness more quickly.
4. *Governance and finance* — the WHO will support countries to strengthen the capacity of governments to develop and implement health policy, organise and implement an effective health system, regulate services, provide the necessary funding, develop health budgets and track expenditure.
5. *Health information systems* — the WHO will work with countries to improve health information systems to enable the monitoring of health risks, track morbidity and mortality rates and their risk factors and assess health system performance
6. *Advocacy* — the WHO will provide leadership by increasing the global awareness of and benefits of universal health coverage. They will advocate for investment in all aspects of the health system and actively promote the benefits of this investment.
7. *Country support* — the WHO will work in partnership with countries and support them at all levels to implement primary healthcare systems that meet their health priorities.

FIGURE 11.80 To achieve the strategic priority of universal health coverage the WHO will work with countries and provide support in seven main areas.



B. Addressing health emergencies — 1 billion more people better protected from health emergencies

This strategic priority is directly aligned to the SDG 3 implementation target of strengthening the capacity for early warning, risk reduction and management of health and wellbeing risks.

Early detection, risk assessment, information sharing and a quick response to emergencies are important to avoid illness, injury, death and economic loss on a large scale. Work that will achieve this goal means all countries will be better prepared for health emergencies by building resilient health systems. In many countries, health systems collapse during times of emergencies, conflict and crises which limits the ability to both respond to and recover from such situations.

This priority includes two components (figure 11.81):

1. *Building and sustaining resilient national, regional and global capacities necessary to keep the world safe from epidemics and other health emergencies.*
   All countries are at risk of disease outbreaks, many of which can spread quickly and become an epidemic. These diseases include influenza and cholera but, more recently, new diseases are emerging, such as Ebola and Zika virus, and present challenges for the global community. The WHO has developed the International Health Regulations (2005) that recommend actions for countries to implement to reduce the spread of diseases that are capable of crossing borders and threatening people worldwide. These measures include airport control, quarantine and ensuring resources are readily available to treat disease outbreaks. The WHO will work with countries to ensure the International Health Regulations are implemented and identify and coordinate the research, development and innovation needed to better detect, prevent and respond to new and emerging diseases and other sources of risk.
2. *Ensuring all people affected by health emergencies have quick access to essential life-saving health services including health promotion and disease prevention.*
   The WHO will work with countries to ensure that essential life-saving health services reach the most vulnerable people, particularly those living in fragile and conflict-affected countries. Health services include:
   - health promotion and disease prevention,
   - mental health and psychosocial support,
   - nutrition services including support for exclusive breastfeeding.

   The WHO will also work to ensure national health emergency programmes in all countries are supported by a well-resourced and efficient WHO Health Emergencies Programme.

FIGURE 11.81 The WHO strategic priority Addressing health emergencies consists of two elements and is aligned with the implementation targets in SDG 3.

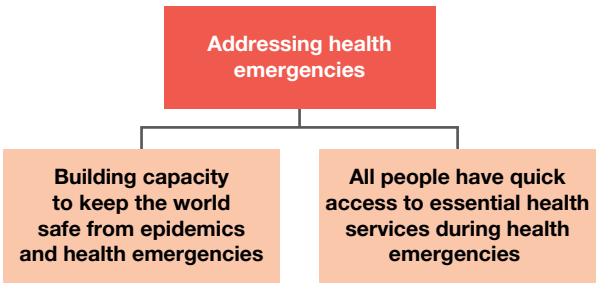


FIGURE 11.82 Implementing the International Health Regulations will help countries combat diseases such as the Ebola virus.



C. Promoting healthier populations — 1 billion more people enjoying better health and wellbeing

This strategic priority focuses on the achievement of the health and wellbeing targets in SDG 3. It aims to decrease maternal, child and newborn mortality rates, reduce diseases such as HIV, tuberculosis, malaria and neglected tropical diseases, and promote health and wellbeing across all lifespan stages. Targeted areas include family planning, early childhood and youth health and wellbeing.

It interrelates with the other two priorities to focus work in five platforms (figure 11.84).

1. *Improving human capital across the lifespan*
   The WHO aims to improve human capital through interventions that focus on early childhood, child and adolescent health and development and on family planning, pregnancy and childbirth as these are critical stages where long-term improvements in health and wellbeing can be achieved. Investment in these areas have the potential to reduce the incidence of mental health disorders and non-communicable diseases later in life. It is directly aligned to the SDG 3 implementation target of access to sexual and reproductive healthcare services and SDG 5 target on universal access to sexual and reproductive health and reproductive rights.
2. *Accelerating action on preventing non-communicable diseases and promoting mental health*
   Much of the morbidity and premature mortality caused by noncommunicable diseases, could be prevented through interventions to reduce four main risk factors: tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity. Prevention efforts also need to be combined with equitable access to effective treatment for cardiovascular diseases, cancer, diabetes, chronic respiratory diseases and mental health conditions. Mental health disorders are a major cause of the global burden of disease; however, the majority of people concerned have no access to treatment and care. Increased efforts are also needed to tackle road traffic injuries and violence. The WHO will work with countries and support them to implement preventive strategies to address non-communicable diseases.

   FIGURE 11.83 Addressing the risk factors for non-communicable diseases, such as tobacco use and alcohol, will contribute to promoting healthier populations.

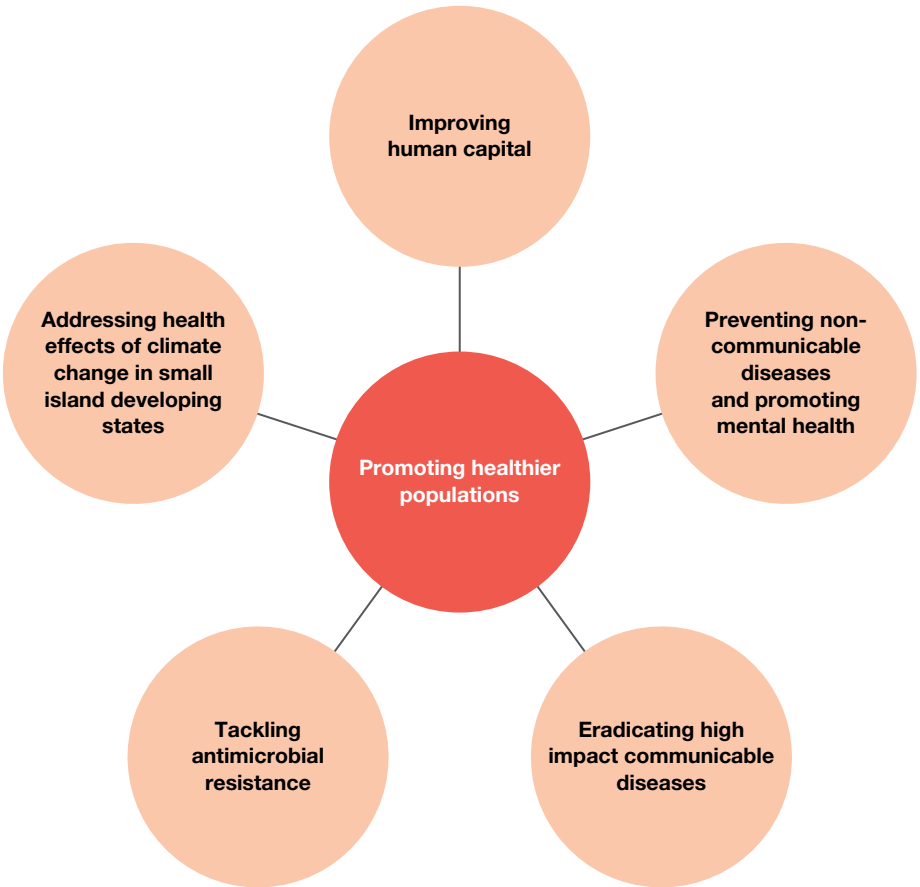
   
3. *Accelerating elimination and eradication of high impact communicable diseases*
   Achieving the 2030 target of ending the epidemic of AIDS, TB, malaria and neglected tropical diseases, and combatting hepatitis, water borne diseases and other communicable diseases cannot be achieved without significantly accelerating prevention, control and elimination efforts by introducing cost-effective and high-impact interventions. These diseases continue to be major public health challenges in many countries and The WHO will increase their efforts to support the implementation of actions designed to eliminate these diseases.
4. *Tackling antimicrobial resistance*
   Antimicrobial resistance occurs when microorganisms such as bacteria, fungi, viruses, and parasites change when they are exposed to drugs such as antibiotics that are designed to prevent or treat diseases. Microorganisms that develop antimicrobial resistance are sometimes referred to as ‘superbugs’. Medicines that have been used previously to treat diseases become ineffective and

infections persist in the body, increasing the risk of spread to others. Antimicrobial resistance occurs naturally over time, usually through genetic changes. However, the misuse and overuse of medication is increasing this process. Antibiotics are often being overused and misused. An example of misuse is when they are taken by people with viral infections like colds and flu. Antimicrobial resistance threatens the effective prevention and treatment of a wide range of infections. Without effective antibiotics, the success of major surgery and cancer chemotherapy would be compromised. New resistant microorganisms are emerging and spreading globally, threatening our ability to treat common infectious diseases, resulting in prolonged illness, disability, and death. The WHO will work with countries to increase awareness and understanding of the correct use of antimicrobial medicines and promote research and development into ways of addressing antimicrobial resistance.

5. *Addressing health effects of climate change in small island developing States and other vulnerable States*

   These nations are vulnerable and they face increasing climate and pollution-related risks, with women, children and those who are the poorest being particularly at risk. Air pollution is a major risk factor for non-communicable diseases and greater resilience is needed to prevent the spread of vector-borne, water-borne, food-borne and work-related diseases. The WHO will work to prevent pollution-related disease and support small island developing states to build health systems that are resilient to extreme weather and climate-sensitive diseases.

FIGURE 11.84 The WHO will contribute to people enjoying better health and wellbeing through five platforms.



CASE STUDY

Five of the scariest antibiotic-resistant bacteria in the past five years

Nearly one million people die every year from bacterial infections that cannot be treated with common antibiotics. This is frightening because right now we don't have any alternatives to these antibiotics.

Antibiotic resistance occurs when bacteria change in a way that prevents the antibiotic from working. Changes in bacteria, known as resistance mechanisms, come in different forms and can be shared between different bacteria, spreading the problem. Antibiotic resistance risks returning us to an age where even simple cuts and scrapes can become deadly. For a glimpse of what could be commonplace in our future, here are five of the scariest antibiotic resistant bacteria from the last five years.

1. Extensively drug-resistant *Salmonella typhi*

This highly contagious bacterium causes typhoid fever, a life-threatening infection that affects about 21 million people around the world every year. About 1% of those affected, or 223,000 people, will die. In November 2016, a strain of Salmonella typhi emerged in Pakistan. It was resistant to five antibiotics, leaving only one oral antibiotic (azithromycin) able to treat it. Since then there have been 858 reported cases of this infection, resulting in four deaths in just one Pakistani province.

Worryingly, this strain of *Salmonella typhi* had changed from being multidrug-resistant (resistant to at least three classes of antibiotic) to extensively drug-resistant (resistant to all but two classes of antibiotic) in a single step. It achieved this by acquiring a piece of DNA, called a plasmid, which already contained all the new resistance genes it needed.

Even more concerning is that this strain is now only one step away from being untreatable with all available antibiotics by finding another plasmid with the resistance genes for the last two classes of antibiotic that can kill it.

2. Extensively drug-resistant *Mycobacterium tuberculosis*

Mycobacterium tuberculosis is the world's leading infectious killer, causing more than 1.7 million deaths every year. One of the reasons this bacteria is so deadly is its ability to hide inside our cells. This means that to treat tuberculosis infection, people are required to take four different antibiotics continuously for six months.

It's estimated up to 13% of all new tuberculosis cases are multidrug-resistant, with Europe, including Russia, seeing the highest number of these cases. This is alarming, as multidrug-resistant infections require treatment courses that are much longer (generally 18 to 24 months) and use antibiotics that are expensive and can be bad for the kidneys and other organs.

FIGURE 11.85 An increasing number of infections are becoming resistant to antibiotics.



It's now been found that 6% of these cases are actually extensively drug-resistant (resistant to all but two classes of antibiotic). With a treatment success rate of only 30%, the global spread of extensively drug-resistant tuberculosis to more than 123 countries is extremely concerning.

3. Pandrug-resistant *Klebsiella pneumoniae*

Klebsiella pneumoniae is a common bacterium found in the skin, intestines and soil. It causes a range of potentially deadly infections in people with compromised immune systems. As this bacterium is particularly prevalent in hospitals, it's one of the most critical drug-resistant threats to public health. In 2013 there were 8,000 reports of multidrug-resistant Klebsiella pneumoniae in the United States alone, with a death rate of 50% for people with bloodstream infections. In 2016 a strain of Klebsiella pneumoniae was identified in the United States that was resistant to all 26 commonly available antibiotics (known as pandrug-resistant). The patient infected by this bacteria died due to a lack of alternative treatments. This is not an isolated case; other bacteria are also becoming pandrug-resistant.

4. Pandrug-resistant *Pseudomonas aeruginosa*

Like *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* is a commonly found bacterium that causes infections in people with compromised immune systems. Like *Klebsiella pneumoniae*, it's particularly prevalent in hospitals. In the United States, there are an estimated 51,000 health care-associated *Pseudomonas aeruginosa* infections each year, with around 400 causing death. In the past five years, 29 cases of pandrug-resistant *Pseudomonas aeruginosa* infection have been reported in hospitals in England.

Pseudomonas aeruginosa infection is also the leading cause of death for people with cystic fibrosis. In 2013, more than 42% of cystic fibrosis patients with chronic *Pseudomonas aeruginosa* infection were treated with colistin, the "last line of defence" antibiotic. This is because most of these infections were resistant to every other antibiotic available.

FIGURE 11.86 People with weaker immune systems are more susceptible to infection.



5. Extensively drug-resistant *Neisseria gonorrhoeae*

There are an estimated 78 million global cases of *Neisseria gonorrhoeae*, which causes gonorrhoea, a sexually transmitted infection affecting men and women. Although usually not deadly, serious and permanent health problems including infertility can result if the disease goes untreated.

Around one-third of all *Neisseria gonorrhoeae* infections are resistant to at least one antibiotic. More worryingly, a new extensively drug-resistant "super gonorrhoeae", resistant to all but one antibiotic, has been discovered. Two of the first reported cases of this superbug were in Australia. This is cause for concern, as extensively drug-resistant *Neisseria gonorrhoeae* can spread quickly through a population if people have multiple partners. In rare cases, untreated gonorrhoea can enter the bloodstream, causing septic shock and death.

Could future outbreaks be worse?

Yes. Bacteria have the ability to pass antibiotic resistance genes to other bacteria and can develop the resistance themselves. So, it's likely a bacteria resistant to all but one antibiotic will develop resistance to that final one over time.

The good news is we can reduce the likelihood of this happening if we use antibiotics appropriately and invest in the research and development of new antibiotics, vaccines and diagnostic tools.

Source: 'Five of the scariest antibiotic-resistant bacteria in the past five years', Laura Christine McCaughey, *The Conversation, online* September 3, 2018. https://theconversation.com/five-of-the-scariest-antibiotic-resistant-bacteria-in-the-past-five-years-100654.

Case study review

1. How many people die each year from bacterial infections that cannot be treated with antibiotics?
2. How does antibiotic resistance occur?
3. For each of the five types of antibiotic resistant bacteria, explain why it is a concern in relation to health and wellbeing.
4. How can the likelihood of bacteria becoming resistant to all forms of antibiotics be reduced?

11.13 Activities

1. Access the **Universal health coverage** weblinks and worksheets in the Resources tab then complete the worksheets.
2. Select one of the following examples of the work that has been undertaken by the WHO:
   - Framework Convention for Tobacco Control
   - Global Strategy on Diet, Physical Activity and Health
   - Recommendations on the intake of free sugars to reduce the risk of non-communicable diseases in adults and children.

Research the example selected then answer the following questions:

(a) Briefly outline your chosen example.
(b) Identify the WHO strategic priority evident in the example.
(c) Identify two components of WHO's work evident in the example.
(d) How does your example promote health and wellbeing and human development?

11.13 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. When was the WHO established?
2. What is the WHOs mission?
3. What are the three principles that underpin WHOs work?
4. Identify and explain three main functions of WHO.
5. Briefly outline the WHO's three strategic priorities.
6. Copy the table below. Beside each of the examples given, list the name of the relevant WHO strategic priority.

Example	Relevant WHO strategic priority
Ensure people can access high-quality essential medicines when they need them at an affordable cost.	
Put in place recommended actions to reduce the spread of a new disease.	
Ensure all people have access to health services during a health emergency.	
When people are sick ensure they can access medical treatment at an affordable cost.	
Address risk factors such as tobacco and alcohol misuse.	
Work to eliminate diseases such as polio and tuberculosis.	
Investing in sexual and reproductive health services.	

11.13 Exercise 2 APPLY your knowledge

1. Explain the purpose of the International Health Regulations (2005). Use a relevant example to illustrate your answer.
2. Using the WHO strategic priorities as the basis for your response, explain how the WHO may work to reduce a disease such as tuberculosis.

studyON

11.13 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Universal health coverage: Maya worksheet (doc-32229)
Universal health coverage: Right. Smart. Overdue. Worksheet (doc-32230)

Weblinks Universal health coverage: Maya
Universal health coverage: Right. Smart. Overdue.

11.14 Topic 11 review

11.14.1 Key skills

KEY SKILL Describe the objectives of the UN's Sustainable Development Goals and justify their importance

To address this skill, you need to understand why the United Nations developed the Sustainable Development Goals, what they are, when they were developed, the period they are relevant for and their objectives. This skill also requires you to be able to justify why they are important by explaining the reasons they were introduced.

An example of how you might address this skill is:

The Sustainable Development Goals (SDGs), also known as the global goals, were developed by the United Nations and came into action in 2016. They direct global action until 2030. They focus on five broad areas of importance, which are people, planet, prosperity, peace and partnership. They provide a set of goals and targets that are integrated and interdependent and are relevant for all countries, not just low- and middle-income countries. They promote partnerships and recognise that improvements cannot be achieved in isolation or by individual countries themselves.[1]

1 Outlines who developed the SDGs, when they were introduced and the time-period, what they are and why they were introduced.

The objectives of the SDGs are to end extreme poverty, fight inequality and injustice and address climate change. The SDGs are interconnected and their achievement requires collaboration across all sectors.[2]

2 The objectives are outlined clearly.

They were introduced for three main reasons:

- There was a need for a new set of goals to guide global action when the Millennium Development Goals expired in 2015.
- Progress that had been made in a wide range of areas was not shared equally and many people were being left behind. These tended to be the poorest and those who are disadvantaged due to sex, age, disability, ethnicity and geographical location.
- New global challenges had emerged that needed to be addressed.[3]

3 A justification is provided for why they were introduced.

Practise the key skill

Read the following information:

'The 17 Sustainable Development Goals are our shared vision of humanity and a social contract between the world's leaders and the people', said UN Secretary-General Ban Ki-moon.

'They are a to-do list for people and planet, and a blueprint for success.' The SDGs, unanimously adopted by the UN's 193 Member States at an historic summit in September 2015, address the needs of people in both developed and developing countries, emphasising that no one should be left behind.

Source: Adapted from United Nations Sustainable Development Blog, http://www.un.org/sustainabledevelopment/blog/2015/12/sustainable-development-goals-kick-off-with-start-of-new-year/.

1. What are the objectives of the Sustainable Development Goals?
2. Explain why they were introduced.
3. Provide two reasons to justify why they are important.

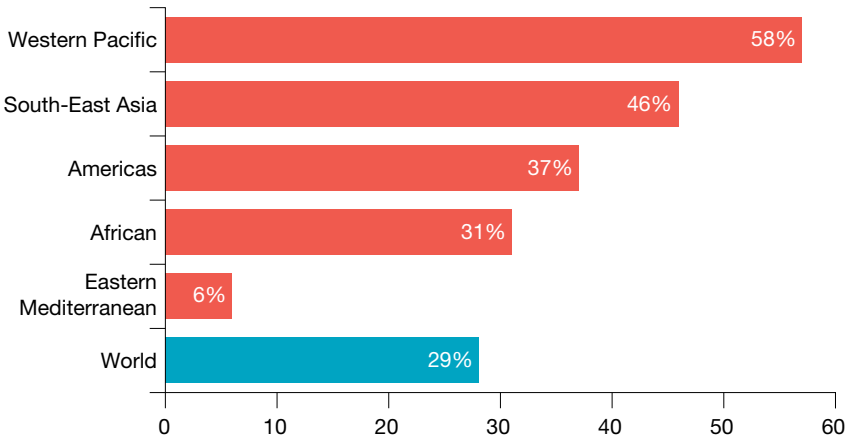
KEY SKILL Describe key features of SDG 3 and analyse its relationships with other SDGs in collaborative approaches to improving health and wellbeing, and human development globally

You must be able to accurately name each of the SDGs rather than just list them by number.
There are three components to this skill:

a. You must know SDG 3 in detail and be able to describe each of its key features. It might be useful to develop a table that lists each of the features and includes a description of each.
b. The second part of the skill requires you to be able to analyse the relationships between SDG 3 and the other selected SDGs in this topic. Different sectors work to achieve different SDGs. However, their work is related to and interconnects with SDG 3 because health and wellbeing and human development is an outcome of all SDGs. This is referred to as collaboration. You need to be able to analyse how the work being done to achieve other SDGs also helps to improve health and wellbeing and human development.

The following example can be used to illustrate this.

FIGURE 11.87 Reduction in malaria mortality rate, by WHO region, 2010–15



Source: WHO, World Malaria Report 2016, p. 47.

The information above shows the reductions in malaria mortality between 2010 and 2015. Reducing deaths from malaria is part of SDG 3.

i. Describe the key features of SDG 3.
ii. Select one other SDG and explain how collaboration in the achievement of the SDG selected would help further reduce malaria mortality by 2030.
iii. Explain how reducing malaria will help improve health and wellbeing and human development.

The key features of SDG 3: Good health and wellbeing[4] is to continue the work already done to reduce maternal and child deaths end the epidemics of diseases such as HIV, TB, malaria, neglected tropical diseases, and other communicable diseases such as hepatitis and water-borne diseases. Other new and emerging health and wellbeing issues are also included in this SDG, such, as reducing the increasing mortality from non-communicable diseases such as cardiovascular disease, diabetes, cancer and chronic respiratory diseases, promoting mental health and wellbeing and reducing deaths and injuries from road traffic accidents and from air, water and soil pollution. To achieve these targets, it will be necessary to achieve universal health coverage so all people have access to preventative and curative medical services at an affordable cost. This includes essential medicines and vaccines. Reducing the harmful use of tobacco, alcohol and other drugs is included in this goal along with the need to provide funds for a well-trained health workforce. Also included is building the capacity of each country to minimise the risk of and manage any potential health risks that develop.[5]

4 The names of the relevant SDGs are clearly stated.

5 A framework is used to provide detail about the key features of the SDG, including the diseases that are targeted and the interventions needed to bring about changes in their morbidity and mortality rates.

Achieving the targets around reductions in malaria mortality by 2030 is dependent upon action being taken to address climate change.[6] This is addressed in SDG 13: Climate action. The over-reliance on fossil fuels and the resulting greenhouse gases have contributed to global warming. If this is not addressed, the increase in temperatures will create the conditions that are ideal for mosquitoes that carry the malaria virus to breed.[7] Taking action to develop clean energy sources and reducing vehicle emissions is necessary to prevent these environmental conditions working against other potential gains being made within the health and wellbeing sector alone.[6]

6 The link to another SDG is clearly made along with the collaborative actions that are included in this SDG.

7 The relationship between the selected SDG and SDG 3 is clearly outlined.

This collaborative approach to reducing malaria mortality will improve health and wellbeing and human development. Malaria is a life-threatening disease and young children and pregnant women are at greater risk of contracting it. Malaria causes fever, headache, diarrhoea and vomiting and, if left untreated, can disrupt blood supply to internal organs causing death. It therefore has a significant impact on physical health and wellbeing. When affected by malaria, people are unable to work and children are unable to attend school. Repeated attacks of malaria means children's education is interrupted and they will not develop the knowledge and skills required to gain employment and earn an income. Parents who have children suffering from malaria are often unable to work as they need to care for their sick children. This impacts on human development as their standard of living and the capacity to take part in their communities is reduced as well as their ability to have control over the decisions that affect their lives. This also affects mental health and wellbeing. It is therefore important to reduce the incidence of malaria if health and wellbeing and human development is to be promoted.[8]

8 The impact on health and wellbeing and human development is explained in terms of how it can be promoted.

Practise the key skill

Read the following information:

> Abida is training to be a nurse in Jalalabad, Afghanistan — a country which has one of the highest maternal and child mortality rates in the world. "One of my neighbours gave birth," Abida recalls. "After delivery, she didn't stop bleeding. She died on the way to town". UNDP is supporting Afghanistan to train a new generation of female healthcare workers, like Abida. Along with 200 classmates, she will graduate from nursing school to bring much needed health care to women in the country's most remote and disadvantaged areas.
>
> ***Source:*** The 2013 Agenda in action, UNDP http://www.unwomen.org/en/digital-library/publications/2018/2/gender-equality-in-the-2030-agenda-for-sustainable-development-2018.

4. Identify the SDGs being addressed in this program.
5. Explain how this program would help achieve SDG 3.
6. Explain how this program would contribute to health and wellbeing and human development globally.

KEY SKILL Explain the priorities and the work of the WHO and discuss how the WHO priorities are reflected in different scenarios

There are three components to this skill.

a. The first is to be able to explain each of the three World Health Organization (WHO) strategic priorities.
b. The second is to be able to explain the work of the WHO.
c. The third is to be able to apply the priorities in a range of different scenarios or situations. This could require you to recognise how they are reflected in an example provided or to apply the priorities to suggest actions that could be taken to address a health-related issue.

Use the following example of the work of the WHO to understand this skill. It is important to:

- read the information carefully
- look for examples that show evidence of the work of the WHO. This includes:
  - providing leadership and partnerships to promote health and wellbeing
  - conducting research and providing health and wellbeing information
  - setting norms and standards and providing expertise in all matters relating to health and wellbeing
  - developing policies to help countries act to address issues related to health and wellbeing
  - providing technical support
  - monitoring global health and wellbeing trends.
- list the three WHO strategic priorities and look for evidence in the example that demonstrates one or more of the priorities in action. The three strategic priorities are:
  - Achieving universal health coverage
  - Addressing health emergencies
  - Promoting healthier populations.

US $12.9 billion for WHO Global Fund to fight AIDS, Tuberculosis and Malaria

Over US$12.9 billion has been pledged for the next three years to support the Global Fund to Fight AIDS, Tuberculosis and Malaria. The Global Fund will increase its investments in building resilient and sustainable systems for health and wellbeing to ensure that it achieves maximum impact for disease-specific interventions. This is important in the move towards universal health coverage.[9]

9 Achieving universal health coverage is one of the WHO's strategic priorities.

Epidemics of infectious diseases kill more than 4 million people every year. While significant gains were made during the Millennium Development Goals era, progress has been uneven. In many countries and regions, the epidemics are actually getting worse. In affected countries, the focus should now be on scaling up interventions, expanding multi-sectoral partnerships,[10] addressing biological threats, such as drug resistance, and identifying increased resources to fund programs.

The US$12.9 billion will prevent 300 million infections and save 8 million lives. However, to accelerate progress, much more is needed. There needs to be political and financial commitment, and increased regional and cross-border collaboration and infectious disease programmes[11] should be increasingly integrated with efforts to strengthen health systems.

As countries reduce the burden of infectious diseases, their economies will be stronger, their workforce healthier, and they will be able to focus more resources on other challenges, such preventing and managing health emergencies, addressing the growing burden of non-communicable diseases,[12] and overcoming the impact of climate change.[13]

The WHO is working very closely with the Global Fund and other partners to provide technical support, conduct research and monitor health and wellbeing trends[14] to help countries accelerate progress, prevent new infections and save lives.

10 Represents the WHO's work in providing leadership and partnerships to promote health.

11 Cross-border collaboration represents the WHO's work in building partnerships.

12 Non-communicable diseases are part of the WHO's priority of promoting healthier populations.

13 Overcoming the impact of climate change is addressing the priority of promoting healthier populations.

14 Providing technical support, conducting research and monitoring health trends reflects the work of the WHO.

Practise the key skill

Read the following information about Dengue:

> Dengue is a mosquito-borne disease that causes flu-like symptoms. Up to 20 per cent of those suffering from severe dengue can die as a result of the disease. It has continued to be a growing threat for decades.
>
> A high number of cases occur in the rainy seasons of countries such as Bangladesh and India. Now, its season in these countries is lengthening significantly (in 2018, Bangladesh saw the highest number of deaths in almost two decades), and the disease is spreading to less tropical and more temperate countries such as Nepal, that have not traditionally seen the disease. An estimated 40 per cent of the world is at risk of dengue fever, and there are around 390 million infections a year. WHO's Dengue control strategy aims to reduce deaths by 50 per cent by 2020.
>
> ***Source:*** Adapted from WHO, Ten threats to global health in 2019. https://www.who.int/emergencies/ten-threats-to-global-health-in-2019.

7. Explain two ways that the WHO might work to assist countries to reduce deaths from dengue and prevent the spread of the disease.
8. Use two of the WHO strategic priorities and discuss how they could be used to reduce the spread of dengue and reduce deaths by 50 per cent.

11.14.2 Topic summary

Objectives and rationale for the Sustainable Development Goals and key features of SDG 3

- The Sustainable Development Goals (SDGs), sometimes referred to as the global goals, lead action from 2016–30 in five broad areas of importance, which include people, planet, prosperity, peace and partnership.

- There were three main reasons (or rationale) for the introduction of the SDGs. There was a need for a new set of goals to guide global action when the Millennium Development Goals expired in 2015; there was uneven progress across regions and countries; and new global challenges had emerged that needed to be addressed.
- The objectives of the SDGs are to end extreme poverty, fight inequality and injustice and address climate change.
- The SDGs are interconnected and their achievement requires collaboration across all sectors.

Key features of Sustainable Development Goal 3 Good health and wellbeing

- SDG 3: Good health and wellbeing contributes to the achievement of many of the SDGs, which in turn help promote the achievement of good health and wellbeing.
- SDG 3 seeks to reduce maternal and child mortality rates, end epidemics of communicable diseases, reduce premature mortality from communicable diseases, reduce substance misuse, particularly from alcohol and tobacco smoking, reduce deaths from air, water and soil pollution, reduce traffic accidents and promote mental health and wellbeing.
- SDG 3 includes providing universal health coverage and access to essential medicines.
- Universal health coverage has two main elements, which include expanding health services and reducing the costs of healthcare.

SDG 3 Key feature of maternal and child health and wellbeing

- Improvements in maternal mortality have been mainly due to better access to prenatal care to monitor the health and wellbeing of the mother and baby and the presence of skilled birth attendants during delivery.
- Access to reproductive health services helps families control the number of children they have and the timing and spacing of births.
- SDG 3 aims to prevent deaths in newborns and those under five. Half of all newborn deaths occur in the first 24 hours of being born and 75 per cent occur in the first week.

SDG 3 Key feature of communicable diseases

- Communicable diseases such as HIV/AIDS, tuberculosis, malaria, hepatitis, water-borne diseases and other tropical diseases contribute significantly to the global burden of disease.
- AIDS damages and weakens the body's immune system, leaving it unable to fight infections.
- HIV/AIDS is much more common in low-income countries, and there is currently no cure and no vaccine. The use of antiretroviral medication (ART) is successful in delaying and, in some cases, preventing the HIV virus from progressing to AIDS.
- Ending the AIDS epidemic requires access to healthcare, education, the removal of discrimination and stigma, and the development of a vaccine.
- Malaria is a life-threatening disease transmitted through the bite of an infected mosquito and can be prevented by using insecticide-treated bed nets, spraying insecticides in homes and using antimalarial medicines.
- Tuberculosis is a disease affecting the lungs and can be spread through coughing and sneezing. It can be treated with medication and prevented through vaccination.
- Neglected tropical diseases include 18 different diseases that mainly occur in tropical environments and very poor countries where people lack access to safe water and sanitation and access to healthcare.
- Morbidity and mortality from neglected tropical diseases can be reduced by providing drugs that can prevent and treat the diseases, providing vector control, providing veterinary public health measures when the diseases are caused by animals, and improving water and sanitation.
- Hepatitis is a caused by a virus that leads to inflammation of the liver. Hepatitis B and C are spread through contact with infected body fluids. Hepatitis A and E result from ingesting contaminated water and food.

SDG 3 Key feature of non-communicable diseases

- Non-communicable diseases, such as cardiovascular disease, cancer, diabetes and chronic respiratory disease, affect people in low, middle- and high-income countries.
- Risk factors for non-communicable diseases include tobacco use, insufficient physical activity, harmful consumption of alcohol and poor diet.
- Good mental health and wellbeing is important in enabling people to achieve their potential and contribute to the community.
- SDG 3 aims to reduce morbidity and mortality rates due to road traffic accidents by 2020, which requires a coordinated approach across many sectors, such as health and wellbeing, education, transport and police.
- Harmful consumption of drugs, particularly alcohol, is a health issue worldwide.
- Cannabis is the most common illicit drug used, followed by amphetamines, cocaine and opioids.
- Environmental hazards such as air, water and soil pollution is responsible for one in four deaths worldwide.
- Air pollution accounts for the greatest burden of disease from pollution and is caused using fuels such as wood, charcoal, coal and dung for indoor cooking.
- Outdoor air pollution is caused by vehicle emissions and greenhouse gases.

The relationships between SDG 3 and SDG 1

- SDG 1: No poverty. When people are poor, they are unable to afford food, clothing, shelter, safe water, healthcare and education, and lack opportunities to participate in decisions that affect their lives and their communities.
- When a country is poor there is not enough money to provide public health services such as safe water and sanitation, healthcare, education and social security benefits.
- Poverty contributes to low levels of childhood vaccination, low levels of literacy and high death rates from infectious diseases, such as tuberculosis, measles, whooping cough, cholera, malaria and tetanus.
- Poverty can occur due to discrimination and social exclusion. People most at risk are women, youth, the elderly, migrants and those with a disability.
- Actions that need to be taken to end poverty and achieve SDG 1 are directly linked to the actions that are needed to achieve good health and wellbeing.

The relationships between SDG 3 and SDG 2

- SDG 2: Zero hunger. Hunger and malnutrition are the biggest contributors to child mortality, causing 45 per cent of preventable deaths in children under five.
- Deficiencies of micronutrients, especially iron, Vitamin A, zinc and iodine are responsible for many deaths and disability, particularly in women and children.
- Actions that need to be taken to achieve SDG 2: Zero hunger are linked to the achievement of SDG 3.

The relationships between SDG 3 and SDG 4

- SDG 4: Quality education. This aims to ensure that females and males have equal access to quality pre-primary, primary, secondary and tertiary education and develop the vocational skills needed for employment.
- Factors affecting girls getting an education include drought, lack of access to safe water and sanitation, food shortages, conflict, poverty, child labour and HIV/AIDS.
- Actions taken to achieve quality education are linked to the achievement of SDG 3. An educated and skilled workforce means higher economic growth and more funding for the provision of universal health coverage. Child and maternal health and wellbeing will improve because educated girls have fewer children and are more likely to send their children to school.

The relationships between SDG 3 and SDG 5

- SDG 5: Gender equality is about ending discrimination and violence against women and girls by addressing the barriers that exist to gender equality.

- Gender equality is when women and men have the same level of power and control over all aspects of their lives. Many women face discrimination in all aspects of life.
- Women are underrepresented in political and economic decision-making processes and are often discriminated against by the laws that exist.
- Educating and empowering women increases their chances of getting a job, staying healthy and participating in society.
- Actions taken to achieve gender equality are linked to the achievement of SDG 3. When women are given the same opportunities as men, they are more empowered and can participate in decision making, which promotes health and wellbeing.

The relationships between SDG 3 and SDG 6

- SDG 6: Clean water and sanitation. Water transmits disease when it is contaminated by bacteria, viruses, parasites or other micro-organisms or through contamination from industrial and agricultural waste.
- Diarrhoea is the most widely known disease linked to contaminated water, but other diseases caused by contaminated water include parasitic worm infestations, cholera, dysentery, hepatitis A, typhoid and trachoma.
- More than 80 per cent of wastewater due to human activities is discharged into rivers or oceans.
- 10 per cent of the population is thought to consume food that is irrigated by wastewater, which puts their health and wellbeing at risk.
- Actions taken to achieve clean water and sanitation underpin the ability to achieve SDG 3. Without clean water and sanitation SDG 3 is difficult to achieve.

The relationships between SDG 3 and SDG 13

- SDG 13: Climate action. This addresses the impact of climate change and the need to take urgent action to reduce the impact.
- The over-reliance on fossil fuels and greenhouse gases has contributed to global warming and increasing sea levels.
- Climate change is expected to bring about an increase in infectious diseases, allergies and asthma, deaths from cardiovascular diseases and respiratory diseases, and hunger and malnutrition.
- The global community must work together to develop cleaner energy systems, promote energy-efficient public transport and reduce carbon emissions.
- SDG 13 and SDG 3 are closely connected. Achieving good health and wellbeing will not be possible unless action is taken to address climate change and its corresponding impacts on health and wellbeing.

The UN's Sustainable Development Goals and the World Health Organization

- The work of the WHO involves six components:
  - Provide leadership and create partnerships to promote health and wellbeing
  - Conduct research and provide health and wellbeing information
  - Set norms and standards and promote and monitor their implementation
  - Develop policies to assist countries to take action to promote health and wellbeing
  - Provide technical support and help build sustainable health systems
  - Monitor health and wellbeing and assess health and wellbeing trends.
- To provide direction and focus to their work, The WHO has developed three strategic priorities:
  - Universal health coverage
  - Health emergencies
  - Healthier populations.

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11.14 Exercise 1 Exam preparation

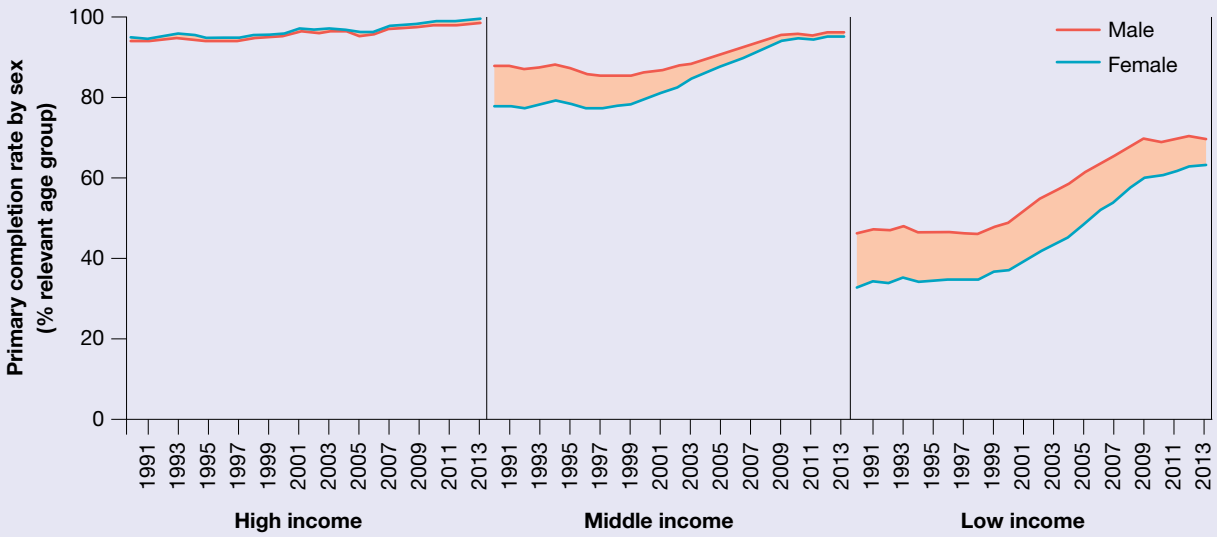
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Question 1

Figure 11.88 shows the gap in the completion of primary education between girls and boys for high-income, middle-income and low-income countries.

a. Which type of country has the highest gender gap in primary school completion? **(1 mark)**
b. Explain two reasons for this. **(2 marks)**
c. Name one SDG that this information is related to. **(1 mark)**
d. Explain how reducing the gender gap in primary school completion could assist in achieving SDG 3. **(3 marks)**
e. Explain how reducing the gender gap in primary school completion could improve human development. **(2 marks)**

FIGURE 11.88 Primary completion rate by sex (percentage relevant age group)



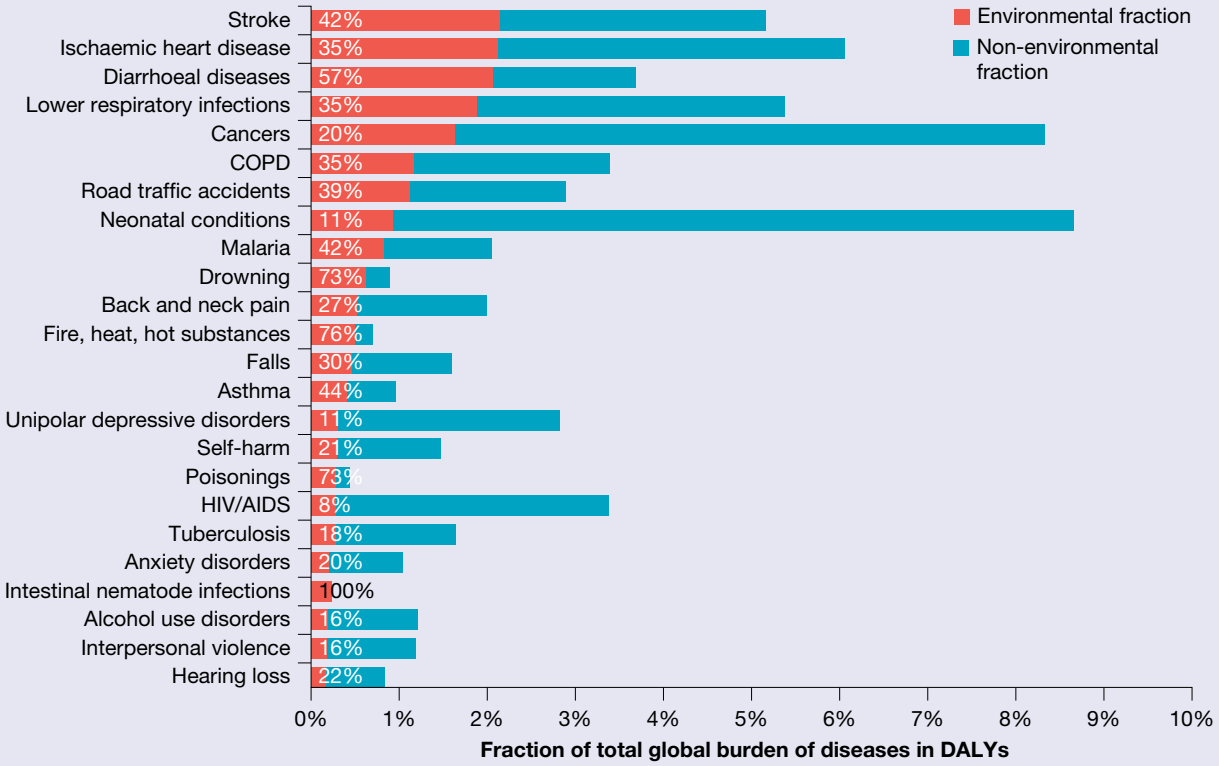
Source: World Bank, 2017.

Question 2

Use figure 11.89 to answer the following questions:

a. Explain three key features that are part of SDG 3. **(3 marks)**
b. Select two examples of diseases from the figure that are included in the WHO strategic priorities. Outline actions the WHO might take to reduce the global burden of disease. **(4 marks)**
c. Select an example of a disease with a large environmental contribution and explain how action to address SDG 13 will help achieve improvements in health and wellbeing. **(3 marks)**

FIGURE 11.89 Diseases with the largest environmental contribution



Source: WHO, 2016.

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Interactivities Crossword (int-6899)
Definitions (int-6900)

12 Australian aid and non-government organisations (NGOs)

12.1 Overview

Key knowledge

- The purpose and characteristics of different types of aid including emergency, bilateral and multilateral
- Features of Australia's aid program including its priority areas and the types of partnerships involved
- The role of non-government organisations in promoting health and wellbeing, and human development

Key skills

- Describe and justify different types of aid
- Explain and evaluate the role of non-government organisations in promoting health and wellbeing, and human development globally

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FIGURE 12.1 Aid workers load emergency aid onto trucks after Typhoon Haiyan in the Philippines.



KEY TERMS

Aid assistance given to countries or communities in the event of a crisis or for the development of long-term sustainable improvements
Bilateral aid the provision of aid from the government of one country to the government of another country
Emergency aid rapid assistance given to people or countries in immediate distress to relieve suffering during and after emergencies such as wars and natural disasters, for example floods, tsunamis or earthquakes. Emergency aid is also called 'humanitarian aid'.
Epidemic when the rate of disease significantly exceeds what is expected based on recent trends
Governance the structures and processes that are designed to ensure accountability, transparency, rule of law, inclusiveness and broad-based participation in society
Gross National Income (GNI) the total value of goods and services a country's citizens produce, including the value of income earned by citizens who may be working in an overseas country
Humanitarian assistance *see* Emergency aid
Infrastructure the physical and organisational structures, facilities and systems (e.g. buildings, roads, power supplies) needed for the operation of a society
Microfinance small, low-cost financial services for poor people that involve low-interest loans to develop small businesses
Multilateral aid aid provided through an international organisation, such as the World Bank, United Nations or World Health Organization. Multilateral aid combines donations from several countries and then distributes them to the recipients.
Non-government organisation (NGO) aid NGOs take different approaches to aid, which can include specific projects or programs, emergency aid, volunteering, education and development. The aid provided by NGOs often focuses on communities.
Official Development Assistance (ODA) financial assistance provided by donor government agencies to low- and middle-income countries or to multilateral aid agencies. Also known as aid.
Private sector part of a country's economic system that is run by individuals and companies, rather than the government
Secular not concerned with religion or religious matters
Sustainability meeting the needs of the present without compromising the ability of future generations to meet their own needs
Sustainable development development that meets the needs of the present without compromising the ability of future generations to meet their own needs
Transnational involving several nations

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12.2 Types of aid

KEY CONCEPT Different types of aid and how they promote health and wellbeing, and human development

Australia, like most other high-income countries, provides **aid** or **Official Development Assistance (ODA)** to low- and middle-income countries. Aid can be described as assistance given to countries or communities in the event of a crisis or for the development of long-term sustainable improvements.

12.2.1 Different types of aid

The main types of aid provided to low- and middle-income countries are emergency or humanitarian aid, bilateral aid and multilateral aid.

FIGURE 12.2 Summary of the main types of aid

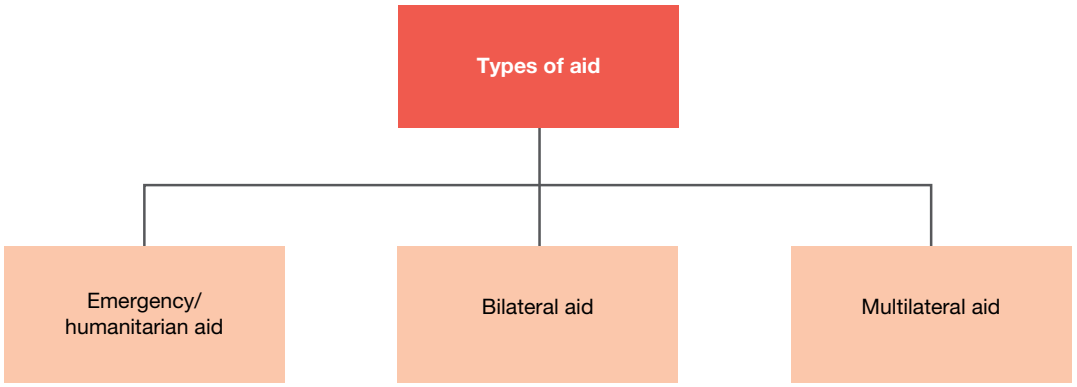


FIGURE 12.3 Australian aid, including blankets, tarpaulins, hygiene kits and water purification tablets, for delivery to Indonesia following an earthquake.



Emergency or humanitarian aid

Emergency aid or humanitarian aid is the rapid assistance given to people or countries in immediate distress to relieve suffering during and after emergencies such as conflict and natural disasters, for example floods, tsunamis or earthquakes. It is designed to be short term and is usually needed to keep people alive. Emergency aid usually includes the provision of food, water, medicines and shelter, or it could involve personnel, such as health workers, doctors or emergency workers from other countries or aid organisations.

The purpose of this type of aid is to respond quickly and effectively to address the immediate needs of the affected communities and, in this way, helps improve short-term health and wellbeing. Emergency aid does not address the underlying causes of poverty. Emergency aid should cease once the emergency is over and people's lives are no longer in danger. Providing emergency aid beyond this could lead to countries

becoming dependent upon handouts rather than support to rebuild their communities for longer term **sustainable development**. Australia provides aid to countries in times of natural disasters by providing food supplies, medical teams and equipment, transport, law and order personnel, and communication resources.

TABLE 12.1 Summary of emergency or humanitarian aid

Description	Purpose	Examples	Examples of how it promotes health and wellbeing	Examples of how it promotes human development
Immediate assistance given to people or countries in immediate distress to relieve suffering during and after emergencies such as conflict or natural disasters	Short-term assistance designed to address immediate needs and keeps people alive	• Providing food, clothing, healthcare and shelter following a natural disaster such as an earthquake • Providing health workers or emergency services workers to assist after a country has been affected by a cyclone • Assisting with law and order following conflict	• Provides the necessary needs such as clean water, food, healthcare and shelter which aims to protect people from communicable diseases and to keep people alive which promotes physical health and wellbeing • This will also promote mental health and wellbeing as the supply of emergency needs can reduce stress and anxiety in the short term • Improves short-term health and wellbeing and is not designed to be long term	• Keeps people alive to support further actions to promote longer-term human development • Helps preserve human rights as a condition for human development

Bilateral aid

Bilateral aid is aid one government provides to the government of another country. The purpose of bilateral aid is to help reduce poverty and bring about long-term sustainable development by helping governments of recipient countries strengthen their economic, political, health and education systems and eventually become self-sufficient.

FIGURE 12.4 In the Philippines, tents were supplied to give families a place to live when their homes were destroyed by typhoon Haiyan in 2013.



Through consultation, the donor country works with the government of the country receiving the aid to ensure that the programs implemented meet the needs of the country and its people. This consultation process builds important relationships and helps ensure that the proposed programs meet the donor country's aid policies and its capacity to assist. The programs may range from small, community-based projects, such as immunisation programs, to large regional development schemes such as the provision of a water treatment plant and other **infrastructure** projects.

Bilateral aid is therefore designed to promote health and wellbeing, and create the conditions that underpin human development (see table 12.2) An example of bilateral aid is the Australian government providing funding for the government of Papua New Guinea to implement prevention, treatment, counselling and education programs in relation to HIV/AIDS; another is the Australian government providing funds and personnel to help build a bridge in Samoa.

FIGURE 12.5 Trained health workers in the Philippines care for people in a medical clinic maintained with help from Australia.



Bilateral aid sometimes attracts criticism, as the goods and services may be provided by companies from the donor country, thereby favouring its own economy and political interests. There can also be risks with providing bilateral aid if the government of the recipient country is corrupt and the funds are not spent on their intended purpose. Sometimes bilateral aid projects are focused on urban areas and neglect the poorest people, who are more likely to live in remote rural villages. To minimise the risks associated with bilateral aid it is important to regularly evaluate the effectiveness of the aid provided in terms of health and wellbeing and development outcomes.

TABLE 12.2 Summary of bilateral aid

Description	Purpose	Examples	Examples of how it promotes health and wellbeing	Examples of how it promotes human development
Aid provided by the government of one country to the government of another country	To help reduce poverty and bring about long-term sustainable development by helping governments of recipient countries to strengthen their economic, political, health and education systems and eventually become self-sufficient.	• Support large infrastructure projects • Fund small community-based projects such as immunisation programs • Building schools and providing education programs	• Seeks to reduce poverty which means money is available to buy healthy food, clothing, shelter and healthcare which protects people from communicable diseases and promotes physical health and wellbeing. With improved physical health people are happier which improves emotional health and wellbeing. • Education programs promote social health and wellbeing as children and adults come together to learn. • Reducing poverty reduces stress which improves mental health and wellbeing.	• Reducing poverty and improving health and wellbeing supports people to live a long and healthy life by reducing ill health. • With reduced poverty people are more likely to have the resources to achieve a decent standard of living. • Providing schools and education helps children and adults develop knowledge. • Improved economic growth and stronger political systems are more likely to protect human rights and security and achieve gender equality. • Infrastructure projects such as the provision of safe water and sanitation helps manage waste and promotes environmental sustainability.

Multilateral aid

Multilateral aid is aid provided through an international organisation, such as the World Bank, United Nations or World Health Organization. Governments provide aid to multilateral organisations who are then able to combine donations from many countries and use these fund to support countries in need. This aid is often used to address global issues, which include emergency relief from events such as famine through programs such as the World Food Program, and funding for **transnational** issues such as global warming, control of disease, and major infrastructure projects, such as the building of roads and sanitation systems. The purpose of multilateral aid is to contribute to the achievement of equity in health and wellbeing and to promote human development.

FIGURE 12.6 Multilateral aid in Vanuatu: an Australian aid project providing public health information about AIDS and STIs.



Multilateral aid has the advantage of being less tied to the political interests of individual donor countries and allows for the efficient pooling of resources to address global issues that require a global approach. Multilateral aid contributes to the achievement of good health and wellbeing and works to improve the conditions needed for human development. Australia supports multilateral agencies engaged in poverty reduction and sustainable development to complement and reinforce its bilateral aid program.

TABLE 12.3 Summary of multilateral aid

Description	Purpose	Examples	Examples of how it promotes health and wellbeing	Examples of how it promotes human development
Aid provided through an international organisation such as the World Bank, UN or WHO Organisations can combine donations from many countries and use the funds to support countries in need.	Contributes to the achievement of equity in health and wellbeing and promotes human development	• Addressing global issues such as global warming, control of diseases and major infrastructure projects such as roads and sanitation systems • Provides emergency relief through programs such as the World Food Programme	• Addressing global warming will contribute to improved physical health and wellbeing by reducing diseases such as asthma, stroke, cardiovascular diseases, malaria, malnutrition and diarrhoea. • More secure agriculture and food supplies will reduce malnutrition and hunger which will promote physical health and wellbeing. • Addressing global warming will also promote mental and emotional health and wellbeing as people will not be forced to relocate as a result of rising sea levels. This will also improve social and spiritual health and wellbeing. • Less transmission of diseases within and beyond countries will also contribute to improved physical health and wellbeing.	• Reducing the transmission of diseases helps people live a long and healthy life. • Food and agriculture means people will have food to eat which means more energy to work to generate an income which provides resources to enjoy a decent standard of living. • When people are not forced to relocate, communities and villages are retained and people are more empowered to participate in community and political life. • When children have improved health and wellbeing, they are able to attend school which helps develop knowledge and skills. • Infrastructure projects such as the provision of safe water and sanitation helps manage waste and promotes environmental sustainability

12.2.2 Aid provided by non-government organisations (NGOs)

Non-government organisations, also known as NGOs, are non-profit organisations that work to promote health and wellbeing and human development; they operate separately from governments. Although being an NGO suggests no government involvement, many of these agencies rely on funding from the Australian government, through its aid program, as well as through funds generated from public donations.

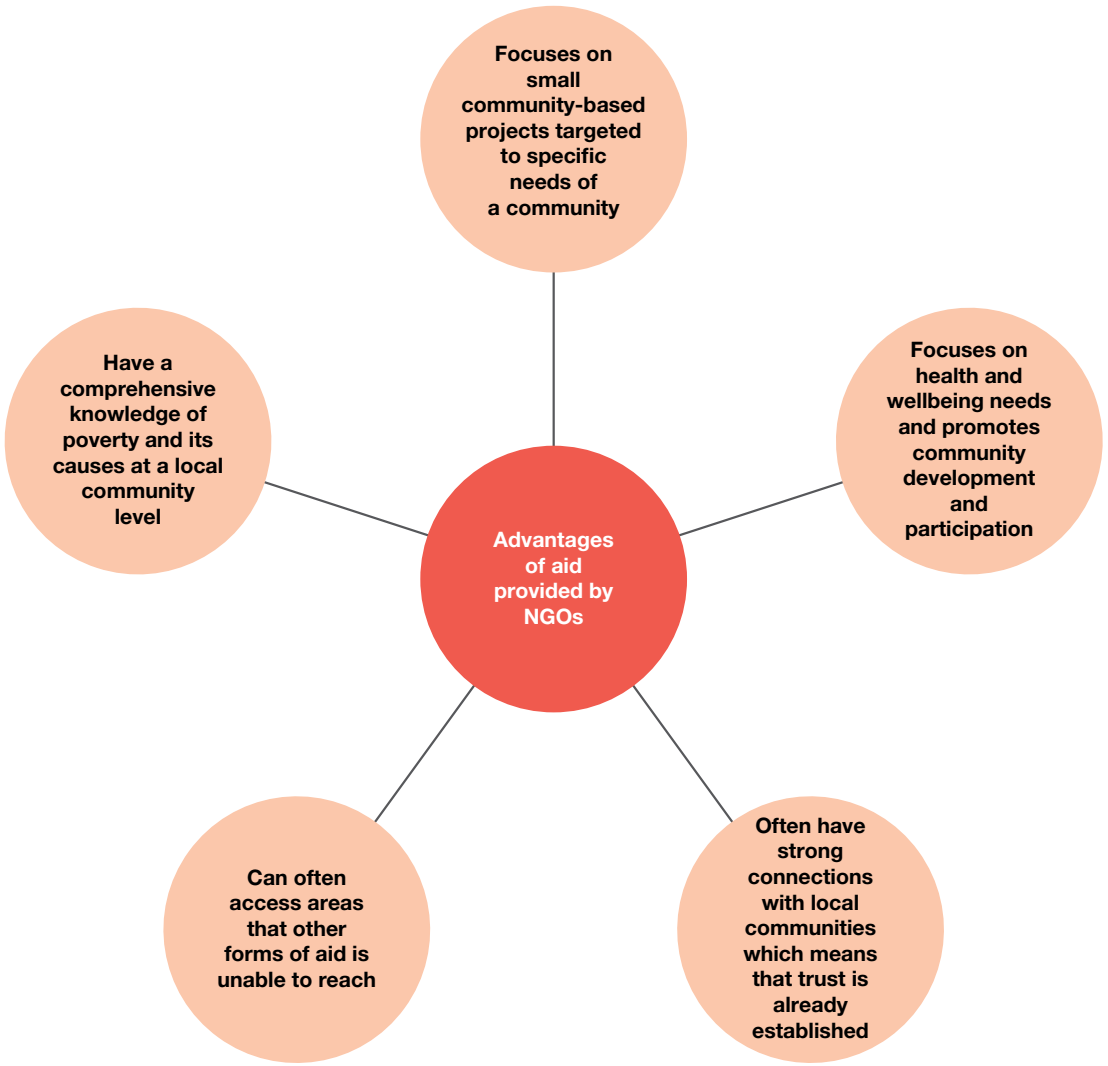
Non-government organisation (NGO) aid is an important part of the overall aid program and complements bilateral and multilateral aid. Aid provided by NGOs has many advantages. It tends to focus on smaller community-based projects that are targeted to meet basic health and wellbeing needs and promote community development and participation.

NGOs:

- bring strong connections to local communities which means trust has often been established
- can access areas that others don't or can't reach, such as in remote, fragile and conflict-affected areas
- have comprehensive knowledge of poverty and its causes at a community level; and bring expertise to the aid program (see figure 12.7).

The role of NGOs in promoting health and wellbeing and human development will be discussed later in the topic.

FIGURE 12.7 Aid provided by non-Government organisations (NGOs) has many advantages and complements other types of aid provided.



The International Red Cross, which provides healthcare and disaster relief worldwide, is one of the world's largest humanitarian organisations. It is an NGO and usually provides aid directly to people running development projects. It also helps in areas where bilateral aid does not reach and aims to improve health and wellbeing for people in all countries. Globally, there are thousands of NGOs that are involved in providing aid. Some well-known NGOs include World Vision, CARE International, Caritas and Oxfam.

FIGURE 12.8 Non-government organisations such as Oxfam provide small development projects in villages where bilateral aid often doesn't reach.



12.2 Exercise 1 TEST your knowledge

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1. What is meant by the term 'aid'?
2. List the three types of aid and give an example of each.
3. For each type of aid describe its characteristics and purpose.
4. Why does bilateral aid sometimes attract criticism?
5. Why is it important to be able to pool resources to provide multilateral aid?
6. What is the focus of the aid provided by non-government organisations?

12.2 Exercise 2 APPLY your knowledge

1. Draw a table like the one below and briefly outline the benefits and limitations of each type of aid.

Type of aid	Advantages	Limitations

2. Emergency or humanitarian aid is short term aid and should end once the emergency is over. Explain why.
3. Read the following information:
   In July 2016, around 820 000 people were affected by floods in Bangladesh. Dangerously high river levels forced thousands of people from their homes and many families had to live out in the open. There were shortages of clean water, food, medicine and fuel. The flooding wiped out entire villages and crops, and plunged farmers deeper into debt.
   Examine the three examples of aid below and answer the questions that follow.
   - Local companies worked with the government of Bangladesh to build new schools or classrooms and repaired those that were damaged.

- Each household affected by flooding was provided with 40 packets of fortified biscuits to provide a source of food.
- Funds provided by the Australian government were used by the government of Bangladesh to fund the building and repair of roads washed away by the floods.

(a) Identify two types of aid represented in the examples.
(b) Select one example that represents the most appropriate response to the situation in Bangladesh above and justify your choice.

4. Explain why NGOs often work in collaboration with governments and local aid agencies.

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12.3 The features of Australia's aid program

KEY CONCEPT Understanding the features of Australia's aid program

12.3.1 Features of the Australian government's aid program

Through the Department of Foreign Affairs and Trade (DFAT), the Australian government acts to promote human development by working to reduce poverty in low- and middle-income countries. The purpose of Australia's aid program is to promote our national interests by contributing to sustainable economic growth and poverty reduction. DFAT does this by focusing on achieving two development outcomes:

- strengthening **private sector** development
- enabling human development.

FIGURE 12.9 The features of Australia's aid program are quite diverse.

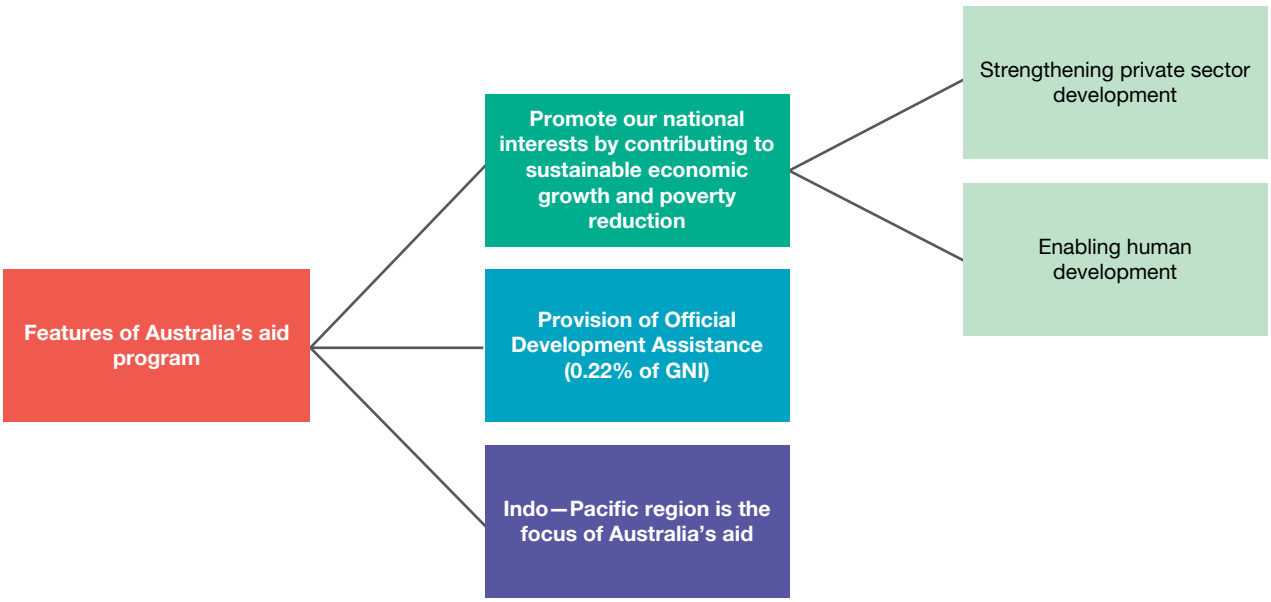
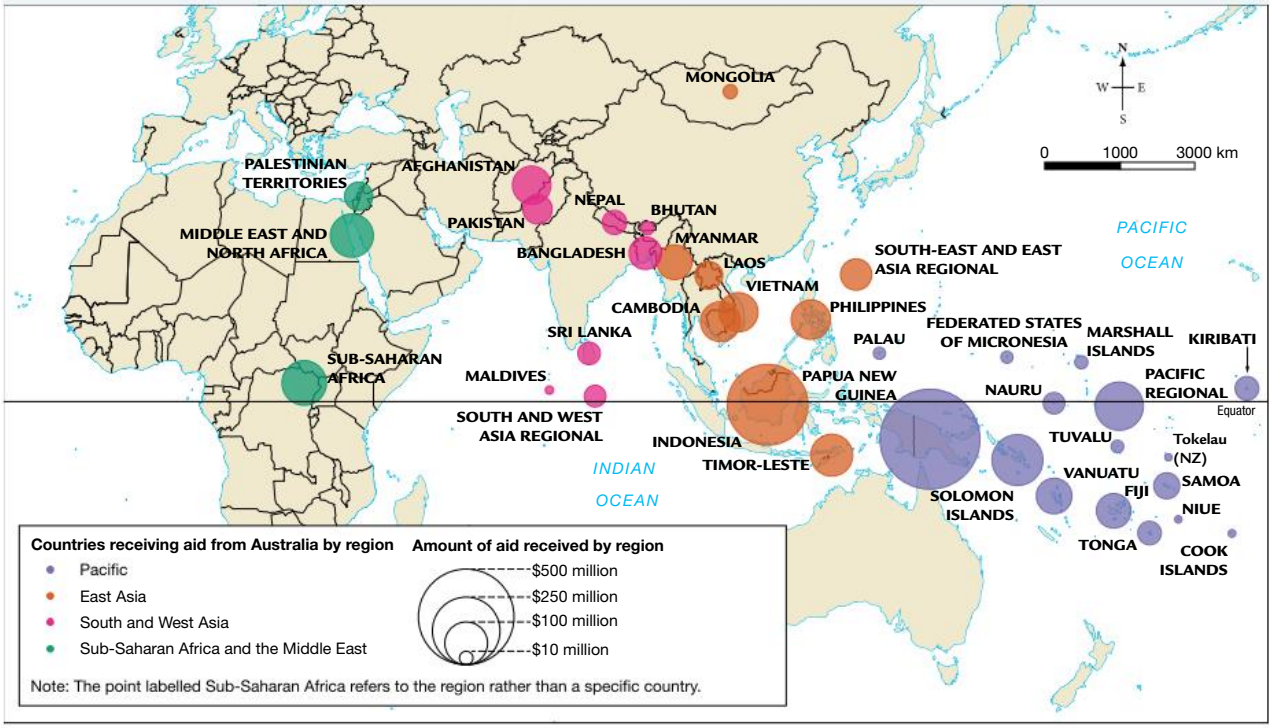


FIGURE 12.10 The circles represent the countries and regions Australia provides foreign aid to and the size represents the proportion of spending.



Source: Department of Foreign Affairs and Trade. https://dfat.gov.au/aid/where-we-give-aid/Pages/where-we-give-aid.aspx.

Strengthening the private sector is important because it recognises that for people to escape poverty they must be given the opportunity to develop and use their skills more productively through self-employment or by earning a wage. Promoting economic growth and poverty reduction is also dependent upon achieving human development. Improving education and health as well as achieving gender equality are necessary to enable the development of a skilled workforce and better living standards.

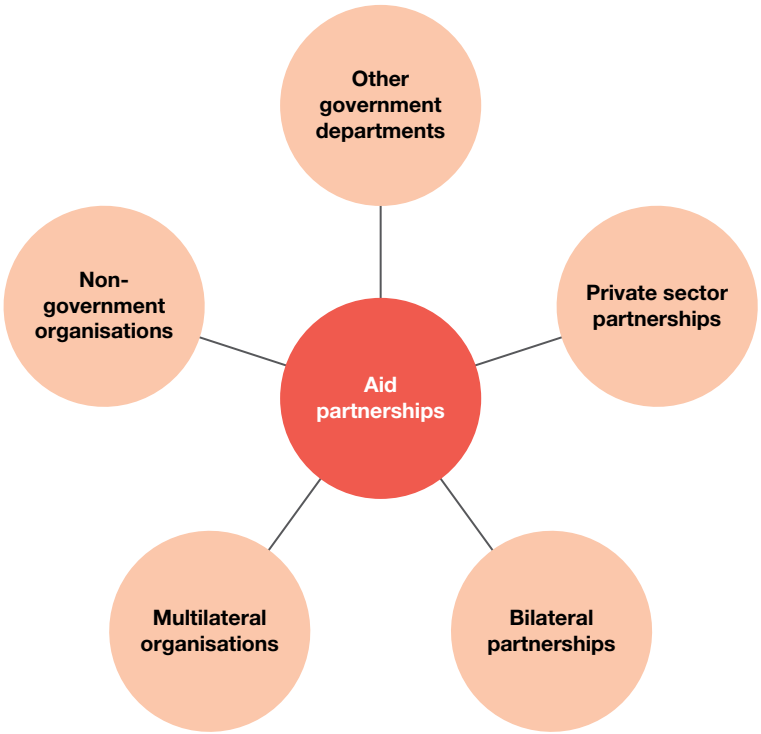
Through DFAT, the government provides **Official Development Assistance (ODA)** to several countries. Figure 12.10 highlights the many areas in the world where DFAT is providing assistance. Given its proximity to Australia, the Indo–Pacific region is the focus of Australia's aid program. There are many people living in poverty in countries in this region, and many people are struggling to meet their basic needs. Many of these countries are also affected by conflict, and this has the potential to directly affect our national and security interests. These countries are our nearest neighbours. Stronger growth, prosperity and stability in our region will also benefit Australia. It is where Australia's aid can make the greatest difference.

All Australians contribute to Australia's aid program. In 2018–19, the government allocated $4.2 billion or 0.22 per cent of our **Gross National Income (GNI)** for overseas aid. This means that taxpayers contributed approximately 22 cents for every $100 they earned. This is a reduction in foreign aid investment. The United Nations recommends countries invest 0.7 per cent of their GNI. Australia ranks nineteenth out of 29 nations that give aid.

Partnerships

The government works in partnership with other government departments and agencies, non-government organisations, businesses and community groups in Australia and overseas to deliver our aid program. Some of these partnerships are represented in figure 12.11.

FIGURE 12.11 The Australian government works in partnership with a range of organisations and agencies to deliver aid.



- *Other government departments:* While DFAT is responsible for administering our international aid program, it also works with many other government departments and agencies that are involved in providing assistance to other countries. These include the Australian Centre for International Agricultural Research, which works to improve the agricultural sector in countries in the Indo–Pacific region; and the Australian Federal Police, which works to develop and monitor peace, stability and security in a range of countries in the region.
- *Private sector partnerships:* DFAT partners with a range of companies within the private sector as a means of achieving its aid and development objectives. An example of this is the Westpac Corporate Partnership, which aims to increase economic activity by providing access to finance, particularly for women through services such as mobile phones and improving access to loans for small and medium enterprises owned by women in low- and middle-income countries.
- *Bilateral partnerships:* The effectiveness of Australian aid is increased through bilateral partnerships with other countries where experience and resources can be combined.
- *Multilateral organisations:* Organisations including the World Bank and United Nations, and their many agencies such as the World Food Program and the World Health Organization, extend the reach of Australia's aid program. Their large size enables them to undertake projects on a scale that would not be possible for donors such as Australia.
- *Non-government organisations (NGOs):* DFAT partners with many NGOs to complement its aid program.

on Resources

Teacher-led video Partnerships regarding Australian Aid (tlvd-0268)

12.3.2 Types of aid provided by the Australian government

Much of Australia's aid is provided as bilateral aid, although Australia also provides funds to international organisations through multilateral aid, provides **humanitarian assistance** or emergency aid in times of crises and provides funds to support registered NGOs that work in many countries to deliver aid.

Bilateral aid

Through DFAT, the government provides bilateral aid directly to 75 countries, including our nearest neighbours: Indonesia, Papua New Guinea (PNG), East Timor and the nations of the South Pacific region. This aid comes in the form of funding, donations of material resources, training and advice. This assistance helps partner governments to strengthen their economic, political, health and education systems with the aim of eventually becoming self-sufficient and no longer needing Australia's support. Examples of this include the programs being run in Papua New Guinea which are focused on improving the lives of women and girls across all areas of work through investments that:

- enhance women's voice in decision-making, leadership and peace building
- promote economic empowerment
- end violence against women and girls
- increase access to support services.

Australia also works in PNG enhancing health by: targeting maternal and child health and communicable diseases; strengthening health security; and helping to build a more effective health system. Australia also seeks to partner with the private sector and collaborate to create opportunities to promote economic growth in the region, reduce poverty and return commercial profits.

Multilateral aid

Approximately one-third of Australia's aid budget is dedicated to multilateral aid. The Australian government provides multilateral funds to international aid organisations such as the World Bank, Asian Development Bank, United Nations Development program, UNICEF and the World Health Organization to run programs in low- and middle-income countries. Other multilateral organisations include:

- The Global Fund to Fight AIDS, Tuberculosis and Malaria
- Gavi, the Global Vaccine Alliance that helps reduce childhood deaths through ensuring low-income countries can access vaccines at an affordable cost
- The Global Partnership for Education, which supports children to achieve primary and lower secondary school education.
- The Green Climate Fund (GCF) which is a global platform to respond to climate change by investing in low-emission and climate-resilient development. GCF was established to limit or reduce greenhouse gas (GHG) emissions in low and middle-income countries, and to help vulnerable societies adapt to the unavoidable impacts of climate change.

Multilateral organisations extend the reach of Australia's aid program because their large size enables them to undertake projects on a scale that would not be possible for individual countries alone. Working with the United Nations and its humanitarian agencies, Australia ensures that carefully targeted programs are put in place to promote health and wellbeing and human development globally. By funding multilateral organisations, Australia hopes to accelerate achievement of the Sustainable Development Goals by improving access to health services — particularly maternal and child health and

FIGURE 12.12 Australia's aid program through DFAT assists those living in low- and middle-income countries to have improved access to healthcare services, in particular maternal and child health services.



wellbeing, HIV/AIDS treatment and prevention, gender equality, education, health and the reduction of poverty, all of which helps to improve health and wellbeing and promote human development at a global level.

Humanitarian assistance or emergency aid

In times of crisis, such as natural disasters and conflict, populations often rely on an emergency supply of resources such as food, water, shelter and healthcare to survive. The Australian government responds quickly in these situations, and provides personnel and material resources to assist in saving lives.

Australia usually works with other multilateral and NGO partners to ensure emergency aid is provided to those who need it. An example of this is when the Department of Foreign Affairs and Trade provided $350 000 in life-saving equipment including emergency shelter and kitchen and hygiene kits to assist over 2000 people in need following cyclone Gita in Tonga in 2018. Australia also released humanitarian supplies, including tarpaulins and water purification tablets, through the Tongan Red Cross and the Australian Defence Force assisted with debris removal, water, sanitation and distribution of emergency supplies on request from the Government of Tonga.

Australia has stockpiles of relief items in Australia and overseas. This includes essential life-saving items such as water purification tablets, shelter supplies, hygiene kits, mosquito nets and blankets. This means they have the capacity to provide supplies within 48 hours of a request for assistance by a partner government.

Aid provided to NGOs and volunteers

In 2018–19, around $186.6 million of Australia's aid funding went to NGOs to deliver aid programs directly to people in need as well as other volunteer programs, such as the Australian Volunteers for International Development program. This program supports skilled Australians to undertake volunteer work in low- and middle-income countries.

The Australian government funds Australian NGOs through the Australian NGO Cooperation Program to provide grants that support over 57 Australian registered NGOs who deliver over 450 projects in 57 countries. Under this program, DFAT has a partnership with ten of Australia's largest NGOs (World Vision Australia, Oxfam Australia, Caritas Australia, PLAN International Australia, Child Fund Australia, CBM Australia, CARE Australia, TEAR Australia, The Fred Hollows Foundation and Save the Children Australia) with whom they work closely. Other NGOs that have been accredited by DFAT receive funds to assist them in carrying out their work.

NGOs strengthen the aid program as they work in areas that are difficult to access, such as conflict-affected regions, and often focus their efforts on small, community-based development work. They also have expertise in working in emergency situations where fast and flexible responses are needed.

CASE STUDY

Regional humanitarian strategy for Afghanistan and Pakistan

The Australian Government will provide $60 million for the Regional Humanitarian Strategy for Afghanistan and Pakistan. This strategy supports refugees and internally displaced peoples and host communities. Long term conflict and instability in the region has created one of the largest humanitarian crises, with more than 15 million people in need of assistance. The regional strategy enhances the strategic focus, effectiveness and efficiency of Australia's humanitarian funding.

This strategy will strengthen the links between the humanitarian and development program priorities to focus on food security and community resilience, as well as protection and essential health care for vulnerable groups, including women and children. To address immediate needs, DFAT will partner with the World Food Programme, UN Populations Fund (UNFPA) and UN Office for the Coordination of Humanitarian Affairs.

Source: DFAT, *Australian Aid Budget Summary 2018–19*, Commonwealth of Australia, p. 59.

Case study review

1. List the types of aid represented in the case study.
2. What are the aims of this program?

3. What are the benefits of this program?
4. How does this program reflect the key features of Australia's aid program?

12.3 Activity

Access the **Shared Value Partnerships in Sri Lanka** weblink and worksheet in the Resources tab then complete the worksheet.

12.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Name the government department responsible for managing Australia's aid program.
2. Outline three ways the Australian government provides aid.
3. What is the purpose of Australia's aid program?
4. What percentage of GNI did Australia allocate to overseas aid in 2018–19 and how does that compare with other countries?
5. Why is it important for Australia to develop partnerships for the delivery of our aid program?
6. Why does Australia focus its aid program on the Indo–Pacific region?

12.3 Exercise 2 APPLY your knowledge

1. Provide one example of how the Australian government contributes to each type of aid: emergency, bilateral and multilateral.
2. 'Australia should allocate more funds to NGOs given the way they strengthen our aid program.' Discuss.

studyON

12.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Shared Value Partnerships in Sri Lanka worksheet (doc-32236)
Weblink Shared Value Partnerships in Sri Lanka

12.4 The Australian government's aid priorities

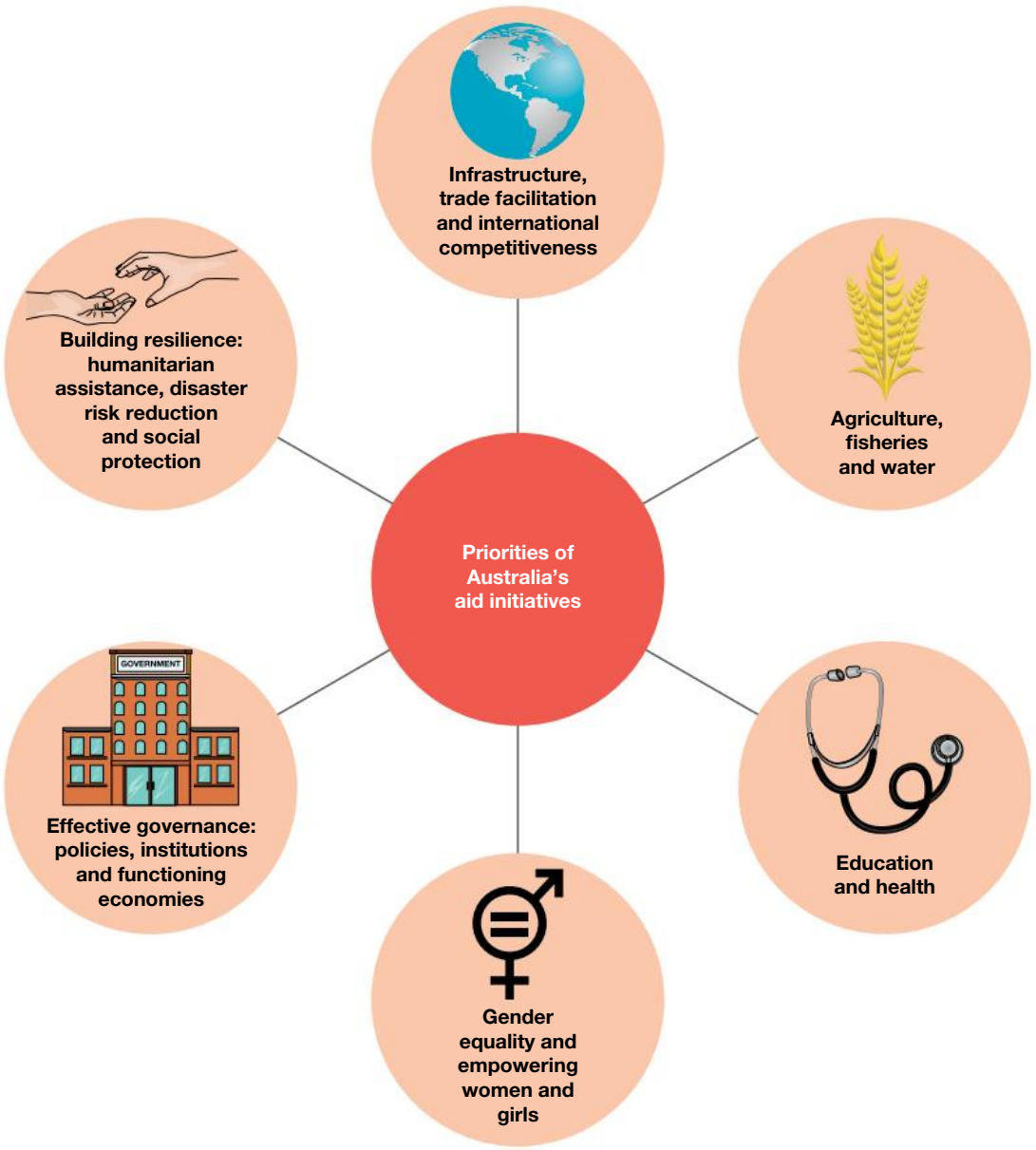
KEY CONCEPT Understanding the priorities of Australia's aid program

The Australian government's aid program is guided by the six priorities shown in figure 12.13. These priorities all contribute to breaking the cycle of poverty in low- and middle-income countries, improving health and wellbeing and promoting human development.

EXAM TIP

It is important that you can name each of the priorities accurately as the meaning can be changed if components of the priorities are either left off or changed in wording.

FIGURE 12.13 Priorities of the Australian government's aid program



12.4.1 Infrastructure, trade facilitation and international competitiveness

Infrastructure

Improving infrastructure in low- and middle-income countries promotes economic development, improves trade opportunities and reduces poverty. Infrastructure includes the provision of a reliable energy supply, better roads and transport systems including rail, ports and airports, clean water, accessible healthcare and telecommunications systems. Good infrastructure is important for people to gain access to markets

to buy and sell goods. It facilitates trade because it enables people to transport their goods quickly and efficiently so they can be available for trading with other countries. Infrastructure also helps families to access healthcare when needed and for children to attend school, all of which improves health and wellbeing and promotes human development. Infrastructure helps people become engaged in the political, social and cultural activities in their communities.

In line with this priority Australia has:

- worked in partnership with Papua New Guinea to reconstruct bridges and roads destroyed by cyclones, promoting economic growth
- worked in partnership with the Philippines to build schools and health facilities
- provided a water and sanitation system in Indonesia which resulted in over 100 000 water connections and 14 000 sewerage connections to low-income households
- funded the development of an undersea telecommunication cable from Australia to Papua New Guinea to provide faster and more reliable internet connectivity to promote economic growth.

Trade facilitation and international competitiveness

Economic development is important in bringing about opportunities for decent work and a regular income, which helps families escape from poverty and builds a strong economy. Being able to participate in global trade markets increases economic growth and reduces poverty by creating opportunities to buy and sell products and resources, which generates money for families, communities and governments. This money can be used by families to achieve a decent standard of living and by governments to invest further in providing infrastructure and health and welfare systems for the population.

Through Australia's aid for trade program it is working to build the capacity of low- and middle-income countries to participate in the global trading system by supporting regulatory changes and building workforce skills.

In line with this priority Australia has:

- funded economists and other experts to work with governments and the private sector in middle- and low-income countries to identify barriers and develop solutions for international trade
- helped promote trade agreements and increase trading opportunities between high-income and middle- and low-income countries
- trained local people to develop expertise in global trade policy and practice.

Economies grow when businesses start or expand in response to new opportunities. The private sector is responsible for many of the new businesses created in low- and middle-income countries. In recognition, Australia provides a significant proportion of the aid budget to promote the growth of the private sector. This includes:

- providing **microfinance** loans so individuals, particularly women can start their own business. This involves lending small amounts of money at low interest rates so people can purchase the resources required to start their business (such as a cow or sewing machine). This is effective in helping families escape from poverty.
- providing funding and education to assist people in middle- and low-income countries to improve their skills
- helping to create environments in which businesses can compete internationally such as providing advice on business registration processes, implementing contract laws, establishing institutions to give support and provide businesses with access to finance

FIGURE 12.14 In line with its priority of supporting infrastructure, trade facilitation and international competitiveness, Australia invests in a range of projects designed to reduce the level of poverty and achieve sustainable development.

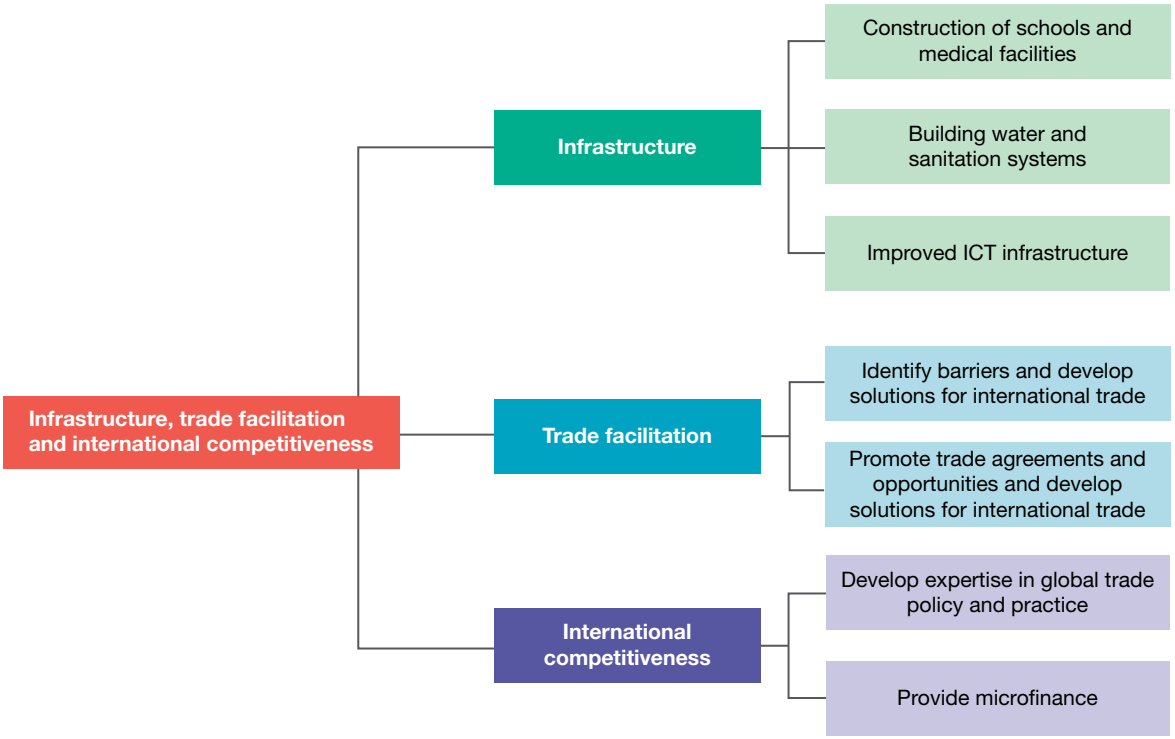


FIGURE 12.15 To facilitate trade and international competitiveness it is essential to provide aid to the private sector. The private sector includes self-employed people — from farmers, street vendors and small- and medium-sized businesses through to large locally owned firms. It is essential in developing the economy because about 90 per cent of jobs in low-and middle-income countries are created in the private sector.



12.4.2 Education and health

Education and health are critical to improving the lives of all people, especially the poor, and for providing opportunities for people to participate in the economy to improve living standards.

Education

Education is one of the best investments that can be made to reduce poverty, improve health and wellbeing and promote human development. By being educated, people can gain the skills to enable them to contribute to the country's economy. When girls are educated, they are likely to marry later in life and have fewer children. This contributes to better maternal health and wellbeing, improved child health and wellbeing and increased economic opportunities. Educated women are more likely to send their own children to school, which leads to improved economic growth. Education for those with a disability is also important to reduce the level of disadvantage experienced by this group.

FIGURE 12.16 Providing educational opportunities for children, especially girls, in a range of low- and middle-income countries helps reduce poverty and improves human development.



The Australian government has focused on providing education opportunities by:

- increasing opportunities for girls to learn
- supporting teacher training and the development of high-quality curriculum and learning programs in countries such as Indonesia, Laos, Timor-Leste, the Philippines, Papua New Guinea and Pacific Islands countries
- funding initiatives to assist children, including from ethnic minority groups in Laos, Myanmar and Philippines, to access education and training
- investing in early childhood care and focusing on gender and disability inclusiveness
- investing in high quality secondary and technical education, skills development and training to meet the needs of the job market and improvements in productivity
- enabling girls living in poverty and children with a disability to attend school, including in Indonesia, Bangladesh, Laos, Pakistan, the Philippines and across the Pacific
- strengthening the management and accountability of education policies and systems
- contributing to the Global Partnership for Education to improve access to education worldwide, including for children in conflict-affected countries.
- providing scholarships to support young people from low- and middle-income countries to study in Australia and then return home to contribute to economic and social development.

Health

Improving health and wellbeing is the foundation for reducing global poverty. Healthier adults are more able to work and children free of disease are better able to learn at school and gain the skills needed to break out of poverty. DFAT focuses their work on improving health and wellbeing through five key areas:

1. strengthening public health systems for better service delivery and a better trained health workforce
2. addressing health and wellbeing threats that cross national borders, such as preventable infectious diseases and drug-resistant strains of malaria and tuberculosis
3. establishing more effective global health responses by contributing to and influencing the work of global health initiatives and organisations
4. improving nutrition and access to clean water, sanitation and hygiene
5. fostering innovations in health and wellbeing that respond to the complex health challenges in our region.

To address these priorities, the Australian government is working to promote health and wellbeing by:

- strengthening health systems in countries such as Papua New Guinea, Solomon Islands, Cambodia and Timor-Leste
- assisting countries within our region to prepare for and build their capacity to respond to emerging health threats and emergencies, such as the Zika virus
- providing funds to the Global Health Fund to Fight AIDS, Tuberculosis and Malaria, the World Health Organization and Gavi, the Vaccine Alliance
- funding programs that increase water and sanitation coverage in the Indo-Pacific region. One example of this is the Australian Civil Society WASH Fund. It supported 13 civil society organisations to deliver WASH programs in the Pacific, Asia and Africa. In the future the objective of the WASH Fund is to improve sustainable access to safe water, sanitation and hygiene. In the future, the Fund is expected to provide direct benefits to 3.5 million people and indirect benefits to over 10 million people.

12.4.3 Gender equality and empowering women and girls

Women and girls in low- and middle-income countries often lack the same opportunities available to men and boys in terms of education, employment and making decisions that affect their lives. By empowering women and girls, benefits are felt throughout the community, with higher average incomes, greater levels of education and healthier families. Without gender equality, countries are less likely to prosper. Better educated women have fewer and healthier children and are more likely to send their children to school, leading to a more educated community. Providing female farmers with equal access to resources could reduce hunger for an extra 150 million people.

This priority has a focus on three main areas:

1. enhancing women's voice in decision making, leadership and peace building
2. promoting women's economic empowerment
3. ending violence against women and girls.

FIGURE 12.17 Empowering women and girls benefits the community and leads to healthier, more educated families and improved economic growth.



Australia is working collaboratively to eliminate gender inequality, and empower women and girls by providing support to:

- the establishment of the Gender Equality Fund to strengthen work on gender equality and women's empowerment
- a campaign empowering Indonesian women to combat corruption and address gender equality and climate change in the Pacific
- the improvement of pregnancy and birth outcomes in Timor-Leste
- the Pacific Women Shaping Pacific Development, a program focused on enabling women and men across 14 Pacific nations to improve the political, social and economic opportunities for women
- the Investing in Women Initiative that supports partnerships with government and the private sector in South-East Asia to expand women's economic participation
- programs to eliminate violence against women in Afghanistan, Pakistan, Cambodia, Timor-Leste, Papua New Guinea and across the Pacific.

FIGURE 12.18 One of the priorities of Australia's aid program is gender equality and empowering women and girls. In line with this priority, there is a focus on three main areas.



12.4.4 Building resilience: humanitarian assistance, disaster risk reduction and social protection

Disaster preparedness, risk reduction and social protection all help build the resilience of countries and communities to better withstand the impact of disasters. Humanitarian assistance is provided in crisis situations, such as natural disasters and conflict, where life is at immediate risk. Causes of these situations include earthquakes, bushfires, tsunamis, conflict and chemical spills. Humanitarian crises affect development gains, increase the level of poverty and often result in instability that can last for many years. Since 2005, more than 700 000 people have been killed in disasters, and the number of people in need of humanitarian assistance has doubled. In 2018, more than 68 million people were displaced by conflict and persecution.

FIGURE 12.19 Australia works with governments of countries such as the Philippines and Indonesia to put in place disaster planning and risk-management strategies to help them better prepare for the effects of natural disasters such as cyclones.



Humanitarian assistance

Australia's goal for humanitarian assistance is to save lives, alleviate suffering and maintain human dignity during and following the humanitarian crises, particularly the protection of the most vulnerable, including women, children and people with a disability. It is difficult to predict most crises, and it is important for countries to develop resilience to disaster by putting in place effective planning and risk-management strategies. A system better able to cope with an emergency is a more resilient system and one that is more likely to encourage private-sector investment, which reduces the level of poverty.

To improve the way in which humanitarian assistance is provided, Australia has implemented 'The Australian Humanitarian Partnership (AHP)'. It is a five-year (2017–21) partnership between the Department of Foreign Affairs and Trade (DFAT) and Australian NGOs. The aim of this partnership is to deliver more effective, innovative and collaborative humanitarian assistance by allowing Australia to use the networks and access of Australian NGOs to respond to natural disasters and crises in our region and beyond.

Examples of how the Australian government provides humanitarian assistance include:

- sending staff to affected areas to provide immediate support (emergency/humanitarian aid) and providing emergency supplies such as medical kits, blankets, temporary shelter, food ration packs and drinking water.
- providing funds to NGOs, such as the Red Cross, which provide assistance during times of crises
- working in partnership with the UN World Food Programme to deliver food to help address food insecurity across countries such as Africa
- providing food, shelter, water, sanitation and medical care in response to an ongoing humanitarian crisis where people are displaced by conflict.

Disaster risk reduction

The Australian government works to reduce the risks of disaster by working with the governments of Indonesia, Papua New Guinea and the Philippines to develop tools that model the impact of floods, earthquakes, volcanoes and tsunamis and to provide information for better risk-management structures.

Social protection

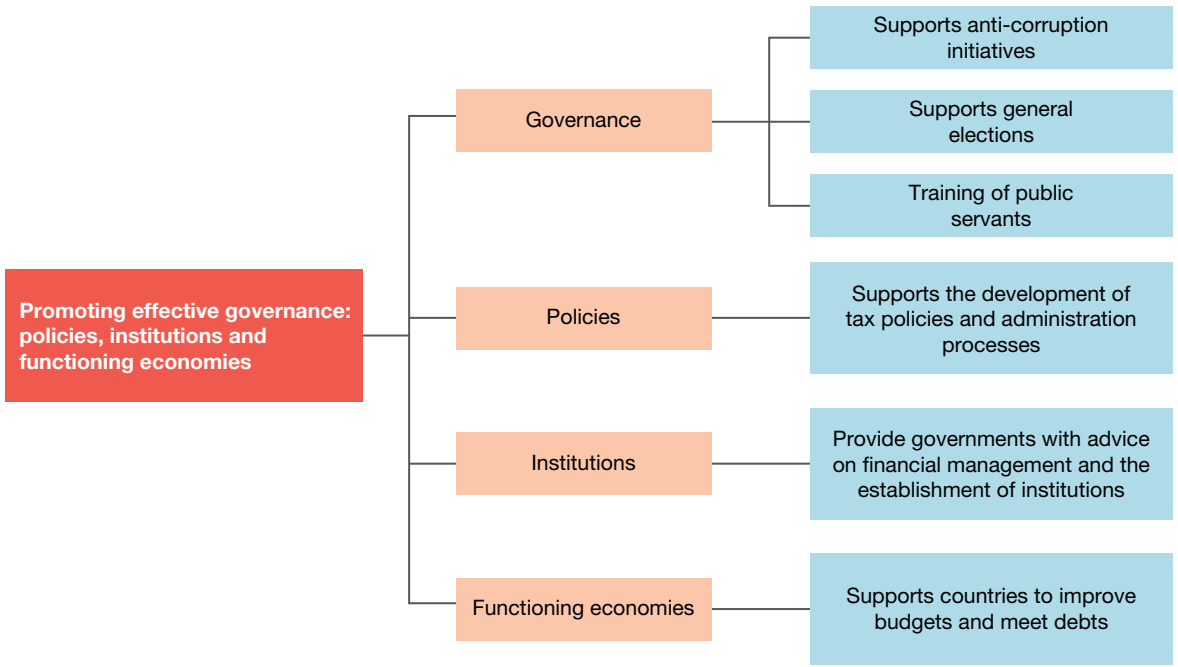
Social protection refers to programs that address risk, vulnerability, inequality and poverty through a system of transfers to people in cash or in kind. The transfers can take a variety of forms, such as financial grants, food transfers, cash-for-work and school-feeding. Social protection improves an individual's ability to cope and not resort to survival measures that can entrench poverty. Following a crisis, cash transfers, which are part of social protection programs, can provide resources to help people rebuild their life without being forced into poverty. Examples include:

- working in countries where social protection systems are still in their early stages, including Laos, Cambodia and Myanmar
- working closely with reformers in government to improve the efficiency and effectiveness of Indonesia's social protection system, which in 2018 covered nearly 96 million poor Indonesians.

12.4.5 Effective governance: policies, institutions and functioning economies

Governance affects virtually all aspects of a country's society and economy. Stable, productive governments can work to promote the health and wellbeing and human development of the population. An effective government provides the foundations for economic growth, private sector investment and trade. Well-functioning governments can work to provide stability and maintain law and order by ensuring disputes among citizens are settled peacefully and fairly. They can also deliver education and health services that build a skilled, productive and healthy workforce. Good governance, therefore, contributes to global efforts to achieve equality, create the conditions for improved human development and assists in reducing global health issues. When governance is poor, human development outcomes are also poor.

FIGURE 12.20 In line with the priority of effective governance, DFAT supports a range of initiatives.



To promote effective governance, the Australian government:

- provides advice to governments of low- and middle-income countries on financial management and the establishment of institutions such as health systems, a police force and legal systems
- supports anti-corruption initiatives in the Indo–Pacific region
- works with countries in our region to develop administration processes and tax policies
- supports general elections in Papua New Guinea through training and security coordination
- helps countries such as the Solomon Islands to improve budget processes, enabling them to meet debt obligations and increase their income
- trains public servants in Papua New Guinea in public administration skills, such as record keeping, time management and staff supervision.

FIGURE 12.21 Good governance is crucial for strong human development. Australia provides support to countries such as Timor-Leste to carry out elections that are fair and free from corruption.



12.4.6 Agriculture, fisheries and water

Agriculture and fishing provide employment and an income for millions of workers in middle- and low-income countries, particularly those living in rural areas. These industries also provide opportunities for improving economic development by exporting products to other countries. Women are often the farmers in low- and middle-income countries and are responsible for the collection of water. By improving agricultural and water management practices, gender equality is more likely to be achieved.

The global demand for food is expected to rise 60 per cent by 2050 due to increases in population and increasing wealth. This will put pressure on the current use of land, water, energy and fishery resources. Overfishing is already threatening the long-term **sustainability** of the fishery industry. The demand for water is expected to increase by 55 per cent by 2050, and 40 per cent of the world's population is predicted to be living in areas of severe water shortage by this time. Water scarcity has the potential to become a source of conflict among countries, which could threaten global peace and stability. Effective management of water supplies is therefore important.

This priority focuses on enhancing food, nutrition and water security and resilient agricultural practices by:

- strengthening markets — helping to increase small-scale farmers' and fishers' participation in global markets, encouraging investment by the private sector and developing more innovative practices
- innovating for productivity and sustainable resource use — improving productivity in all aspects of the food and agriculture process and promoting more efficient and sustainable use of natural resources, using international and Australian research and expertise
- promoting effective policy, governance and reform — assisting partner countries to achieve more effective policy settings to promote sustainable and inclusive growth and open trade, and creating the necessary environment for business, investment and innovation.

To develop agriculture, fisheries and water the Australian government:

- works with partner governments, international organisations and the private sector to support agricultural development in low-income countries, particularly in the Indo–Pacific region
- helps maintain the diversity of food crops through contributions to the Global Crop Diversity Trust
- invests in agricultural and fisheries research, particularly through the Australian Centre for International Agricultural Research, to increase productivity, reduce losses after harvesting and make supply chains more efficient
- supports small-scale farmers, fishers and entrepreneurs in countries such as Vietnam to meet their livelihood and food security needs
- assists partner countries to manage water resources better, particularly in Myanmar, India and the Mekong region.

FIGURE 12.22 DFAT's priority of agriculture, fisheries and water has a focus on sustainability of the fishing industry and agricultural and water management practices through three main areas.

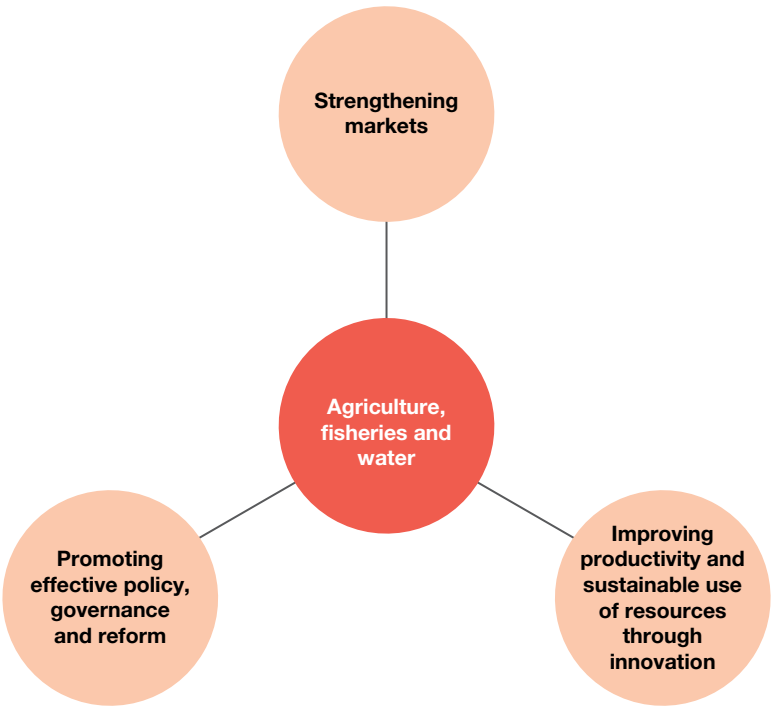


FIGURE 12.23 DFAT is working with countries such as Vietnam, Laos and Cambodia to increase small-scale farmers' participation in global markets and create business investment and trade while ensuring women are actively involved in all aspects of the work.



12.4 Activities

1. Access the **Australian aid and Samoa: bridges** weblink and worksheet in the Resources tab then complete the worksheet.
2. Access the **Australian aid and Samoa: voters with a disability** weblink and worksheet in the Resources tab then complete the worksheet.

12.4 Exercise 1 TEST your knowledge

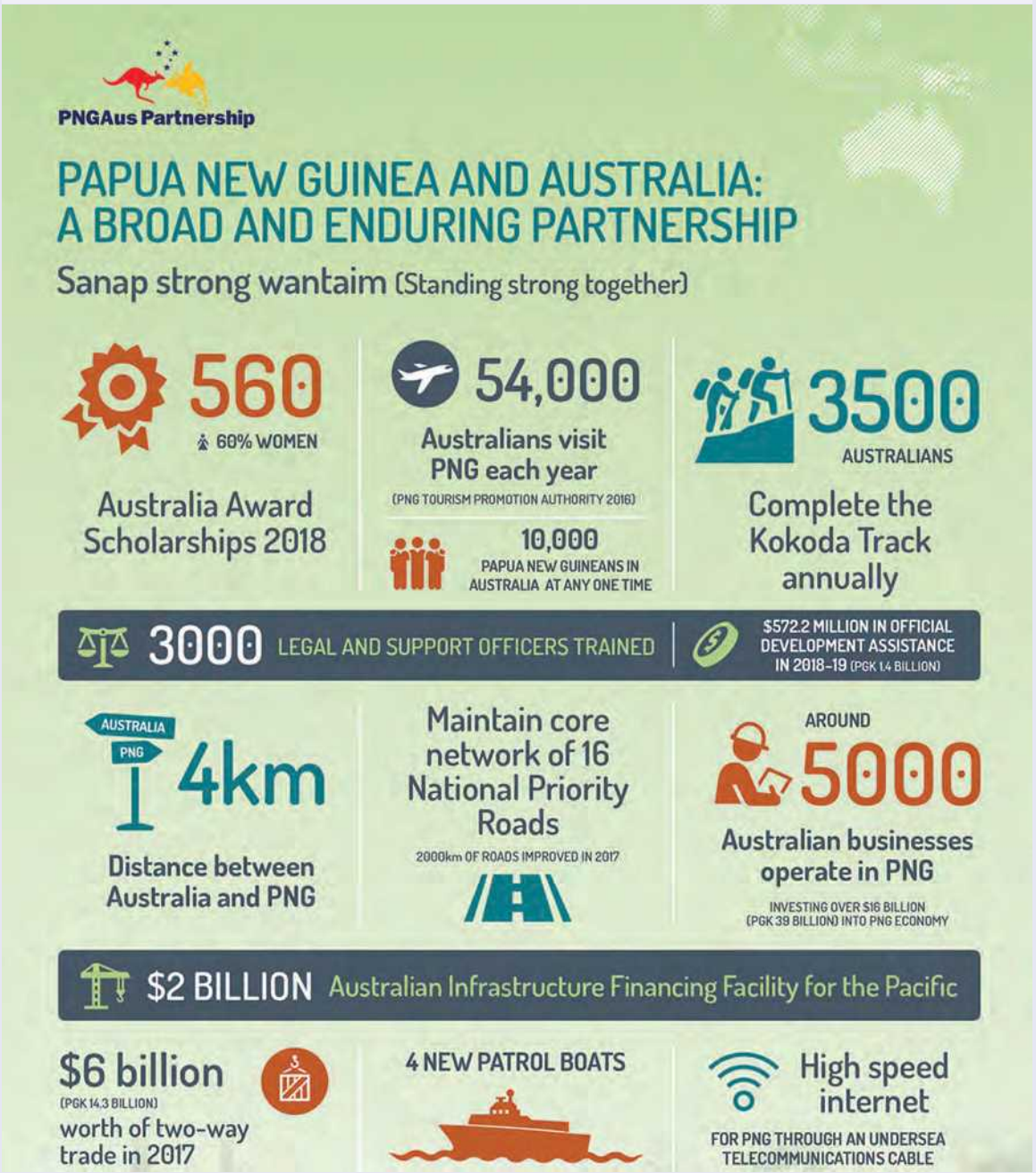
To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. Using examples, explain what infrastructure means.
2. Why is good infrastructure important for reducing poverty?
3. What are the benefits of international trade?
4. How does a focus on infrastructure and trade facilitation promote gender equality?
5. Provide reasons why the private sector is essential for bringing about economic development.
6. What are the five key areas that DFAT focuses on to improve health and wellbeing outcomes?
7. What are the focus areas for achieving gender equality and empowering women and children?
8. Why is the effective management of water supplies important?

12.4 Exercise 2 APPLY your knowledge

1. Explain why DFAT would focus on providing social protection?
2. 'Without gender equality, countries are less likely to prosper.' Discuss why this is true.
3. Identify two Australian Government aid priority areas evident in figure 12.24 and justify your choice.

FIGURE 12.24 Papua New Guinea and Australia Partnership infographic



Source: https://dfat.gov.au/geo/papua-new-guinea/development-assistance/pages/papua-new-guinea.aspxdjfhdh.

studyON

12.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Australian aid and Samoa: bridges worksheet (doc-32237)
Australian aid and Samoa: voters with a disability worksheet (doc-32238)

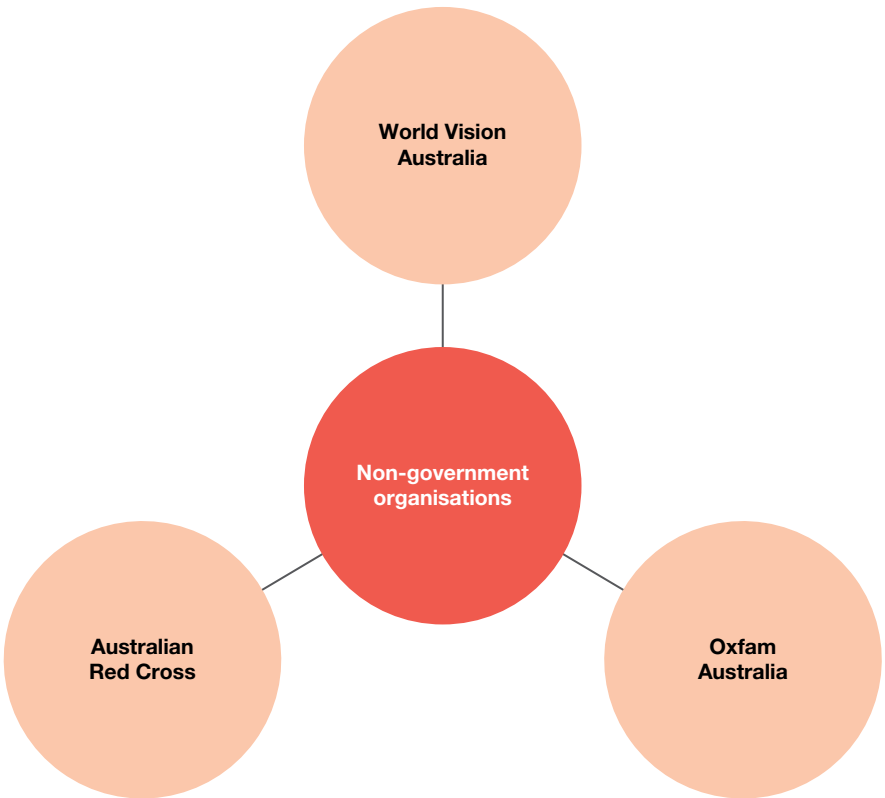
Weblinks Australian aid and Samoa: bridges
Australian aid and Samoa: voters with a disability

12.5 World Vision and its role in promoting health and wellbeing and human development globally

KEY CONCEPT The role of World Vision in promoting health and wellbeing, and human development globally

Globally, there are thousands of NGOs involved in providing aid. Some examples are shown in figure 12.25. Within Australia, there are NGOs that focus on assisting people within this country and others that provide aid to overseas countries. Some NGOs work both inside and outside Australia. Although being an NGO implies no government involvement, many of the agencies rely on funding from the Australian government through its aid program, as well as funds generated from public donations. Generally, the aid provided by NGOs focuses on smaller projects that are often more targeted and involve the community. They often work in collaboration with governments or other aid agencies.

FIGURE 12.25 Some of the NGOs that provide aid



Examples of the type of aid NGOs provide are:

- Funding for programs such as mobile health clinics, and immunization programs
- trained personnel (including volunteers and paid staff) to coordinate, implement and deliver programs
- education and training
- resources such as building materials and information technology hardware.

The next three subtopics will focus on three NGOs:

- World Vision
- Oxfam
- the Australian Red Cross. (Australian Red Cross is registered with DFAT as a non-government organisation providing aid to developing countries. However, it has a different relationship and status from other organisations: it has a specific requirement to support the public authorities in their humanitarian work.)

12.5.1 World Vision

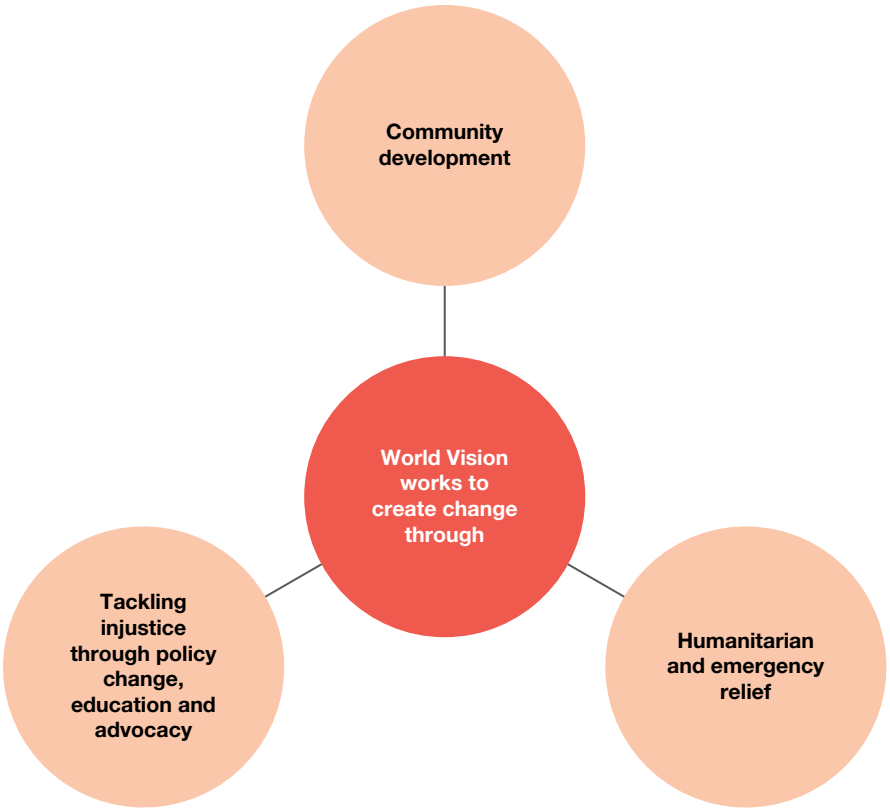
World Vision is an NGO that works with children, families and communities around the world to overcome poverty and injustice. It works in more than 67 countries, with local staff who understand and appreciate the needs of the culture. World Vision's work is funded through a variety of activities, such as child sponsorship, the 40 Hour Famine, general donations, emergency relief appeals and corporate support of projects through cash donations or the provision of materials. World Vision also receives money from the Australian government's aid program that is allocated towards community development programs and emergency relief.

World Vision is a Christian development organisation that works with all people to create change regardless of their religion, ethnicity or gender through three approaches that underpin their work (see figure 12.26):

- *community development.* World Vision works alongside poor communities to find solutions to problems such as malnutrition, lack of safe drinking water, disease, illiteracy and unemployment or low incomes. These include maternal, newborn and child health and nutrition programs, agriculture cooperatives, water and sanitation projects, and income-generating projects.

  World Vision typically uses an integrated approach to poverty reduction and community-based development called an Area Development Program or ADP. ADPs operate in geographical areas that are large enough to have some regional impact, but small enough to make a major impact on the individuals and communities in the area. Typically, ADPs cover areas with a population of 20 000 to 40 000 people. ADPs can include rural and/or urban environments. The projects that take place in ADPs vary according to the context and the expressed needs of the community. ADPs usually operate for 15 years and are designed to address the long-term, interconnected causes and impacts of poverty in a way that is sustainable and that empowers the community members.
- *humanitarian and emergency relief.* World Vision provides rapid emergency relief to people affected by conflict, flood, drought, earthquake, famine and other natural disasters. Workers in the field provide food, shelter, medicine and other immediate needs. Other activities include the provision of child-friendly spaces where children can learn and play, and helping people access services such as healthcare. This is followed by rebuilding programs and disaster preparedness projects to enable people to protect themselves better from future disasters.
- *tackling injustice through policy change, education and advocacy.* World Vision engages governments, institutions, donors, communities and the public to address the underlying causes of poverty, and supports training and projects that empower communities to speak up for their rights and influence change.

FIGURE 12.26 World Vision is an NGO that works with children, families and communities around the world to overcome poverty and injustice. They achieve this by using three approaches that underpin their work.



12.5.2 How World Vision promotes health and wellbeing and human development globally

World Vision works with communities to deliver a range of projects that directly and indirectly improve the health and wellbeing and human development of community members, in particular pregnant women, mothers and children. Children are particularly vulnerable to causes of ill health, such as malnutrition and disease, and the impact of these can affect children their whole lives. Malnutrition in the first 1000 days of a child's life, for example, can affect the development of the brain, making it difficult to learn; can cause stunted growth; and can increase the risk of disease. When malnourished children become adults, they can have ongoing health and wellbeing problems and find it difficult to work and to earn a higher income, which impacts human development. Ill health can be both a cause and a consequence of poverty. Many of the health and wellbeing issues faced by mothers and children living in poor communities are preventable. World Vision seeks to address these issues and to promote health and wellbeing and human development by working at the household, community and national levels.

World Vision's 7–11 Strategy for Maternal and Child Health provides the framework through which World Vision addresses the health and wellbeing and nutrition of women and children. The goal is to reduce

FIGURE 12.27 Children have a chance to enjoy a healthy nutritious meal after their mothers learn new cooking methods in a PD Health training session in Uganda.



under-five and maternal mortality through seven core interventions for mothers, and 11 core interventions for children. These are:

The 7 Core Interventions for the Mother	The 11 Core Interventions for the Child
1. Adequate diet 2. Iron/folate supplements and deworming 3. Infectious disease prevention 4. Malaria prevention, treatment access and preventative treatment 5. Healthy timing and spacing of pregnancy 6. Birth preparedness 7. Facilitating access to quality maternal health services, including antenatal and postnatal care, and a skilled attendant at birth	1. Appropriate breastfeeding 2. Essential newborn care 3. Adequate diet, including appropriate complementary feeding and Vitamin A supplementation 4. Adequate iron 5. Full immunisation for age 6. Hand washing with soap 7. Oral Rehydration Therapy and zinc 8. Prevention and care-seeking for malaria, and prevention and care-seeking for acute respiratory infection 9. Prevention and care-seeking for acute malnutrition 10. Prevention and care-seeking for paediatric HIV 11. Deworming

This strategy is delivered through a range of projects including:

- training and supporting community health workers, who provide education and support in the community about good nutrition, healthy behaviours and preventative healthcare measures
- training and equipping health staff, including midwives
- intensive feeding programs for malnourished children
- agricultural training on growing new and more diverse ranges of crops, and rearing livestock to improve food security and access to a wider range of nutrients.

12.5 Activity

Access the **World Vision water for everyone** weblink and worksheet in the Resources tab then complete the worksheet.

12.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What does World Vision seek to achieve?
2. World Vision is a Christian organisation that aims to eliminate poverty and its causes. It works with all people to create change, regardless of their religion, ethnicity or gender. Outline the three ways World Vision attempts to achieve its aims.
3. How does the work of World Vision promote health and wellbeing?
4. How does the work of World Vision promote human development?
5. Provide three reasons why World Vision's work particularly targets pregnant women, mothers and children.

12.5 Exercise 2 APPLY your knowledge

1. Select two of the core interventions for the mother and two core interventions for the child and discuss how they would promote health and wellbeing and human development.

2. Discuss how the following World Vision example would help overcome poverty and injustice.

> World Vision works with communities by providing small loans to create and expand businesses, and help improve access to local and international markets. We also establish community savings groups and provide education and training to foster entrepreneurship.

Source: World Vision Australia. https://www.worldvision.com.au/global-issues/work-we-do/poverty.

studyON

12.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document World Vision water for everyone worksheet (doc-32239)

Weblink World Vision water for everyone

12.6 Red Cross and its role in promoting health and wellbeing and human development globally

KEY CONCEPT The role of the Red Cross in promoting health and wellbeing, and human development globally

12.6.1 The Red Cross

The Red Cross was established at the start of World War I. The main task undertaken by Red Cross volunteers was to put together parcels of soap, toiletries, games and food to be given to sick and wounded soldiers. Many volunteers also worked in hospitals across Australia during the war. The Australian Red Cross is part of the international Red Cross and Red Crescent Movement, which operates in 189 countries.

The Australian Red Cross aims to 'improve the lives of vulnerable people in Australia and internationally by mobilising the power of humanity'. They operate under a set of principles that are outlined in table 12.4.

TABLE 12.4 The operating principles of the Australian Red Cross

Principle	Explanation
Humanity	• Provide assistance without discrimination to the wounded on the battlefield. • Prevent and alleviate human suffering wherever it may be found. • Protect life and health and wellbeing and ensure respect for people. • Promote mutual understanding, friendship, cooperation and lasting peace among all people.
Impartiality	• Make no discrimination as to nationality, race, religious beliefs, class or political opinions. • Endeavour to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

Principle	Explanation
Neutrality	• To continue to enjoy the confidence of all, the movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.
Independence	• Always maintain autonomy so they can act in accordance with the principles of the movement.
Voluntary service	• It is a voluntary relief movement not prompted in any manner by desire for gain.
Unity	• There can be only one Red Cross or Red Crescent Society in any one country. • It must be open to all. • It must carry on its humanitarian work throughout its territory.
Universality	• The International Red Cross and Red Crescent movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.

FIGURE 12.28 The Red Cross is installing safe drinking water and sanitation facilities in villages in Myanmar's dry zone. This greatly reduces the time women have to spend collecting water, increases their safety and enables them to pursue education and business opportunities.

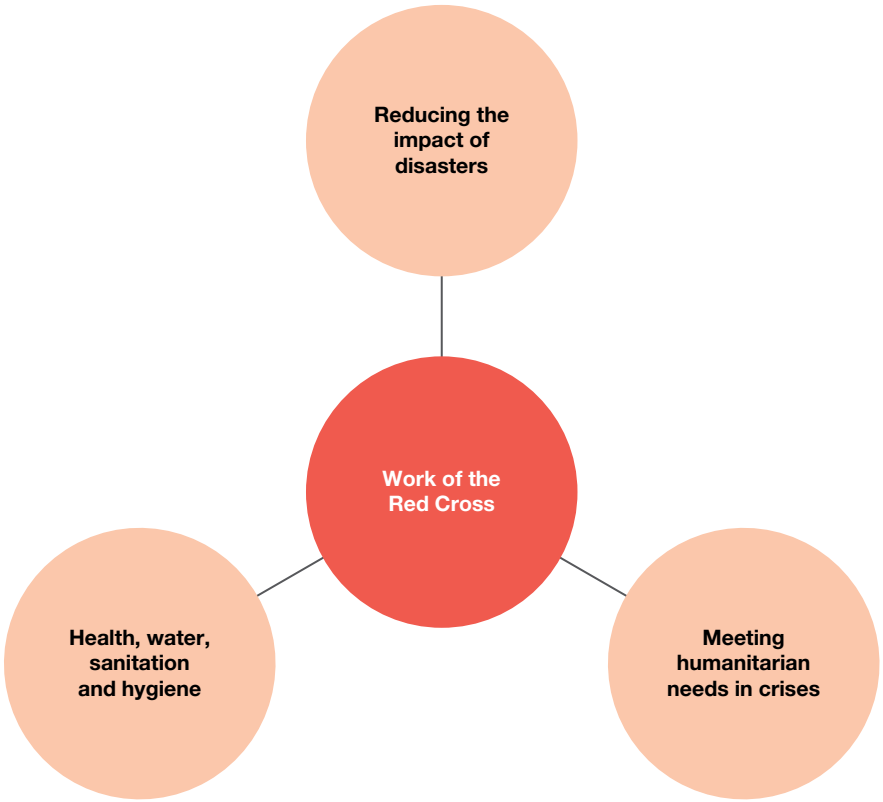


Source: Red Cross, 2016.

12.6.2 How the Red Cross promotes health and wellbeing and human development globally

The Australian Red Cross works to save lives, alleviate human suffering and protect dignity, especially in times of disasters, armed conflicts and other humanitarian crises. In this way, it is helping promote health and wellbeing and human development. Its work focuses largely on the Asia–Pacific region, which is home to two-thirds of the world's population and includes some of the most disaster-prone countries on earth. Australian Red Cross works in several areas in humanitarian and development programming, always through its partner National Red Cross and Red Crescent Societies. Examples of their work include the following (see figure 12.29).

FIGURE 12.29 The Red Cross works in three main areas to promote health and wellbeing and human development.



Reducing the impact of disasters

FIGURE 12.30 In the Philippines, the Red Cross helped people whose homes were damaged by Typhoon Haiyan to access corrugated iron roofing sheets and cash grants to rebuild. Training in wind-resistant building practices was also provided.



Red Cross helps communities identify disaster risks and take practical steps to reduce them (for example, clearing a dam or building a floodwall). It supports local humanitarian organisations to be first responders in their own communities, with trained volunteers and emergency response plans. Finally, it works towards longer-term recovery and resilience. After Cyclone Pam in Vanuatu, for example, Red Cross restored safe water facilities and provided tools and advice to help people rebuild their homes. Reducing the impact of disasters promotes health and wellbeing. Preventing or reducing the impact of a disaster can save many lives and reduces the human suffering that can result, increasing health and wellbeing. The damage to towns and villages is reduced, which protects family's livelihood and reduces the risk of poverty. People are more empowered, which promotes human development. Schools and infrastructure suffer less damage which means children can continue to attend school. Restoring safe water prevents illness and promotes physical health and wellbeing. Providing tools to people to help them rebuild their homes promotes human development, as it empowers people and provides them with the knowledge and skills to be independent.

Meeting humanitarian needs in crises

Where needed, Australian Red Cross contributes to emergency relief operations for major disasters and armed conflicts around the world. In South Sudan, Australian nurses worked in mobile surgical teams to treat people injured in armed conflict. Meanwhile in Syria, Red Cross provided hygiene kits and other emergency relief supplies to families fleeing the ongoing violence.

FIGURE 12.31 Where needed, Australian Red Cross sends specialist aid workers to respond to major disasters or armed conflicts. This includes nurses to support emergency surgical teams in South Sudan.



Meeting these humanitarian needs helps promote health and wellbeing by keeping people alive and treating people to return to good physical health and wellbeing. When people's physical health and wellbeing is improved, so too is their social, emotional and mental health and wellbeing. Being cared for and looked after when sick and injured can also contribute to spiritual health and wellbeing by developing a sense of belonging and connection. Providing hygiene kits and emergency relief supplies can keep people alive and helps promote their physical and emotional health and wellbeing.

Health, water, sanitation and hygiene

The Red Cross supports communities to identify practical solutions to common but devastating illnesses and injuries. This may range from:

- first aid training in Myanmar to prevent fatalities from snakebites
- preventing the spread of Ebola in West Africa
- to providing safe drinking water, sanitation facilities and hygiene training in remote Timorese villages to reduce child mortality from diarrhoea.

In all programs, Australian Red Cross seeks to work with the most vulnerable — often women, children and people with a disability — using its skills, knowledge and talents to help them achieve safe and dignified lives. It also acts as a broker of knowledge and resources for its humanitarian partners around the world.

This promotes physical health and wellbeing by reducing illness and injuries and prolongs life. Safe drinking water and sanitation reduces the risks of water-borne diseases and illness which also promotes physical health and wellbeing.

Human development is promoted because the Red Cross works with communities and builds their knowledge and skills to empower them to become independent. This provides the conditions necessary for human development by enabling people to have control over the decisions that have an impact on their lives.

Working with the most vulnerable people promotes health and wellbeing because these people are often neglected, and are less likely to have the necessities for good health and wellbeing. Ensuring those who are the most vulnerable are supported to develop their skills and to live with dignity creates the conditions needed to promote human development.

CASE STUDY

Philippines: Deadly measles outbreak claiming lives of children under five

Manila/Kuala Lumpur/Geneva, 7 March 2019

Children in the Philippines are at serious risk of a deadly measles outbreak that has already claimed the lives of 261 people, most of whom are youngsters under age five, the International Federation of Red Cross and Red Crescent Societies (IFRC) warned today.

The spread of measles has been on the rise in the Philippines in recent years due to a range of reasons including low vaccination rates across the country. In 2018, cases were up 547 per cent compared to 2017. Already this year there has been more deaths from measles than was recorded in 2018 when 202 people died from the disease. Worryingly the death rate from this year's outbreak is higher than in 2018 and the number of cases continues to rise.

Philippines Red Cross Chairman and CEO, Richard Gordon said: "Some 2.6 million children could be at risk, so we are drawing on the skills and dedication of our two million Red Cross volunteers to go door-to-door and neighbourhood-to-neighbourhood to reach 100 per cent of our unvaccinated children in the country within 12 months."

The Philippines Red Cross, in close cooperation with the Department of Health, is rolling out a massive social mobilization campaign across seven of the hardest hit regions to provide vaccination and raise awareness in an effort to contain the outbreak. With many local hospitals overwhelmed, the Red Cross is also operating seven measles tents (Measles Care Units) to help with the clinical management and medical care of highly contagious patients, and to prevent the infection of other patients and visitors coming to the hospitals.

IFRC has launched an emergency appeal of 2 million Swiss francs (1.99 million US dollars) to enable Philippines Red Cross to vaccinate 260,000 people, raise awareness about immunization and provide clinical support for 12 over-crowded hospitals.

Recent global declines in vaccination rates resulted in more than 110,000 measles deaths worldwide in 2017. The Philippines outbreak coincides with other measles outbreaks across Europe, the United States, New Zealand and Madagascar where declines in vaccination rates have also been observed.

Source: https://media.ifrc.org/ifrc/press-release/philippines-deadly-measles-outbreak-claiming-lives-children-five/.

Case study review

1. What strategies did the Red Cross use to address the measles outbreak?
2. What factor contributed to the outbreak of measles?
3. How would the work of the Red Cross help to address the measles breakout in the Philippines?
4. Which area of the work of the Red Cross does this example represent?

12.6 Activity

Access the **Australian Red Cross** weblinks and worksheets in the Resources tab then complete the worksheets.

12.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the aim of the Red Cross?
2. Why does the Australian Red Cross focus its work on the Asia–Pacific region?
3. By what other names is the Red Cross known in other countries?
4. Discuss why the principle of neutrality is important to enable the Red Cross to do its work.

12.6 Exercise 2 APPLY your knowledge

1. The Red Cross works in three main areas. Outline each of these areas and discuss how they promote health and wellbeing and human development.
2. Explain how the work of the Red Cross compliments aid provided through Australia's aid program.

studyON

12.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents Australian Red Cross worksheet (doc-32240)
Australian Red Cross water project in Myanmar worksheet (doc-32241)

Weblinks Australian Red Cross
Australian Red Cross water project in Myanmar

12.7 Oxfam and its role in promoting health and wellbeing and human development globally

KEY CONCEPT The role of Oxfam in promoting health and wellbeing, and human development globally

12.7.1 Oxfam

Oxfam Australia was formed from the merger of two leading Australian international development organisations: Community Aid Abroad, founded in 1953, and the Australian Freedom from Hunger campaign, founded in 1960. It is now one of Australia's largest international development organisations, operating as a **secular**, not-for-profit, non-government organisation, with programs in more than 30 countries.

Oxfam's vision is a just world without poverty, where people can influence decisions that affect their lives, enjoy their rights and assume their responsibilities — a world in which everyone is valued and treated equally. The purpose of Oxfam is to help create lasting solutions to the injustice of poverty. It is part of a global movement for change, one that empowers people to create a future that is secure, just and free from poverty.

Oxfam Australia believes that a just world is one in which people can exercise their basic rights, which include:

- the right to life and security
- the right to a sustainable livelihood
- the right to be heard
- the right to have an identity
- the right to have access to essential services.

FIGURE 12.32 Oxfam Australia logo



Oxfam Australia is involved in several activities (see figure 12.33), including:

- *long-term development projects*. Oxfam Australia works with partner organisations and communities to provide sustainable self-help development projects in 30 countries around the world. Oxfam also works within Australia, particularly to improve conditions for Indigenous Australians.
- *responding to emergencies*. Working closely with other Oxfam organisations, Oxfam Australia responds to emergency situations around the world with humanitarian assistance, such as water and sanitation.
- *campaigning for a more just world*. Oxfam Australia campaigns seek to address the underlying causes of poverty and injustice.
- *involving the Australian community*. Through events, fundraising activities and public campaigns, Oxfam Australia encourages Australians to be involved in the fight against poverty and injustice.
- *Oxfam Australia shops*. Sales of unique handicrafts from Swaziland, Peru, India and other countries support people who live with poverty and injustice.
- *ethical investment, banking and travel*. Oxfam Australia promotes economic and social justice by selling fair trade goods through its shops and supporting ethical banking and responsible travel.

FIGURE 12.33 Oxfam is involved in a range of activities designed to meet their purpose of helping to create lasting solutions to the injustice of poverty.

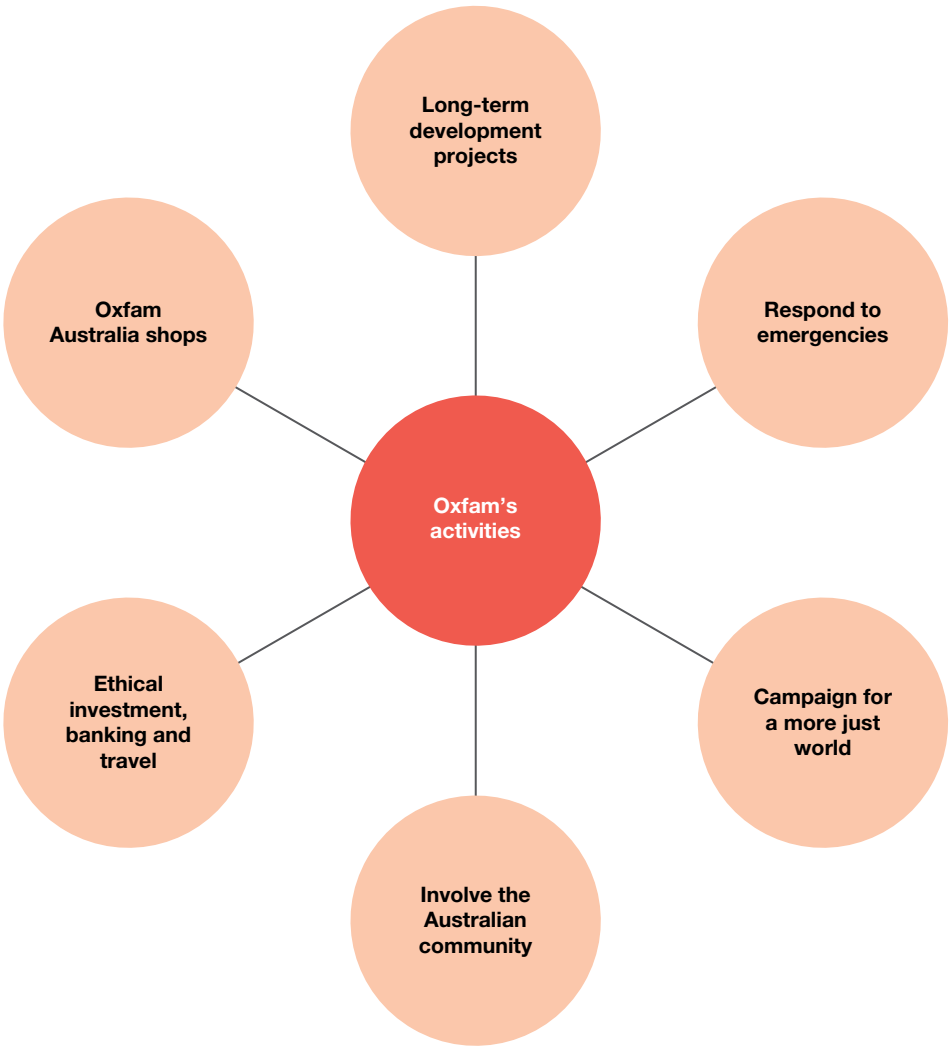


FIGURE 12.34 Nhongue village, Mozambique: Anita Omar tends to her garden and shows off the vegetables she has grown after Oxfam Australia and local partner Malhalhe installed wells in her community.



12.7.2 How Oxfam promotes health and wellbeing and human development globally

Oxfam Australia is committed to creating change in 30 countries across South and East Asia, Southern Africa and the Pacific Region.

FIGURE 12.35 Port Vila, Vanuatu: Five-year-old John gives the thumbs up as he and his parents collect a hygiene kit from Oxfam after Cyclone Pam destroyed their home in March 2015.



- During emergency situations, Oxfam Australia provides life-saving assistance to people in need. Its work includes the provision of clean water, sanitation facilities, food and health services, and nutrition advice either directly or through other national or international organisations.
- Following natural disasters or conflicts, Oxfam Australia works with people and communities to develop long-term projects to rebuild lives and reduce the risk of future disasters or conflict. For example, in Mozambique, Oxfam Australia has worked with local partner organisations to establish irrigation systems that increase the potential for the growth of crops in farming communities.
- Oxfam seeks to influence governments, institutions and businesses to develop and implement laws, policies and practices that help people rise out of poverty.

Oxfam's work is aimed at one overall outcome: to bring about positive change in the lives of people living in poverty. The organisation focuses its work on six goals (see figure 12.36):

FIGURE 12.36 Oxfam Australia has set out six goals that provide the focus for how their work will change the world.

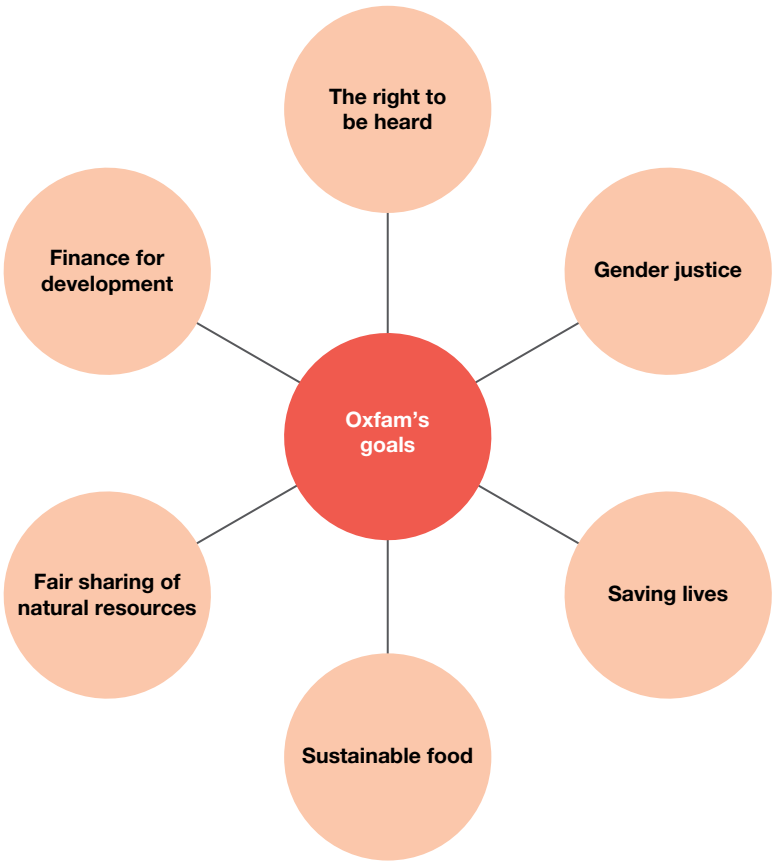


TABLE 12.5 The importance of Oxfam Australia's goals and their affect on human development and health and wellbeing

Goal	Why is this important? What does Oxfam do?	How it affects human development and/or health and wellbeing
Goal 1: Right to be heard: people claiming their right to a better life.	• When people have the power to claim their basic economic rights, they can escape poverty permanently. This core belief underpins Oxfam's development programs. With their partners and with local communities Oxfam helps people claim rights for themselves.	• This contributes to improved human development as people are provided with the skills, knowledge and opportunity to participate in decisions that affect the life of their community. • This also promotes spiritual health and wellbeing as people feel a part of and connected to their community. • It promotes health and wellbeing by removing poverty. People will have money to pay for food, water, clothing, shelter and healthcare which will promote physical health and wellbeing. • Escaping poverty will also improve emotional and mental health and wellbeing by removing the stress that is associated with not being able to access necessary resources due to poverty.

Goal	Why is this important? What does Oxfam do?	How it affects human development and/or health and wellbeing
Goal 2: Advancing gender justice.	• Human development is driven by empowered women. However, women and girls are still massively under-represented and often oppressed. Oxfam works to assist women and girls to speak out and demand justice and to assert their leadership. The right to gender justice underpins all of Oxfam's work.	• This promotes health and wellbeing as women are often the victims of violence and often have limited resources so are more likely to miss out on food as they will feed family members before themselves. • Gender equality leads to improved social mental and emotional health and wellbeing as women and girls have an opportunity to be happy and enjoy life. • Human development is promoted as women can enjoy a decent standard of living and can participate in the lives of their community.
Goal 3: Saving lives now and in the future.	• In times of disaster Oxfam assists people caught up in natural disasters and conflict. Oxfam typically provides clean water, food and sanitation in disaster zones. Oxfam strives to ensure that civilians are protected as well. They also seek to reduce the risk to poor people of future disasters by continuing to work with them long after the immediate crisis is over to develop long-term solutions and poverty reduction	• This promotes health and wellbeing by making sure people have the necessary basics to survive in times of crisis. • Working to reduce the risks associated with future disasters helps promote human development by helping people achieve a decent standard of living and live a long and healthy life.
Goal 4: Sustainable food.	• To stop people going hungry Oxfam works to secure food supplies so that people always have enough to eat. Almost one billion people go to bed hungry every night — not because there isn't enough but because of the deep injustice in the way the food system works.	• Food is essential for good health and wellbeing. By ensuring people have enough to eat malnutrition is reduced which promotes physical health and wellbeing. • When people are physically healthy their emotional and social health and wellbeing is improved. • Human development is also promoted when people are healthy as they can go to work and children can attend school. This improves knowledge and helps create opportunities for people to participate in the life of their community and be empowered to have control over the decisions that affect their lives.
Goal 5: Fair sharing of natural resources.	• Natural resources are vital for prosperity and poor people are often not getting their fair share. This situation is worsened by the impacts of climate change. • Oxfam lobbies governments, international organisations and corporations for fairer land policies and action on climate change	• Climate change has the capacity to reduce health and wellbeing and therefore human development. Access to food can be affected by changes in climate. Global warming and rising sea levels can result in people having to relocate as their homes and farms become flooded. Rates of infectious diseases can also increase. When people are ill they are unable to work and attend school. • Therefore, lobbying for action on climate change has the potential to promote health and wellbeing and human development globally.

(continued)

TABLE 12.5 The importance of Oxfam Australia's goals and their affect on human development and health and wellbeing *(continued)*

Goal	Why is this important? What does Oxfam do?	How it affects human development and/or health and wellbeing
Goal 6: Financing for development and universal essential services.	• Being able to access basic services such as health and education is essential to people's health and wellbeing and to human development. Oxfam works to ensure that governments provide finances necessary to sustain basic services for poor people.	• Access to healthcare is essential for promoting health and wellbeing. Women and children's health and wellbeing is dependent upon health checks being undertaken before, during and after birth. Access to basic medicines ensures people can recover quickly from ill health. • Access to vaccinations promotes health and wellbeing and ensures that children are healthy enough to attend school enabling women to work and earn an income to escape from poverty. • Human development is promoted as increased education and knowledge contributes to greater empowerment and the ability to contribute to social and political life within the community and people can enjoy a decent standard of living

12.7 Activity

Access the **Oxfam** weblinks and worksheets in the Resources tab then complete the worksheets.

12.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is the purpose of Oxfam Australia?
2. What does Oxfam describe as a just world?
3. Outline four examples of the types of activities in which Oxfam Australia is involved.

12.7 Exercise 2 APPLY your knowledge

1. Draw a table like the one below to include:
   - the name of each of the six goals of Oxfam
   - the meaning of each one
   - how each one promotes health and wellbeing
   - how each one promotes human development.

Name of Oxfam goal	Meaning	How it promotes health and wellbeing	How it promotes human development

2. Read the following example of the work of Oxfam.

PROTECTING WOMEN AND GIRLS' SEXUAL AND REPRODUCTIVE HEALTH RIGHTS

Oxfam Australia is working with communities in Zimbabwe through awareness raising, attitude and behaviour change to protect and promote women and girls' sexual and reproductive health rights. The project also works with women to establish and maintain small businesses which help increase their incomes and contribute to more sustainable livelihoods.

Source: https://www.oxfam.org.au/country/zimbabwe/.

(a) Identify the Oxfam goal/s reflected in this example.
(b) Explain how this program promotes health and wellbeing and human development.

studyON

12.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital documents
- The work of Oxfam worksheet (doc-32244)
- TREE/Oxfam partnership for WASH worksheet (doc-32242)
- Oxfam supporting women's economic development in Vietnam worksheet (doc-32243)

Weblinks
- The work of Oxfam
- TREE/Oxfam partnership for WASH
- Oxfam supporting women's economic development in Vietnam

12.8 Topic 12 review

12.8.1 Key skills

KEY SKILL Describe and justify different types of aid

To be able to apply this skill, you will need to be able to describe the three types of aid, which include emergency or humanitarian aid, bilateral aid and multilateral aid. Different aid is required depending upon the nature of the circumstances occurring in different countries. It is important to recognise the right type of aid that will bring about improvements in health and wellbeing and human development. To do this you will need to understand the purpose of each type of aid and then explain why the type of aid is the most appropriate given the information you have available.

This can be shown in the following information which outlines Australia's response to the hurricane that affected Haiti in 2016.

HUMANITARIAN ASSISTANCE TO HAITI

Following the devastating impact of Hurricane Matthew, Australia will provide urgent humanitarian assistance to Haiti. The Department of Foreign Affairs and Trade (DFAT) will contribute $2.5 million to the international effort to assist Haitians in the aftermath of Hurricane Matthew when at least 546 Haitians were killed, thousands of homes destroyed and there was a surge in cholera cases, leaving more than 1.4 million Haitians in need of humanitarian assistance.

The Australian government will provide $1.5 million to UNICEF to improve access to clean water and sanitation to help combat the cholera epidemic and threat of other water-borne diseases. This follows an international

appeal by the United Nations to intensify efforts to reduce the transmission of cholera and provide support to Haitians most affected by the disease. We will also contribute $1 million to the International Organization for Migration to provide shelter to people whose homes have been damaged or destroyed.

In addition to this support, Australia's High Commission in Port of Spain is distributing hygiene kits and clean water to 800 affected families through the local arm of Plan International. We are also working with RedR Australia to provide additional Australian humanitarian experts on the ground in Haiti to support the international effort.

Australia's assistance will support the international response to Haiti, led by the UN and leading regional donors, to address the most urgent needs of affected Haitians.

Source: Minister for Foreign Affairs, Hon. Julie Bishop MP, press release 19 October, 2016.

Using the information above, describe and justify the types of aid being provided by the Australian government.

The response from DFAT is an example of humanitarian or emergency aid.[1] This type of response is in line with the DFAT priority 'Building resilience: humanitarian assistance, disaster risk reduction and social protection.'[2] This type of aid is provided in times of emergencies when it is important to provide the basic needs to keep people alive.[3]

1 The type of aid represented is clearly stated.

2 Identifies that this type of aid meets the aims of the government's aid budget

3 This describes humanitarian or emergency aid.

As a result of the hurricane in Haiti, people do not have access to clean water or sanitation, which has caused a cholera epidemic. Many people have had their homes destroyed and have no shelter. These situations are putting people's health and wellbeing and life at risk and need to be addressed immediately and therefore humanitarian assistance is the type of aid that is most appropriate.[4]

4 The use of humanitarian aid in this situation is justified as being appropriate with reasons given.

To improve the effectiveness of the aid provided by the Australian government, DFAT has also partnered with[5] and provided funds to multilateral organisations including UNICEF as part of the United Nations and the International Organization for Migration. The United Nations is coordinating the international effort. Providing funds to UNICEF means resources can be pooled, which will extend the ability of the Australian government to adequately address the issue and avoid wasting valuable resources. Providing funds to the International Organization for Migration enables DFAT to use the expertise of this organisation to more adequately address the need for shelter.[6]

5 The decision to partner with other agencies is recognised and justified as contributing to the effectiveness of Australia's response.

6 Funds being provided to multilateral agencies are identified and the reasons for doing so are justified.

Partnerships have also been established with a local arm of the NGO Plan International to distribute hygiene kits and clean water. NGOs complement the aid program and have expertise in working in emergency situations where fast and flexible responses are needed. They have local knowledge of the area and the people which can be used to reach as many people as possible and provide emergency aid.[7]

7 Partnerships with an NGO are identified and the benefits of doing so are clearly outlined.

Practise the key skill

1. Describe the three types of aid.
2. Read the case study below and answer the following questions:
   a. Identify the type of aid evident in the case study.
   b. Name the Australian Government's aid priority represented in the case study Justify the aid provided in the case study by considering how it promotes health and wellbeing and human development.

UNDERSEA TELECOMMUNICATIONS CABLE PROJECT

Australia is committed to supporting PNG and Solomon Islands to build their economies through sustainable development and resilient technologies, enabling e-commerce and the digital delivery of services. In an ambitious joint project, planning is underway to build high- speed telecommunications cables from Australia to PNG and to, and within, Solomon Islands, allowing faster and more reliable Internet connections in both countries.

PNG's existing undersea telecommunications cable to Sydney is nearing the end of its useful life. Solomon Islands has no undersea telecommunications cable link, leaving it dependent on expensive and unreliable satellite communications. The Undersea Telecommunications Cables Project is one element of Australia's International Cyber Engagement Strategy that sets out Australia's approach to help bridge digital divides across the Indo-Pacific. The project will support the development of entrepreneurship, digital skills and the further integration of these Pacific countries into the global marketplace.

Source: Department of Foreign Affairs and Trade. Australian Aid Budget Summary 2018–19, p. 17.

KEY SKILL Explain and evaluate the role of NGOs in promoting health and wellbeing, and human development globally

To address this skill, you will need to be able to identify the range of non-government organisations (NGOs) that provide aid, explain what they do and how well they do in relation to promoting health and wellbeing and human development globally.

There are many NGOs, such as World Vision, the Red Cross and Oxfam, that work in a range of countries to promote health and wellbeing and human development. These NGOs tend to focus on smaller community-based projects, and often work in collaboration with governments and other aid agencies.

The following are the types of questions you should consider when explaining the role these NGOs play in promoting health and wellbeing and human development:

- Does the organisation have focus areas or priorities?
- How does it provide support for individuals and communities, and how does this work help promote health and wellbeing?
- What is meant by human development and how is this promoted through the work they do?

This skill is often tested by way of a case study. You could use the following steps to help you explain and evaluate the role of an NGO.

Consider:

- What is the role of the NGO in the case study provided?
- What is the aim of the program?
- How is the program delivered?
- How effective is the program? What works/doesn't work?
- How will the program promote health and wellbeing?
- How will the program promote human development?

The following case study is an example of an aid program implemented by World Vision. This example is used to explain and evaluate the role of this NGO in promoting health and wellbeing and human development.

CHILDREN TRAIN THE COMMUNITY TO WASH ITS HANDS OF DISEASE

In countries such as Senegal in Africa, World Vision supported the introduction of a peer education program to help reduce diseases such as diarrhoea and dysentery.

Mbadakhoune is situated in the department of Mbirkelane in Senegal, where agriculture is the community's main source of income. Small business thrives in the area and there is a market every two weeks. This environment creates a free-for-all for disease, as people come from all over in order to buy and sell goods — frequently meeting and greeting each other with unwashed hands.

The program involved children and young people signing up for a peer education program designed to build their knowledge of the importance of hygiene and hand washing, how to teach other community members and how to install Tippy Taps. A Tippy Tap is a foot-operated facility for washing hands consisting of an empty 5-litre container, three stakes and a cord.

The peer educators set the Tippy Taps up at key points around the village with the easy-to-follow instructions that they learned in their training. Working with the coordinator of the local committee for child protection (LCCP) in Mbadakhoune, the peer educators spent their summer holidays getting the message out to local villages. The program made such an impression that villagers were immediately asking for hand-washing facilities to be set up in homes and outside mosques.

According to Ousman, a community elder who has a Tippy Tap set-up in his home, 'In the past we used to leave the toilets without washing our hands, but since the LCPC coordinator and children have passed through the village to tell us about bodily hygiene and to set up some Tippy Taps, we have started to adopt better handwashing habits.'

Source: World Vision website, 13 December 2016.

FIGURE 12.37 To make a Tippy Tap, you need an empty 5-litre plastic container, a metre of cord, a dozen small bars of soap or a large bar that you can divide up, some 5-litre containers, wire, stakes (two forked, one straight) and a 1-metre stick.



World Vision works with children, families and communities around the world to overcome poverty and injustice. They work to deliver a range of projects that aim to improve the health and wellbeing of community members, in particular, the health and wellbeing of pregnant women, mothers and children. Their goal is to reduce under-five and maternal mortality through seven core interventions for mothers and eleven core interventions for children.[8]

8 The role of World Vision is clearly stated including the focus of their work and the strategies they use.

This project introduced in Senegal aims to reduce diseases such as diarrhoea and dysentery that are caused when people come together at the local market and meet and greet each other with unwashed hands.[9]

9 The aim of the project is outlined along with the nature of the problem.

World Vision funded and supported the development of a peer education project where children and young people signed up to build their knowledge of the importance of hygiene and hand washing and how to teach other community members. They also installed Tippy Taps at various locations in the village with easy-to-follow instructions on how to use them. This project is a small, regional based project for which non-government organisations have particular expertise. They usually focus on small projects that are quite targeted and involve the community. Non-government organisations are also able to work in rural areas where other aid generally does not reach.[10]

10 The project supported by World Vision is outlined and is evaluated in terms of the importance of aid provided by non-government organisations.

The project was effective in changing behaviour as villagers were immediately asking for hand-washing facilities to be set up in homes and outside mosques. The community elder indicated that people had started to adopt better handwashing habits as a result of the project.[11] With improved hygiene the health and wellbeing of

11 The project is evaluated in terms of its success in bringing about behaviour change.

the community will be promoted. Less disease will be spread among the villagers so their physical health and wellbeing will be improved. With improved physical health and wellbeing, emotional health and wellbeing will be improved and people will feel happier. Fewer people would contract diarrhoea and dysentery which would reduce under-five and maternal mortality.[12]

With better health and wellbeing, the conditions that promote human development are more likely to be achieved. When children are healthy, they are better able to develop their knowledge and skills by attending school. This will build their capacity to earn an income and gain employment, which provides the resources to achieve a decent standard of living, such as food, clothing, shelter and medical care. This will help people lead a longer, healthier and happier life. When people are healthy, educated and have a decent standard of living, they are more empowered to participate in the decision-making processes of their community.[13] In this way health and wellbeing and human development are promoted through this World Vision project.

12 The corresponding impact that this behaviour change could have in relation to promoting health and wellbeing is clearly outlined.

13 The ability of the project to promote human development is outlined clearly.

Practise the key skill

REDUCING THE THREAT OF DRUG RESISTANT TUBERCULOSIS ON AUSTRALIA'S BORDER

The Department of Foreign Affairs and Trade recognises the importance of preventing and responding to the introduction and spread of infectious diseases. Health crises threaten economic and human development. International travel, urbanisation and weak health systems in some countries contribute to the rapid spread of pathogens around the globe. Antimicrobial resistance is a major global health threat. If not tackled decisively, it could cause an additional 10 million deaths a year by 2050. The Australian Government is working with Australian NGOs in PNG to help reduce the global threat caused by drug-resistant TB. With funding from the ANCP, the Burnet Institute is helping to tackle drug-resistant TB on Daru Island in PNG.

Recognising the link between unfinished TB treatment and the development of drug-resistant strains of TB, a team of five peer counsellors, called TB-PALS (people affected by, living with, or having survived TB) are supporting TB patients to complete their treatment. TB-PALS provides education and counselling to support patients and their families through their lengthy treatment. This patient-oriented approach, funded by the Australian Government, is keeping patients in care and enabling a cure from TB.

Source: Department of Foreign Affairs and Trade. Australian Aid Budget Summary 2018–19, p. 111.

Read the information above and answer the following questions

3. The government provides grants to over 57 registered non-government organisations (NGOs) in Australia. What are NGOs? Give an example of two NGOs.
4. DFAT partnered with NGOs to address drug-resistant TB. Explain how aid provided by NGOs is effective in complementing Australia's aid program.
5. Discuss how the example in the information provided promotes health and wellbeing and human development.

12.8.2 Topic summary

Types of aid

- Australia, like most other high-income countries, provides aid or assistance to low-and middle-income countries in the event of a crisis or for the development of long-term sustainable improvements.
- There are three types of aid — emergency or humanitarian aid, bilateral aid and multilateral aid.
- Emergency aid is provided to people in immediate distress to relieve suffering during and after emergencies, such as conflict and natural disasters, and includes food, water, medicines and shelter.
- Bilateral aid is provided by the government of one country to the government of another. Its purpose is to help reduce poverty and bring about long-term sustainable development. Bilateral programs can range from small, community-based programs to large infrastructure projects.
- Bilateral aid sometimes attracts criticism as the goods and services may be provided by companies from the donor country and could favour the economic and political needs of the donor country rather than the needs of the recipient country.
- Multilateral aid is aid that is provided through an international organisation such as the World Bank, United Nations or World Health Organization. This aid is often used to address global issues that require a global response.
- Non-government organisations (NGOs) are non-profit organisations that work to promote health and wellbeing and human development while operating separately from the government.
- Aid provided by NGOs is usually focused on smaller projects that are more targeted and often work in collaboration with government and local aid agencies to improve health and wellbeing and human development.

The features of Australia's aid program

- The Australian government's aid program is administered by the Department of Foreign Affairs and Trade (DFAT).
- The purpose of our aid program is to promote Australia's national interests by contributing to sustainable economic growth and poverty reduction. This is done by focusing on private sector development and enabling human development.
- The government works in partnership with other government departments and agencies, NGOs, businesses and community groups in Australia and overseas to deliver our aid program.
- Most of Australia's aid is provided as bilateral aid, although we also provide funds to international organisations through multilateral aid, provide humanitarian assistance and provide funds to support the work of registered NGOs.
- Approximately one-third of the aid budget is allocated to multilateral aid, which helps extend the reach of our aid program as their large size enables them to undertake projects on a scale that would not be possible by Australia alone.

The Australian government's aid priorities

- Australia's aid program is guided by six priority areas that contribute to breaking the cycle of poverty and improving health and wellbeing and human development. The six priority areas are:
  - education and health
  - infrastructure, trade and international competitiveness
  - agriculture, fisheries and water
  - building resilience: humanitarian assistance, disaster risk reduction and social protection
  - effective governance: policies, institutions and functioning economies
  - gender equality and empowering women and girls.
- NGOs also provide aid and play an important role in promoting the health and wellbeing and human development of people in middle- and low-income countries.
- Many NGOs rely on funding from the Australian government through its aid program as well as funds generated from public donations.

World Vision and its role in promoting health and wellbeing and human development globally

- Three examples of NGOs are World Vision, the Red Cross and Oxfam.
- World Vision engages governments, institutions, donors, communities and the public to address the underlying causes of poverty, and supports training and projects that empower communities to speak up for their rights and influence change.

Red Cross and its role in promoting health and wellbeing and human development globally

- Australian Red Cross is present in many countries across the world, with the main focus being the Asia–Pacific region.
- Australian Red Cross overseas aid projects include disaster management, water and sanitation provision, and basic health initiatives.

Oxfam and its role in promoting health and wellbeing and human development globally

- Oxfam focuses its work around six key goals which help promote health and wellbeing and human development.

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12.8 Exercise 1 Exam preparation

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Question 1

Read the following information, which outlines Australia's response to the earthquake and tsunami that affected Indonesia in 2018.

SULAWESI EARTHQUAKE AND TSUNAMI ASSISTANCE

Australia will provide an additional $5 million package of humanitarian assistance to support the Government of Indonesia and humanitarian partners to respond to the devastating earthquake and tsunami in Central Sulawesi. This follows the Prime Minister's announcement of an initial $500,000 to the Indonesian Red Cross for food and essential relief items such as blankets and tarpaulins.

The additional funding to the UN and local humanitarian partners will provide temporary shelter, access to safe drinking water and health care for injured and displaced people.

Australia is planning to deploy a medical team and is currently working with the Government of Indonesia to determine where this will be best deployed to support relief efforts. Australia is also in a position to provide humanitarian emergency relief supplies including shelter, water and hygiene kits. The remoteness of the area and loss of communications infrastructure continues to make it difficult for Indonesian authorities to assess the full scale of the disaster at this stage.

The Australian Government stands with the Indonesian Government in offering support to the people of Indonesia affected by this tragedy.

Source: edited extract from joint Media release: The Hon Scott Morrison MP, Prime Minister, Senator the Hon. Marise Payne, Minister for Foreign Affairs, The Hon Christopher Pyne MP, Minister for Defence. https://foreignminister.gov.au/releases/Pages/2018/mp_mr_181003.aspx?w=E6pq%2FUhzOs%2BE7V9FFYi1xQ%3D%3D.

a. Describe the different types of aid provided by DFAT reflected in the press release. **(4 marks)**
b. Use one of the types of aid selected in 1a and justify why it would have been used. **(2 marks)**
c. Identify the DFAT priority represented in the information. **(1 mark)**

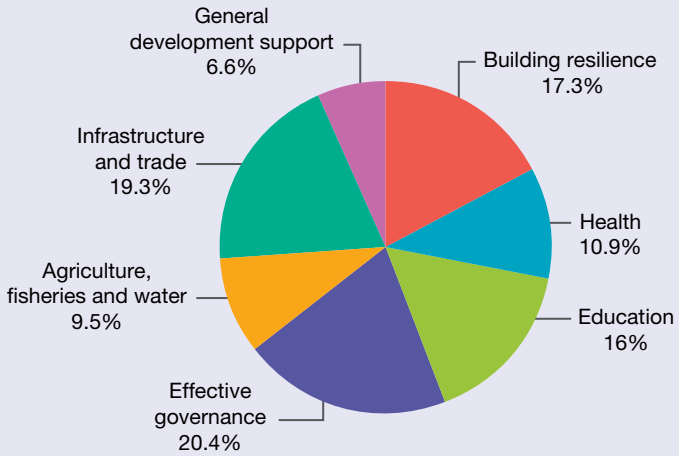
Question 2

The following graph shows the percentage of overseas development assistance (aid) provided by the Australian government to its aid priorities in 2018–19.

a. Select one of the priorities represented in the graph. Describe the priority area chosen and give an example of the work DFAT has done towards achieving this priority. **(3 marks)**

b. Identify the DFAT priority that is not reflected in the graph. Explain how this priority selected promotes health and wellbeing and human development. **(5 marks)**

FIGURE 12.38 Australian overseas development assistance by investment priority



Source: Commonwealth of Australia, DFAT, *Australian Aid Budget Summary 2018–19*, Canberra.

Question 3

Read the following information about a project implemented by Oxfam to address gender equality in Ghana.

EMPOWERING WOMEN FARMERS TO END HUNGER AND POVERTY

Mary lives in Goziir, Northern Ghana with her husband and six family members. Mary has benefitted from Oxfam's projects to help small-scale farmers increase their crop yields, build energy efficient stoves and have access to small loans.

Last year she doubled her maize harvest. Now she wants to share what she learnt at the farmer field school with other women in her community. They already pool their money in a savings group. By working together, they are fighting food shortages during the long hunger season in northern Ghana.

Source: Oxfam, 'What we do,' Oxfam website, accessed 10 March, 2019.

a. Outline two ways in which NGOs such as Oxfam carry out their work. **(2 marks)**

b. Explain the advantages of the aid provided by non-government organisations such as Oxfam. **(2 marks)**

c. How might the program being implemented in Northern Ghana promote health and wellbeing and human development? **(4 marks)**

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Interactivities Crossword (int-6901)
Definitions (int-6902)

13 Programs addressing the Sustainable Development Goals

13.1 Overview

Key knowledge

- Features of effective aid programs that address the Sustainable Development Goals (SDGs), and examples of effective implementation, with details of one such program including:
  - its purpose and the SDG/s addressed
  - details of implementation and the partnerships involved
  - contribution to promoting health and wellbeing, and human development.
- Ways in which individuals can engage with communities and/or national and international organisations to take social action that promotes health and wellbeing

Key skills

- Analyse and evaluate the effectiveness of aid programs in promoting health and wellbeing, and human development
- Describe and justify ways of taking social action to promote health and wellbeing

VCE Health and Human Development Study Design © VCAA; reproduced by permission.

FIGURE 13.1 Aid programs addressing SDG 13: Climate action can help communities facing increased risk of flooding.



KEY TERMS

Adolescent/ce a stage of the lifespan that commences at puberty and ends when a person turns 20 years of age. It is a biological marker that signals the transition to adulthood and is included as part of youth.
Boycott refusing to buy or use the goods or services of a certain company or country as a protest
Civil society individuals and organisations in a society that are independent of the government
Collateral a security that is provided to guarantee the repayment of a loan
Cooperatives people who come together to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled business
Crowdfunding campaign funding a project or venture by raising many small amounts of money from large numbers of people, usually via the internet
Microfinance small, low-cost financial services for poor people that involve low-interest loans to develop small businesses
Obstetric fistula a condition that is caused by complications associated with obstructed labour. The tissues between the woman's vagina and pubic bone are damaged by continuous pressure from the infant's neck trapped in the birth canal. The damaged tissue later falls off resulting in a hole through which the woman continuously leaks urine or faeces or both.
Outreach bringing services or information to people where they live or spend time
Stakeholders people, groups and organisations who are involved in, or affected by, a course of action
Subsistence self-sufficient farming carried out by individuals to provide food for themselves and their family
Suffragette movement the struggle to win women's right to vote and to take on leadership roles within the government. Often referred to as the women's rights movement.

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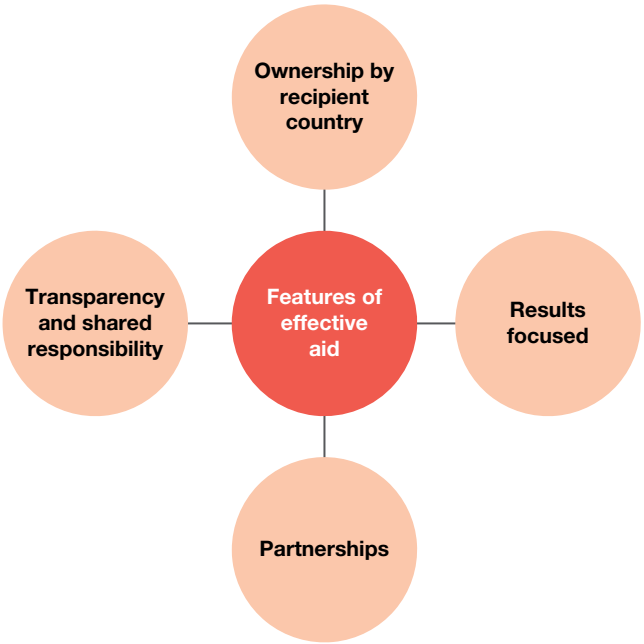
13.2 Features of effective aid programs

KEY CONCEPT Understanding the key features of effective aid programs

As you have seen in the previous topics, there are many similarities and differences in the health status of low- middle- and high-income countries, but there is a need to improve health and wellbeing in *all* countries. The SDGs provide the framework for global action to address inequalities, reduce poverty and achieve sustainable development. Through aid or development assistance, a range of programs have been implemented, particularly in low- and middle-income countries. The provision of development assistance or international aid has now become quite complex and involves multilateral organisations, financial institutions, non-government organisations, the private sector and **civil society**. Without good coordination and partnerships in place, there is a risk that some countries may not receive any aid, others may receive aid that is not as effective as it could be or it duplicates programs that have already been implemented by other organisations.

In recognition of this, an international forum with representatives from 160 countries and 50 other organisations came together in 2011 and developed a set of shared, interconnected principles that are recognised as being the essential features of effective aid programs (see figure 13.2). At this forum there was agreement to collaborate to ensure that effective aid programs were being implemented.

FIGURE 13.2 Features of an effective aid program



on Resources

Teacher-led video Features of effective aid (tlvd-0269)

Four key features were identified as being necessary for aid programs to be effective:

- ownership of the programs being implemented
- focused on results that address the underlying causes of poverty, inequality and improved health and wellbeing
- partnerships and collaboration for development
- transparency and accountability.

The effectiveness of aid is tied closely to why it is given and how it interacts with other policies, which may reduce or even reverse its positive impact. The outcomes of effective aid are to reduce poverty and inequality in low- and middle-income countries, to promote human rights, and to move towards a more equal and stable global system. How aid is delivered to low- and middle-income countries is just as important as why it is given.

13.2.1 Features of effective aid

Ownership

For aid to be effective and sustainable, countries receiving the aid (known as recipient countries) must have ownership of the program which means they must be involved in deciding the type of aid that will best meet their needs. This ensures that the program fits with the longer-term needs and plans of the recipient country. It is not effective for aid organisations or governments of donor countries (those giving the aid) to come in and make decisions about what they think a country needs and how a program should be implemented. For instance, if a community has high child mortality rates from malaria, and wants to implement a program aimed at improving access to insecticide-treated bed nets and anti-malarial medication, this should be supported by the donor country and any other aid organisation already working in the country.

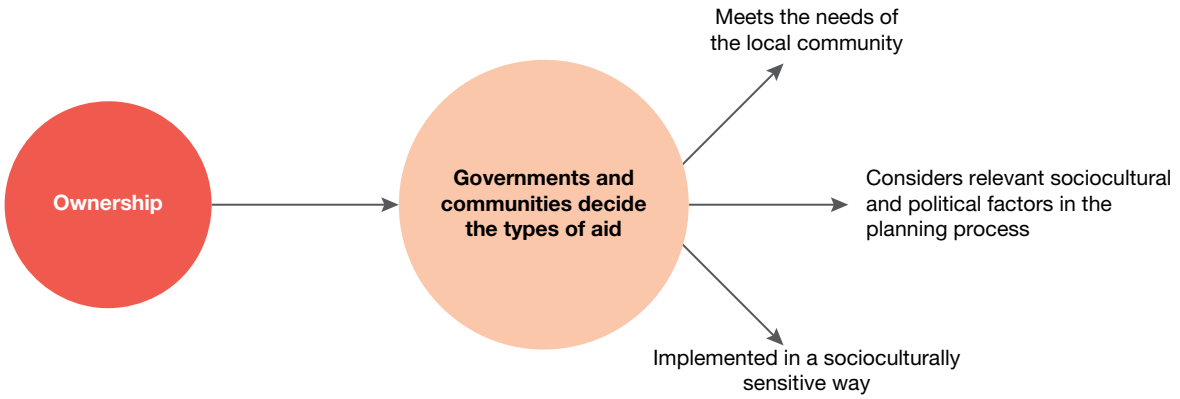
Programs need to consider the sociocultural and political aspects of the community and be implemented in a socioculturally sensitive way. For example, before implementing an education program it might be important to consider that males are more likely to attend school than females. Any program would

also need to focus on encouraging families to send their daughters to school. The provision of separate male and female classes and separate toilet facilities could be possible solutions. Delivering messages in local languages and using visual aids for those who are illiterate demonstrates an understanding of the community (figure 13.3). It may also be appropriate to focus on developing the skills and knowledge of women, as they are responsible for the majority of domestic and agricultural work. This will ensure that the program is socially sustainable (figure 13.4).

FIGURE 13.3 Delivering messages in local languages and using visual aids for those who are illiterate demonstrates an understanding of the community and promotes social sustainability.



FIGURE 13.4 Ownership is an important feature of effective aid programs as it ensures the recipient country has ownership of the program, meaning it is more likely to be socially and economically sustainable.

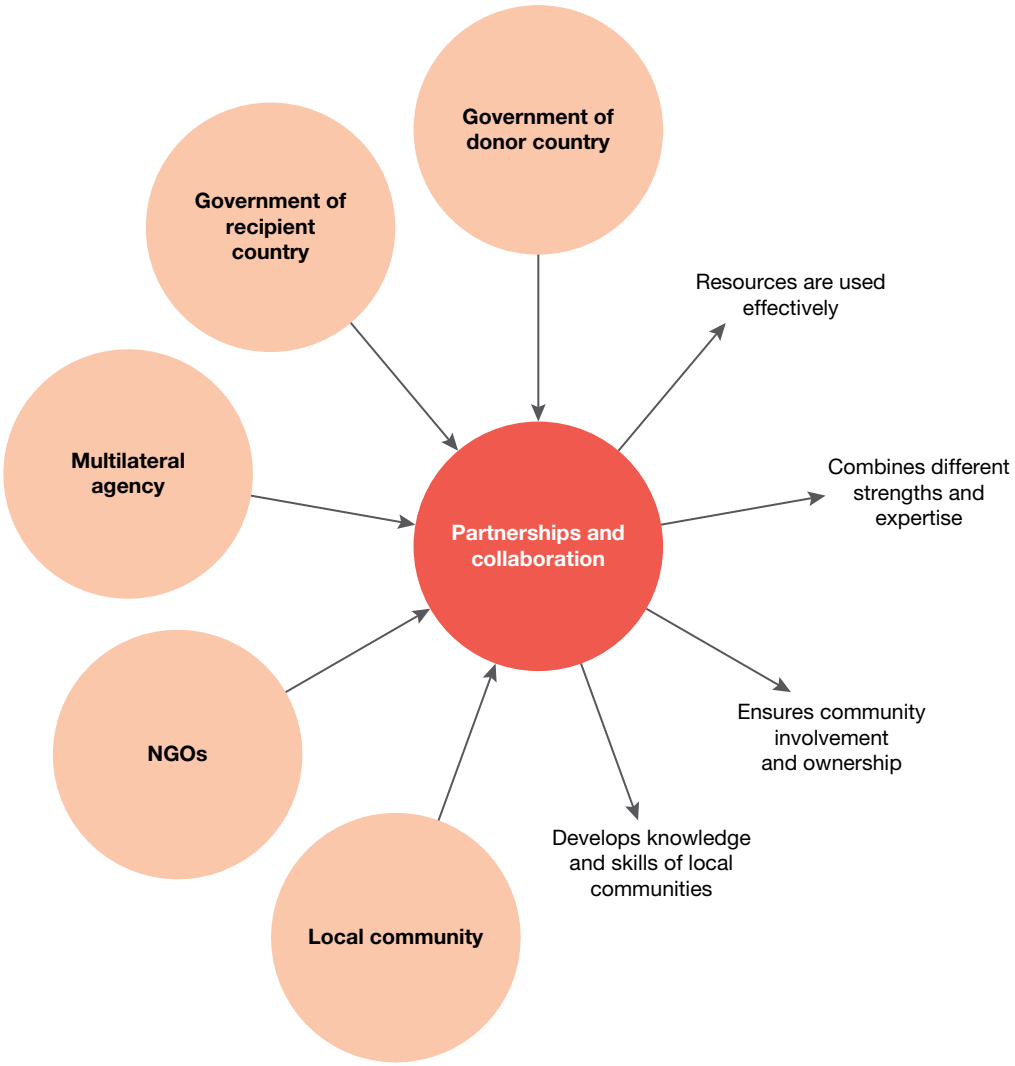


Partnerships and collaboration

An effective program relies upon the participation and collaboration of all **stakeholders**. By forming partnerships, the differing strengths of government, non-government organisations (NGOs) and local communities can be used to implement effective programs that make efficient use of the resources available and avoid duplicating other programs with the same objective. Partnerships could include the government of the recipient country, the government of the donor country, a multilateral aid agency such as the World Bank, an NGO and the leaders in the local community.

Local communities need to have input into the design and implementation of a program. Having people in the local community implement the program helps ensure it is socioculturally appropriate and builds the capacity of the community by training locals to develop the necessary knowledge and skills needed to ensure the program is socially and economically sustainable once outside assistance finishes. In this way, available resources are used efficiently (figure 13.5).

FIGURE 13.5 Partnerships and collaboration are important for the design and implementation of an effective program. It requires a range of stakeholders working together and combining their expertise to make efficient use of resources. This ensures economic and social sustainability.



Focused on results

Making a difference and having a lasting impact on reducing poverty and inequality and promoting health and wellbeing and human development should be the main purpose for implementing an aid program. A program should be focused on addressing patterns of disease and illness within a country or individual community. In the past, aid has been criticised as being 'tied' aid. This means that aid given must be spent on goods or services provided by the donor country. This reduces the effectiveness of aid and does not always meet the needs of the recipient country or reach those who most need it. It can also impact a country's ability to become self-sufficient as its people are not building up their own resources.

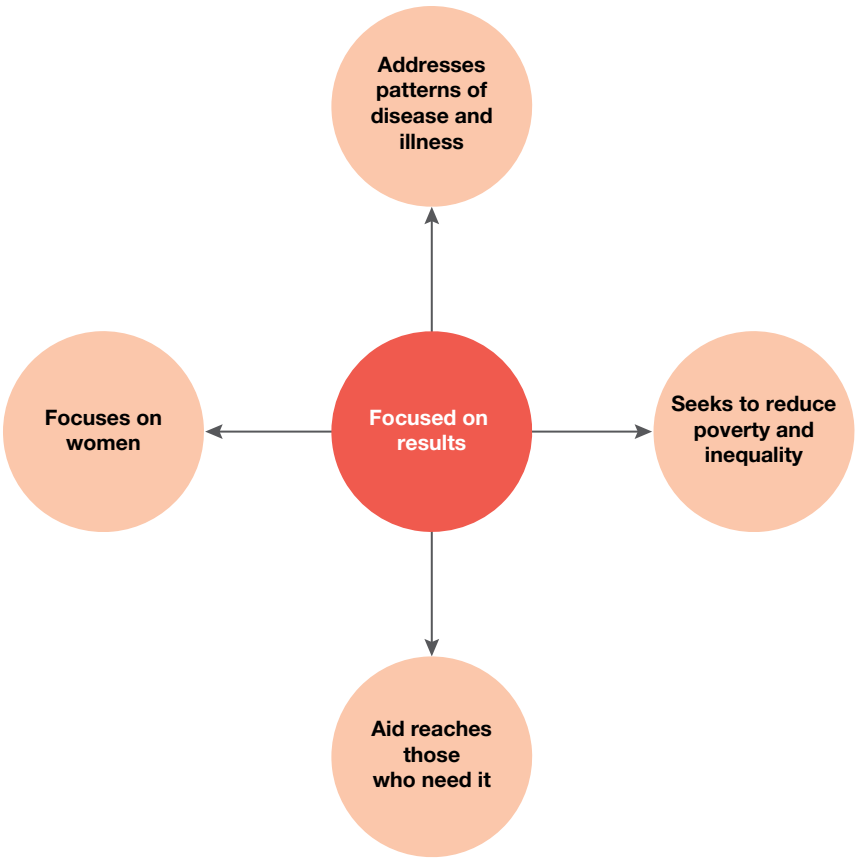
FIGURE 13.6 Women are responsible for most of the agricultural and domestic work, including the care of children. Programs that focus on women are more likely to be effective in improving health and wellbeing outcomes.



When aid workers leave the community in which they are working, an effective aid program should continue to have a positive impact and is therefore sustainable. One way to do this is to focus on involving and educating women. Gender inequality continues to be an issue for many low- and middle-income countries, with women often having low social status, low levels of education, less access to health services and less opportunity for well-paid employment. Women are responsible for most of the agricultural and domestic work, including the care of children. When women are educated and empowered, they are better able to care for their children, secure well-paid employment or set up a business that provides a regular income. This helps reduce the level of poverty and improves the health and wellbeing of all community members (figure 13.7).

Focused on results also means that changes in the patterns of disease, levels of poverty and other relevant health and wellbeing indicators can be monitored to ensure the program is having the intended effects of improving health and wellbeing.

FIGURE 13.7 An effective aid program is results focused. It works to address the patterns of disease and illness and reducing poverty and inequality.



Transparency and accountability

Transparency means that all necessary information is made available to those involved in developing and implementing a program. Transparency and openness ensures that funding that has been provided to implement a program is used for its intended purpose and is not diverted to serve the needs of other stakeholders. For example, funding provided to the government of a recipient country to run an agricultural program for women is instead used by the government to provide luxury items to government officials. Transparency also ensures that funding is not used for commercial gain. An example of this could be a pharmaceutical company provides funding for a program but requires the country to buy its drugs, which are much more expensive than other brands. Accountability involves regular monitoring and assessment of progress against the aims and objectives of the program, which is then published and available to the national and international community (figure 13.8).

FIGURE 13.8 An effective program is one that is implemented in a clear and open way, with its goals, objectives and funding made known to the community. Ongoing monitoring of progress against the program's objectives is an important element of accountability.

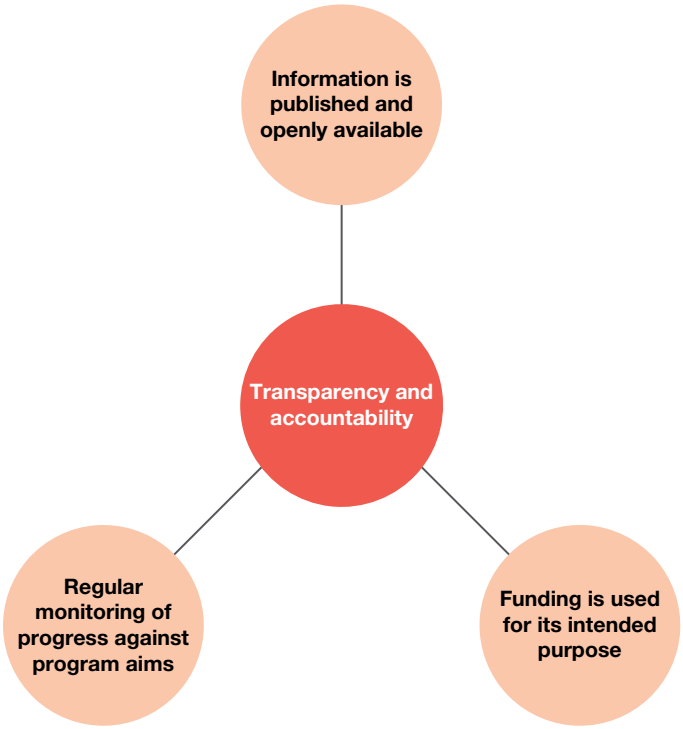
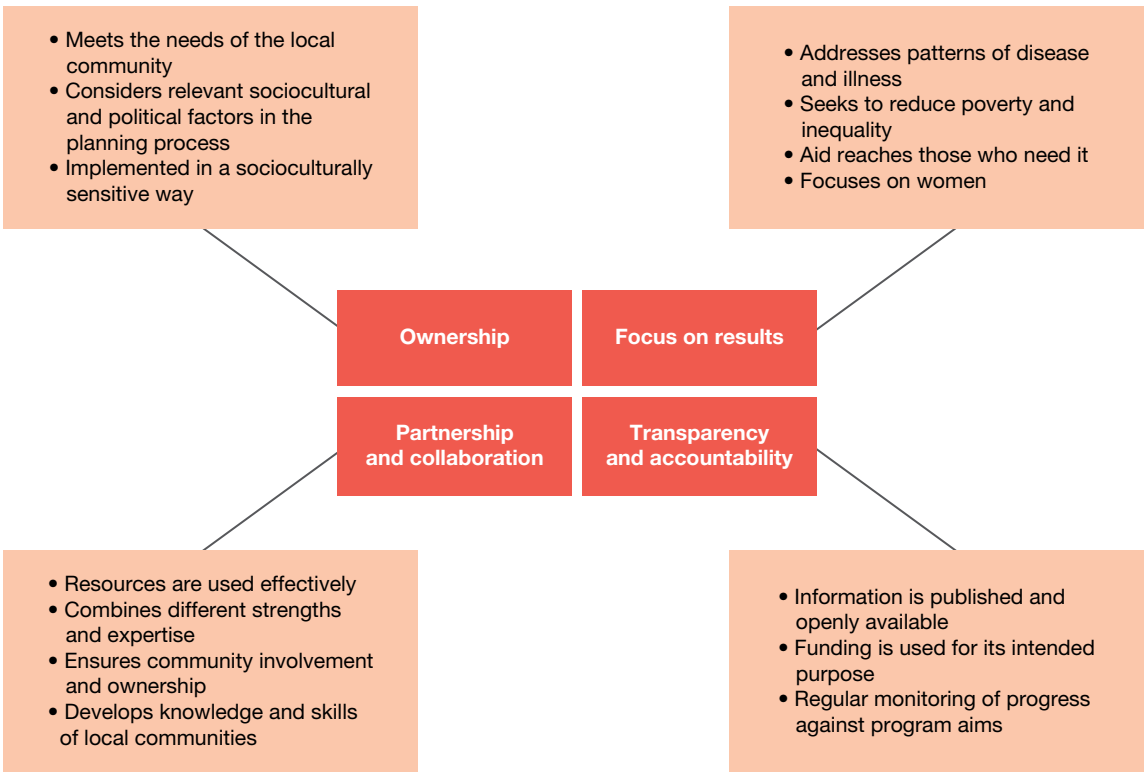


FIGURE 13.9 Summary of the key features of effective aid programs



Programs to address the SDGs

There are many programs that have been implemented in low- and middle-income countries to help achieve the Sustainable Development Goals (SDGs). Students are required to select one aid program for a detailed study and analyse and evaluate the effectiveness of the program by taking into account:

- its purpose
- the SDG/s being addressed
- details of its implementation, particularly in relation to the features of effective aid and relevant partnerships in place
- how the program will promote health and wellbeing and human development.

This topic will provide students with a range of programs that have been implemented to address each of the Sustainable Development Goals.

13.2 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What are the outcomes of effective aid?
2. Why was a set of shared principles developed to reflect the essential features of effective aid programs?
3. List the four features of effective aid programs.
4. Why is it important to consider the sociocultural and political aspects of a community when implementing an aid program?
5. Provide one example that helps ensure a program is delivered in a socioculturally sensitive way.
6. Who might be involved in a partnership when implementing an effective aid program?

13.2 Exercise 2 APPLY your knowledge

1. What is meant by 'tied aid' and how does this impact on the effectiveness of an aid program?
2. 'How aid is delivered to low- and middle-income countries is just as important as why it is given'. Explain what this means.
3. Why is it important to focus on women if an aid program is to be effective?
4. Explain why transparency and accountability is important if an aid program is to be effective.
5. Use visual symbols or a concept map to summarise each of the features of effective aid.

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13.2 Exercise 3 studyON: Past VCAA exam questions online only

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13.3 Aid programs addressing SDG 1 No poverty

KEY CONCEPT Aid programs implemented to end poverty

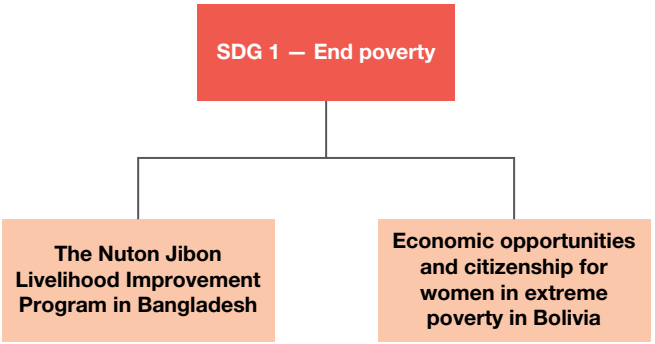
13.3.1 The Nuton Jibon Livelihood Improvement Program in Bangladesh

Background and purpose

Poverty is an ongoing problem in Bangladesh, where about 47 million people still live in poverty and 26 million people in extreme poverty. Floods and cyclones frequently cause severe damage to lives and livelihoods, especially to poor women, who remain particularly vulnerable. The Empowerment and Livelihood Improvement Project, known as the Nuton Jibon project, aims to improve the livelihoods and quality of life of the rural poor, especially the poorest and most vulnerable households. Rural poverty

continues to be significantly higher and more extreme than urban poverty. While there has been a decline of extreme poverty in rural areas, the poverty level remains almost three times that of urban areas. The poorest in the poorest regions are also less able to cope with shocks such as natural disasters.

FIGURE 13.10 Programs included under SDG 1: students can choose to study one program implemented to end poverty.



The Nuton Jibon Livelihood Improvement Program (NJLIP) provides financial support to 2500 villages covering 12 districts in Bangladesh by providing community financing for livelihood support, community infrastructure, and skills development training for youth. The program is funded by the World Bank, and, in partnership with the Bangladeshi government and Social Development Foundation, the purpose of the program is to:

- empower the rural poor, with a focus on women
- improve the living conditions of the poor by increasing the income they receive from their produce
- develop skills and generate employment opportunities for unemployed youth in poor households
- provide grants directly to the community
- build links with financial institutions
- provide support to the village organisations
- prevent malnutrition by providing nutrition information and agricultural knowledge.

Implementation

The Social Development Foundation is an organisation established by the government of Bangladesh to help those living in poverty to develop their skills and talents and overcome the barriers they face due to poverty. By helping people escape from poverty they can enjoy healthy lives, live in dignity and participate in their community. The program focuses on women as they are more likely to act collectively and repay loans, and the income increase controlled by women is more likely to benefit the entire household and community.

The program has several major components:

- in selected rural areas, to help build and strengthen existing communities and institutions to help the poor
- providing funding to support small infrastructure and livelihood projects
- providing education about nutrition and agricultural production
- building business opportunities and capacities by helping people organise producer groups and **cooperatives**, and by building their business and marketing knowledge as well as links to existing markets
- ensure ongoing monitoring of the progress and impact of the program. Monitoring and reporting was undertaken each month and included summaries of key lessons learned, case studies and follow-up status.

Members of the SDF worked alongside community members, particularly women, to teach them the skills needed to manage their finances and develop business skills that would enable them to escape from poverty. Women could receive small grants which would be used to set up income-generating activities. These activities provided an income that could then be used to apply for a loan to expand their business and to form cooperatives with other community members. This provided greater efficiency and facilitated access to broader markets, and enabled all members to generate further income. These cooperatives were set up and run by the community for the community.

In addition, the program provided women with education about nutrition and agricultural practices. Unemployed youth were also provided with skills training to match the job opportunities being created within the communities, resulting in secure and sustainable employment.

Outcomes

The NJLIP is expected to benefit around 500 000 poor households, reaching about 2.25 million people. The outcomes are:

- About 40 per cent of households have been able to increase income by at least 30 per cent.
- One million poor people have benefited from the program. Ninety-five per cent of the project beneficiaries are women, who occupy most decision-making positions in village institutions. Through participation in the project, women are increasingly becoming decision makers in their households. This has led to an increase in confidence, access to finance and savings among women. Women report that they are more respected by their families and communities, have a larger role in household decision making, and even face less domestic violence.
- By 2021, 80 per cent of those benefiting from the program will have an increase of at least 10 per cent in their investment return.
- About 25 000 youth have been employed.
- Achievements in income appear to have affected food security and quality of diet. Participants claim that they are eating more, no longer going hungry, and having three meals per day. Almost 100 per cent of the families are using sanitary latrines because their economic condition has improved and their consciousness and awareness has increased.

One of the beneficiaries of the program is Halima. When Halima's husband died, she was left to raise her three daughters in a crumbling, leaky house on a small plot of land. Halima worked hard to produce a meagre **subsistence**. When all three daughters married, Halima was alone, helpless and reduced to begging from door to door. Halima then discovered the Nuton Jibon Livelihood Improvement Program, which provided her with a one-time grant of 5000 taka (the local currency). The money allowed her to buy a few goats and chickens, and she was soon selling eggs and the goats, growing her income to about 50 000 taka from the goats and 3000 taka per month from her egg production. Her steady income meant she could receive a small loan from a village credit organisation. She invested her money in a nearby grocery shop, providing her with a regular income.

FIGURE 13.11 The Nuton Jibon Livelihood Improvement Program provides loans to women to buy goats to farm.



Like Halima, Sheuli Begum and her husband, Anis Forayezi, struggled to farm a plot of land too small to feed their family of five. They did not have a house to live in, could not afford healthcare and had to remove their children from school to help supplement the family's income. Sheuli then became a member of a local NJLIP group and started depositing small amounts of savings to receive a loan from the village credit organisation. She was then able to buy a dairy cow and sold four to five litres of milk each day, earning about 4500 taka each month. She eventually saved enough to buy more cows, began sending her children to school and leased an acre of farmland for her husband to cultivate.

13.3.2 How the program promotes health and wellbeing and human development

The NJLIP is providing financial support and working to increase the income that women receive as well as developing skills and generating employment for youth in poor households. In doing so the program is focused on ending poverty. This will promote health and wellbeing and human development. Poverty is a major contributor to high rates of death and illness from infectious diseases and a major cause of hunger and malnutrition. This program will reduce the burden associated with diseases such as pneumonia, diarrhoea, malaria and measles. With a regular income beneficiaries of the program can afford healthcare,

which improves physical health and wellbeing as diseases and illness can be diagnosed and treated. Access to healthcare also increases levels of vaccination — further reducing deaths and disability from vaccine-preventable diseases and improving physical health and wellbeing.

EXAM TIP

When discussing how a program promotes health and wellbeing, make sure you give specific examples from the program and link these to the key characteristics of the dimensions of health and wellbeing.

When discussing how a program promotes human development, make sure you provide specific examples from the program that you can link to key words and phrases in the human development definition.

FIGURE 13.12 When women are empowered they have greater opportunities to participate in the political and community life of their country, which promotes human development.



The program also seeks to prevent malnutrition by providing nutrition information and agricultural knowledge. The program has reported that families now have access to food security and are eating three meals each day. Preventing malnutrition would result in a reduction in diseases associated with micronutrient deficiencies, such as iron-deficiency anaemia, congenital abnormalities and cretinism from iodine deficiency and blindness caused by deficiencies in vitamin A. This improves physical health and wellbeing, which helps bring about improved social, mental and emotional health and wellbeing. Improved physical health and wellbeing provides opportunities to attend school, go to work and form relationships with others, promoting social health and wellbeing. Positive self-esteem and a sense of achievement is attained which contributes to improved mental health and wellbeing. The focus on empowerment of the rural poor, particularly women, promotes mental and health and wellbeing and contributes to resilience which increases the level of emotional health and wellbeing. A reduction in domestic violence also promotes physical health and wellbeing. Women have reported enjoying greater status within their family and community which increases relationships and communication skills, promoting social health and wellbeing. Having greater status in the family can contribute to positive self-esteem and confidence and greater resilience which promotes mental and emotional health and wellbeing.

This program also promotes human development. A regular income, educational opportunities, work prospects and the empowerment of women will contribute to all people in the village being able to enjoy a decent standard of living and a long and healthy life. This program will help provide the conditions to promote human development, including gender equality, human rights and the opportunity to develop knowledge and develop to their full potential. With gender equality and the empowerment of women comes greater opportunities for women to participate in the political and community life of their village and have greater control over the decisions that affect their lives.

CASE STUDY

Economic opportunities and citizenship for women in extreme poverty in Bolivia

Bolivia's socio-economic situation has shown a favourable improvement in recent years. However, the country still has high levels of poverty and social inequality, particularly in rural areas. This situation particularly affects rural women, who suffer from a lack of services and job opportunities because of their isolation. Women's participation in the labour market is very low; they usually work in informal economic activities and have low technical qualifications. At the commencement of this programme 63 per cent of women were family workers or apprentices without pay, while around 25 per cent were self-employed workers. Only 9 per cent of women were formally employed and therefore able to receive social benefits. Generally, women acquire their training

at home, under their mothers' supervision which means their economic activity is almost an extension of their domestic work. In this context, poverty not only refers to income levels or food consumption, but mainly to landlessness (only 1.2 per cent of the land is owned by women) as well as a lack of access to social benefits, financial services and assistance. As a result, rural women are unable to access the resources needed to carry out economic activities, nor can they enjoy full citizenship, due to their lack of identity documents and knowledge about exercising their rights.

The purpose of the programme was to improve the socioeconomic situation of rural and indigenous women in Bolivia's poorest regions by providing them with sustainable livelihoods for themselves and their families.

The programme was developed around two foundations:

- The creation of assets for women, ensuring equal access to credit, assets, productive resources and technology.
- Strengthening women's exercise of citizenship, educating them on their rights and providing identity documents to women who did not have any.

The strategy was to provide resources for excluded rural families starting with support and assistance to women through organizations called Rural Economic Units (REU). Specifically, women were helped to develop business ideas and were given the seed capital (funds) necessary for the start-up of their companies. Through training, these women strengthened their capacities to improve the management, quality and marketing of their products. Training and advisory services focused on establishing relationships with suppliers, with the aim of guaranteeing a market for their products and thus ensuring the sustainability of the livelihoods of the families involved.

The strategy proved to be effective. From the women's point of view, the programme contributed to an increase in their income, enabling them to better meet the daily needs of their family, including food security and education. In addition, identity documents and access to credit, assets, productive resources and technology contributed to reinforcing their participation in decision-making processes in their homes and communities. Prior to the intervention, 81 per cent of women did not meet the necessary requirements to access financial services. At the end of the programme, all women participants had access to savings accounts, credit and payments for services. As a result, jobs were created for 5090 women and around 2000 women received basic training in production, management and income and expenditure accounting. At the same time, participants indicated that they had spent 63 per cent of their earnings to meet the needs of their families, greatly improving the initial family situation.

Source: Adapted from WHO Sustainable Development Goals Fund, 2017. https://www.sdgfund.org/sites/default/files/Case%20Study%20-%20Bolivia%20Patrimonio%20-%20EN.pdf.

Case study review

1. In addition to SDG 1, identify other SDGs addressed in this program.
2. Why was the program implemented?
3. Explain the purpose of the program.
4. What were the two foundations that the program was developed around and why was each one important?
5. How was poverty defined in this program?
6. Describe the program being implemented.
7. How might this program promote the health and wellbeing and human development of participants?
8. Discuss how this program assisted in achieving SDG 1.
9. Use the features of effective aid to draw conclusions about whether the program represents effective aid.

13.3 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information in this section about the Nuton Jibon Livelihood Improvement Program in Bangladesh to answer the following questions:

1. Apart from SDG 1, what other SDGs may be achieved with this program?
2. Who were the target groups for this program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.3 Exercise 2 APPLY your knowledge

1. Explain how this program would help end poverty.
2. Use the four features of effective aid to evaluate the success of this program.
3. Explain how the program would promote each of the dimensions of health and wellbeing.
4. Discuss how the program would promote human development.

studyON

13.3 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.4 Aid programs addressing SDG 2 Zero hunger

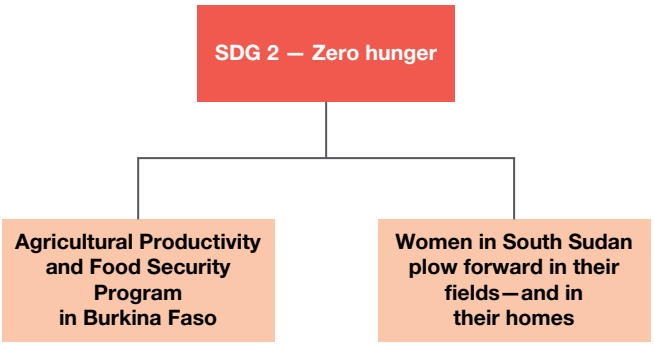
KEY CONCEPT Aid programs implemented to achieve zero hunger

13.4.1 Agricultural Productivity and Food Security Program in Burkina Faso

Background and purpose

Burkina Faso is a landlocked state in western Africa. Rainfall is inconsistent and a great deal of the land has been affected by deforestation, degradation and desertification. The agricultural sector accounts for approximately one-third of the country's income and 80 per cent of the population's employment. However, it is generally characterised by low crop and livestock productivity and mainly supports small family farms or subsistence livelihoods. While the threat of recurring famine has been reduced, food security is an ongoing challenge.

FIGURE 13.13 Programs included under SDG 2: students are required to study one of the programs in detail.

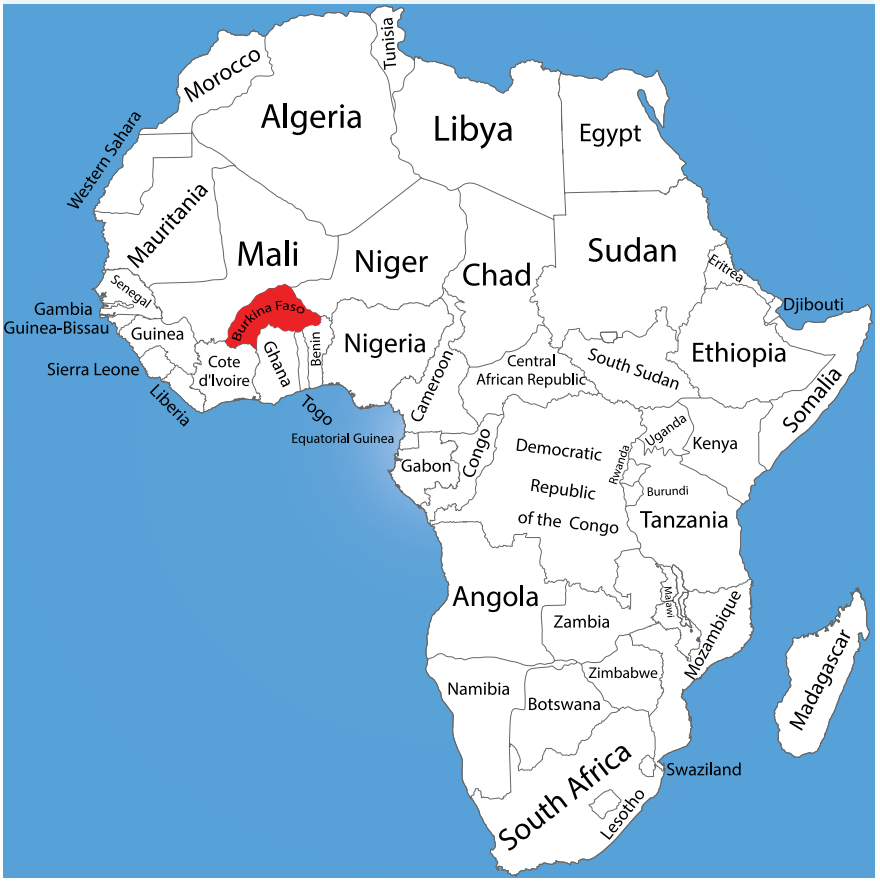


More than 3.5 million people, or around 20 per cent of the population, lack food security and 20.7 per cent of the population are undernourished. Food security varies greatly each year, as large annual fluctuations in rainfall leads to changing levels of cereal production. Burkina Faso also imports a great deal of its food, and its food security has been greatly affected by an increase in food prices worldwide.

A drought in 2011 severely affected crop yields and left minimal food for people living in villages and their animals. An influx of refugees from Mali (a neighbouring country) due to conflict put further strain on food supplies. Many people within Burkina Faso have had to rely on food aid provided by other countries. Weak food production systems, an unpredictable climate, and extreme poverty has created a vicious cycle for farmers and has contributed to the country's lack of food security.

To increase food security, the Agricultural Productivity and Food Security Program funded by the World Bank was introduced in Burkina Faso to help farmers increase food production. The purpose of the program was to improve producers' capacity to increase the production and to ensure year-round availability of cereals and livestock products in rural areas.

FIGURE 13.14 Burkina Faso is a land-locked county in Central West Africa.



Implementation

The program incorporates a range of actions to achieve its purpose. These include the following:

- *Improvement in food production and accessibility*: funding is provided to enable access to improved technology for food crop production, including improved seeds, fertiliser, manure and sustainable soil management technologies.
- *Post-harvest loss reduction*: access to improved storage technologies is provided to reduce the losses that occur once crops have been harvested.
- *Agricultural market coordination*: improvements are made to the existing agricultural information systems so farmers are able to make better production and marketing decisions and develop marketing cooperatives to provide them with access to credit.

FIGURE 13.15 Programs such as the Agricultural Productivity and Food Security Program in Burkina Faso are providing access to technology for food production such as improved seeds.



- *Management and monitoring and evaluation of project activities*: Funding was provided for the equipment, technical assistance and training required for program implementation and monitoring and evaluation to ensure the program was meeting its purpose.

Male and female farmers are given the opportunity to undertake community work, such as clearing and preparing lowland areas for rice farming. They work to clear the land of rocks, turn over the soil, organise the plots and construct water retention systems. The work is overseen and supervised by the regional Chamber of Agriculture, local community leaders and local authorities. Those who have contributed the most to these community works are provided with cleared plots of land, technical expertise, training, improved seed varieties, and fertiliser for their rice crops. Female farmers have contributed the most to the program and more than 45 per cent of the prepared lowlands have now been distributed to women.

Outcomes

For the women who have been involved in the program, it has changed their lives significantly. According to one female farmer, 'It is difficult for women to possess land ... now I have my own plot of land from which I produced four bags of rice. I distributed one to my neighbours, I sold the second to pay school fees, and the other two are to feed my family.'

FIGURE 13.16 Male and female farmers are given the opportunity to undertake community work such as clearing and preparing lowland areas for rice farming.



The program has been successful in gradually increasing productivity; 7820 hectares of land has been cleared for rice production. This provides income for 30 000 producers, of which 45 per cent are women. It also increased the overall rice production of the country — Burkina Faso saw an increase of 15 000 tonnes of rice in 2014. Higher production is achieved by teaching farmers new techniques such as how to keep water in the fields and the best way to fertilise them.

The program has also provided an opportunity for small rural farmers to be able to access credit from financial institutions, such as banks, which are usually reluctant to finance small farmholders. Through the program a warehouse receipt system has been put in place that allows farmers to use their harvests as **collateral** to obtain credit. A farmer will take their harvest to a local warehouse, whose access is held jointly by a **microfinance** institution and a farmer's association, usually in the form of two padlocks. Upon delivery of the harvest, the farmer receives credit which he or she uses to buy essential inputs for the next planting season, pay children's school fees, or invest in other income generating activities.

FIGURE 13.17 Being able to own a plot of land means women can farm the land, sell their produce and earn money to send their children to school.



The credit advance allows farmers to get a higher price for their produce by waiting a few months until food stocks run low and prices rise. Once the harvest is sold, the credit amount can be paid back and supplies such as seeds and fertiliser can be bought for the next year, which will improve their production.

13.4.2 How the program promotes health and wellbeing and human development

The Agricultural and Food Security Program aims to reduce hunger and achieve food security in Burkina Faso. Having access to sufficient food is important for health and wellbeing. Food is required for the functioning of the human body; it provides the energy needed for individuals to complete daily tasks and reduces the risk of malnutrition. Some of the nutrients in food are important for increasing immunity to disease; therefore, food security improves physical health and wellbeing by reducing the risk of illness and disease.

Improved nutrition would see a reduction in the burden of disease associated with micronutrient deficiencies, such as iron-deficiency anaemia, congenital abnormalities and cretinism from iodine deficiency, and blindness due to deficiencies of vitamin A. Given the impact of iron-deficiency anaemia on pregnant women, this would help reduce maternal mortality rates. Well-nourished mothers are more likely to give birth to healthy babies. Babies who are well fed and adequately nourished have strong immune systems. They are less likely to suffer from diseases such as pneumonia, measles, malaria and diarrhoea. If they do contract these diseases, well-nourished children are more likely to recover. Children's growth would no longer be stunted due to malnutrition and hunger.

FIGURE 13.18 Women carry sacks of rice from a warehouse at a women's group processing centre in Sourou Province, Burkina Faso.



When people have access to the required quantity and quality of food, they can attend school or work. This promotes social health and wellbeing, providing opportunities to develop relationships. Emotional health and wellbeing can also be promoted because people have a sense of pride and achievement. Through this project, women can own land, which contributes to spiritual health and wellbeing. Due to the project, the women feel they are contributing to their community, which brings a sense of connectedness.

FIGURE 13.19 When women receive an income, they can access resources that promote physical health and wellbeing such as nutritious foods.



When children have the energy to attend school, it increases their literacy and numeracy skills. Educated people have increased opportunities to earn a higher income and have greater access to resources required to promote physical health and wellbeing, such as access to fresh food, healthcare and water, clothing and shelter.

The project would also promote human development. Improved health and wellbeing has a positive impact on human development. The women in the project have become empowered. This means they are more likely to lead productive, creative lives in accord with their needs and interests. With greater empowerment, they are more likely to become involved in the lives of their communities. The Gross National Income (GNI) of a country is linked to food security. Burkina Faso is more likely to have a higher GNI if communities have food to eat and adults can work. By generating an income, adults can pay taxes,

which can be used by the government to invest in infrastructure that promotes health and wellbeing such as roads, water systems and healthcare.

This project works to achieve gender equality by allowing women to own their own plot of land. This creates the conditions for human development. With equal rights, women have access to education, finance, control over other forms of property and greater security, all of which contributes to improved human development.

CASE STUDY

Women in South Sudan plow forward in their fields — and in their homes

An Oxfam program supplies female farmers in South Sudan with the tools to manage their crops and to redistribute power in their households.

FIGURE 13.20 A farmer in South Sudan.



"When our leaders told us that Oxfam was coming to train us to use oxen to plow our fields, we protested," says Lucia, a farmer from Wau County, South Sudan. "Our tribe does not know cows and even so, it is a man's work to train them and lead them through the fields. This is not for us women at all!"

Yet, 12 months later, she's changed her tune. Lucia grins from ear to ear as she shows off Malual — the young bull that tills her land. Women in Lucia's community — as in most parts of South Sudan — typically shoulder a huge workload. They do all the domestic work and much of the agricultural tasks. For many, this means waking up early to collect water, light a fire, make tea, and cook lunch, all before heading to a small plot of land to cultivate crops.

Farming often takes from morning to evening, and even then, doesn't always provide enough food to feed the family. This was Lucia's experience until last year.

That's where Malual come in.

Traditionally, people in Lucia's community use malodas — small tools with a sickle-shaped head — to till the land, but because the tools are so small, it takes a long time to work the land. Using oxen and employing techniques like planting in rows means women can cultivate much larger plots of land in less time.

"I am growing sorghum, okra, and peanuts, and I have been able to increase the size of the land I plow from half a fedan [half an acre] to more than two fedans [two acres]," she says. "Some of the food I eat as soon as I harvest; some I save for the lean season to eat or to sell. I'm also saving some for planting later this year."

In the past, Lucia and her family skipped lunch because they only had enough food to stretch between breakfast and dinner. "My children are much happier and I can see they are looking well," she says.

Lucia is earning enough money to pay some bills, and the time she's saved using oxen is going into a side business selling cakes — all of which has earned her the deep respect of her husband.

As part of the same project, she and her husband took part in workshops focused on women's rights. "Now he respects me so much more," she says with a grin. "The way we are together is completely different. Now we share all the tasks in the household. He is cleaning more, mopping, bringing water, and washing clothes. I am able to rest a bit more now."

Source: Women in South Sudan plow forward in their fields—and in their homes: Oxfam America, May 9, 2018. https://www.oxfamamerica.org/explore/stories/women-in-south-sudan-plow-ahead-in-agriculture-and-in-their-homes/.

Case study review

1. In addition to SDG 2, identify other SDGs addressed in this program.
2. Why was the program implemented?
3. Describe the program being implemented by Oxfam.
4. Discuss how this program would assist in achieving SDG 2.
5. Describe how the Oxfam program might improve the health and wellbeing and human development of participants.
6. Discuss whether this program represents an effective aid program.

13.4 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information in this section about the Agricultural Productivity and Food Security Program in Burkina Faso to answer the following questions:

1. Apart from SDG 2, what other SDGs may be achieved with this program?
2. Who were the target groups for this program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.4 Exercise 2 APPLY your knowledge

1. Explain how this program would help to achieve zero hunger.
2. Use the four features of effective aid to evaluate the success of this program.
3. Explain how the program would promote health and wellbeing.
4. Discuss how the program would promote human development.

studyON

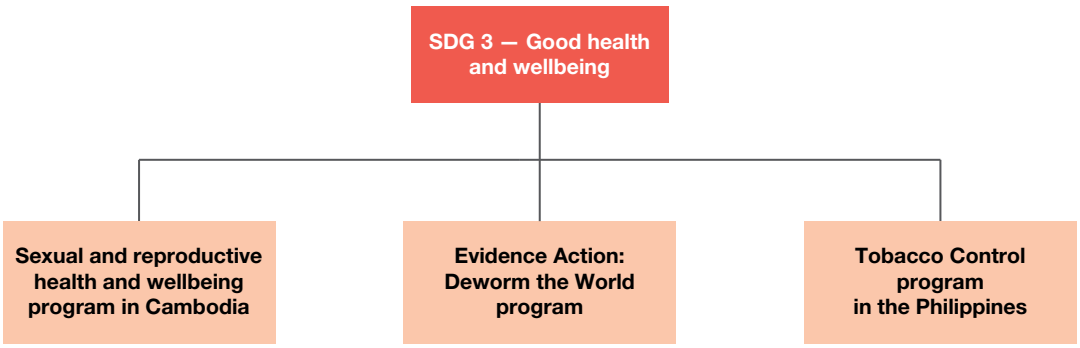
13.4 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.5 Aid programs addressing SDG 3 Good health and wellbeing

KEY CONCEPT Aid programs implemented to achieve good health and wellbeing

FIGURE 13.21 Programs included under SDG 3: student are required to study one of the programs in detail.



This section provides a choice of programs designed to achieve good health and wellbeing and human development. You may select any one of these as a focus for your study.

13.5.1 Sexual and reproductive health and wellbeing program in Cambodia

Background and purpose

The purpose of the sexual and reproductive health and wellbeing program implemented in Cambodia was to improve access to sexual and reproductive health and wellbeing information in the most marginalised and isolated communities in the country. Lack of knowledge about sexual and reproductive health and wellbeing is common in remote communities, which leads to poorer maternal health and wellbeing, less use of family planning and higher rates of **adolescent** pregnancy. Rural women are less likely than urban women to receive information about family planning from the media, and adolescents in rural areas are more likely to become pregnant. Over a quarter of girls aged 15–19 years in Preah Vihear Province in Cambodia are pregnant or have had children.

FIGURE 13.22 Women talk about birth control at a reproductive health clinic in Kampong Cham, Cambodia.



Implementation

The program was implemented by the United Nations Population Fund (UNFPA) in partnership with UNICEF and the health, education and women's affairs sectors of the Cambodian government. District leaders are trained to conduct **outreach** information sessions on the sensitive topics associated with sexual and reproductive health and wellbeing. Teams of village members and district leaders visit each family and encourage them to participate in the information sessions. They also organise health professionals to speak at the session about issues such as maintaining a healthy pregnancy, the benefits of family planning and the risks associated with early pregnancy.

'Now I know what kinds of food I should eat and should not eat, and the trainer also told me to visit a health centre for antenatal care at least four times during my pregnancy. I didn't know this before,' said Kem Lean, one of the participants in the program. She has also made plans to give birth in a health facility.

FIGURE 13.23 Access to sexual and reproductive health services reduces maternal and child deaths, and promotes health and wellbeing and human development.



Outcomes

Louern, a mother of two, said the family planning information provided by the program was particularly useful. 'My husband and I used to talk about this. We think two children are enough, but we're not sure which way is the most suitable and appropriate for us. But now I've become more aware of modern contraceptives, their benefits and side effects. When I go back home, I'm going to discuss with him about these possible choices,' she said.

Promoting sexual and reproductive health and wellbeing information also helps in reducing poverty. When people are better informed, they know how to delay childbirth or stop childbearing.

How the program promotes health and wellbeing and human development

This program helps promote physical health and wellbeing. Accessing antenatal care during pregnancy and giving birth in a health facility will help reduce deaths from complications during pregnancy such as haemorrhage infection, hypertension and obstructed labour. This also helps reduce **obstetric fistula**, which is a condition that arises due to complications caused by obstructed labour. The condition can lead to the continuous leakage of urine or faeces and causes loneliness, shame and often isolation and exclusion from their community. Giving birth in a health facility reduces the risk of obstetric fistula and infection during childbirth due to the hygienic environment. This promotes physical, emotional, mental and spiritual health and wellbeing. Reducing maternal and child deaths also promotes emotional health and wellbeing by removing the grief that is experienced when a mother or baby dies.

With access to contraceptives and family planning services, couples can plan when they have their children, which promotes physical health and wellbeing. Reducing the number of adolescents becoming pregnant also promotes physical and emotional health and wellbeing. Pregnancy during adolescence increases the risk of maternal and child death because the girls' bodies are still developing, meaning their bodies are less able to cope with the demands of pregnancy and childbirth. Stillbirths and newborn deaths are much more common among adolescent mothers, with the resulting loss and grief affecting emotional health and wellbeing.

Giving birth in a health facility promotes the physical health and wellbeing of newborns by reducing death from asphyxia (lack of breathing) and infection. The program also promotes human development. Having access to contraception means women and families can plan the number and spacing of children. This empowers women and gives them control over decisions that affect their lives. The program also provides couples with knowledge of what is required for a healthy pregnancy. This helps mothers and their children develop to their full potential and enjoy a long and healthy life.

13.5.2 Evidence Action: Deworm the World program

Background and purpose

While worm infestations are rare in high- and middle-income countries, they remain a serious threat to health in many of the world's poorest countries. These infections, known as soil-transmitted helminths and schistosomiasis, interfere with the body's ability to absorb nutrients and can lead to anaemia, malnutrition and reduced mental and physical health and wellbeing. Children are at greater risk and those affected are often too sick or fatigued to attend school or, if they do attend, have great difficulty concentrating. An infected child is estimated to be 20 per cent less likely to be enrolled in school than a non-infected child and is also 13 per cent less likely to be literate. There are estimated to be 870 million children at risk of parasitic worm infestations worldwide.

Worm infestations also reduce economic development by reducing productivity. Worm infections are easily transmitted in areas with poor sanitation and open defecation. Providing safe and effective drugs can both prevent and treat worm infestations. The World Health Organization recommends one dosage of medication once or twice per year. Large-scale treatment programs in schools are a safe and effective way to achieve this. The purpose of the Deworm the World program is to ensure that all at-risk children have access to medication that prevents and treats worm infestation and enables them to enjoy improved health and wellbeing, increased access to education and better livelihoods.

Implementation

The Deworm the World program is implemented by Evidence Action, an NGO based in the United States. Evidence Action partners with governments of countries where children are most at risk, to support the provision of treatment to children while in schools. Deworming through schools, and in some areas, through preschools, provides the greatest opportunity to reach a high proportion of at-risk children at a minimal cost. Teachers administer the medication to the children and are trained to ensure they understand the purpose of the treatment and correct record keeping and monitoring.

The work that Evidence Action does with governments includes:

- promoting school-based deworming programs
- supporting the establishment of policies and long-term commitment by building capacity, gaining community support and sharing practices to improve cost-effectiveness and results
- working with local partners to determine worm prevalence and intensity
- gathering data to develop a targeted treatment strategy and evaluate the impact of programs once they are in place.

FIGURE 13.24 Children are given dewormer at the Nyassia primary school in the village of Nyassia Senegal.



Once the government agrees to implement a deworming program, Evidence Action works with local ministries of education and health to design a program that is jointly owned, is carefully planned and budgeted, and implemented effectively. It also works with communications experts to design locally appropriate awareness campaigns to communicate information about the program to local communities to ensure parents are supportive of the program.

Evidence Action also works with governments to help them obtain the necessary medication through global pharmaceutical donation programs, which helps minimise the costs. Additionally, to measure how effective the program has been in meeting its objectives, Evidence Action designs monitoring systems and independently monitors programs to confirm results and evaluate their impact in lowering the prevalence and intensity of worm infestations.

Outcomes

In 2015–16, the Deworm the World program supported governments to treat more than 190 million children in India, Kenya, Ethiopia, Vietnam and Nigeria. Evidence shows that school-based deworming programs can improve health and wellbeing and education outcomes for children at a cost of less than US$0.50 per year.

How the program promotes health and wellbeing and human development

Eliminating worm infestations in children improves physical health and wellbeing by reducing the level of sickness and fatigue that occurs when children are infected. This increases the likelihood of children attending school and building relationships with other children and teachers, which increases their social health and wellbeing. When children are healthy and have lots of energy they are happier, which increases emotional health and wellbeing.

The program also promotes human development. Children can attend school and gain knowledge, which increases their opportunity for employment, and to develop the skills needed to eventually run a business. A healthy population means a stronger economy as people can work and earn an income and purchase goods and services. This generates additional income for the country, providing

FIGURE 13.25 When children are healthy, they can attend school and develop the skills needed to gain employment or start a business, which generates income and helps promote health and wellbeing and human development.



resources for investing in infrastructure, such as roads, water supplies and healthcare. This creates an environment in which people can live to their full potential and enjoy a long and healthy life. When people are healthy, they are more confident and are more likely to participate in political and community life.

13.5.3 Tobacco Control program in the Philippines

Background and purpose

The Philippines is one of 15 countries worldwide that has a high burden of tobacco-related disease. According to the WHO 35 per cent of men, 6.4 per cent of women and 20.6 per cent of the Philippines' population overall are daily tobacco smokers. The Philippines made a commitment to the WHO Framework Convention on Tobacco Control in 2005 and since then has been implementing several of the initiatives, known as MPOWER, which is outlined in the Convention. MPOWER is used to refer to the following tobacco cessation measures:

- **M**onitor tobacco use and prevention policies
- **P**rotect people from tobacco smoke
- **O**ffer people help to quit tobacco use
- **W**arn about the dangers of tobacco
- **E**nforce bans on tobacco advertising, promotion and sponsorship
- **R**aise taxes on tobacco.

Through funding provided by the WHO Bloomberg Initiative, the government of the Philippines and the WHO have implemented a range of tobacco-related programs. These programs aim to strengthen the country's capacity for tobacco control; run sustainable tobacco control programs that protect people from exposure to tobacco and tobacco smoke; prevent premature deaths from smoking-related diseases; and save lives.

Implementation

The WHO is contributing to the implementation of MPOWER measures in the Philippines by

- encouraging the government to increase tobacco prices and taxes
- providing technical and financial support to develop appropriate policies
- supporting actions to enhance tobacco control
- promoting prevention and cessation interventions
- initiating collaboration with non-government organisations and the media to help promote tobacco control.

The WHO is working with the Philippines government to monitor tobacco consumption and undertake large-scale surveys of the population. The data collected provides a basis for future public health research and contributes to effective monitoring and control of tobacco consumption. Other organisations involved in the implementation of the program include the Department of Education; Department of Social Welfare and Development; Land Transportation and Franchising Regulatory Board; Land Transportation Office; Philippines Ports Authority; Civil Aviation Authority of the Philippines; Department of Tourism; Tourism Infrastructure and Enterprise Zone Authority; and the Philippines Society of Mechanical Engineering.

FIGURE 13.26 No-smoking sign at White Beach, Boracay Island, in the Philippines. The government is working with the WHO and other organisations to implement a range of programs to monitor and control tobacco use.



Outcomes

Through this program the Philippines has been successful in implementing a range of initiatives. Since 2008, the WHO has worked with various government offices, agencies and societies to promote policies that set standards for 100 per cent smoke-free environments. The WHO has also continued its work to help develop smoke-free legislation, including supporting the Department of Health to develop a National Action Plan and Strategy for Tobacco Control. In 2014, legislation was passed that made it mandatory for cigarette packets to have a graphic health warning covering 50 per cent of the front and back panels of cigarette packs in the country. The law was implemented in 2016.

How the program promotes health and wellbeing and human development

This program would promote physical health and wellbeing through reducing the numbers of people who smoke in the Philippines. Cigarette smoking is a leading cause of diseases such as cardiovascular disease, cancer and respiratory diseases. Reducing the number of people who smoke in the Philippines would bring about a reduction in morbidity and mortality rates associated with these diseases. Tobacco smoking also contributes to poor physical health and wellbeing among children and non-smokers due to passive smoking. Providing smoke-free environments helps reduce the level of respiratory diseases suffered by children, which promotes physical health and wellbeing. When people feel physically healthy, they are more likely to experience good emotional and mental health and wellbeing. Healthy children and adults can attend school and work and develop relationships, which promotes social health and wellbeing.

A reduction in tobacco smoking could also reduce the level of poverty in the Philippines. Purchasing cigarettes leaves less money for families to spend on food, water and healthcare. Therefore, reducing the level of cigarette smoking can promote health and wellbeing by providing more resources to spend on food for the family and healthcare.

Good health and wellbeing is important for the promotion of human development. Reducing the levels of smoking in the Philippines will help people enjoy a long and healthy life and achieve a decent standard of living. A smoke-free environment is important for individuals to develop to their full potential and have a greater chance of leading productive and creative lives. Healthy people are more likely to feel empowered and to participate in political and community life.

FIGURE 13.27 Passive smoking is a major contributor to poor health and wellbeing in children. Reducing smoking rates will help promote the children's health and wellbeing and human development.



CASE STUDY

Tackling TB in Tuvalu

No-one should be left behind in the fight to end tuberculosis (TB), which is now the world's most infectious and deadly disease. Yet in 2017, 3.6 million people with TB were 'missed' by health systems and remained undiagnosed, or detected but not reported. Patients and healthcare workers from Tuvalu, a remote Pacific island, explain how diagnosis and treatment is being scaled-up across the Pacific and reaching directly into people's homes and communities.

"Before, we used to have to bring patients to the main island if we needed to get a full diagnosis for TB," explains Pisisami Kalamelu, a laboratory technician at Tuvalu's only hospital, on the main island of Funafuti. For those living in the smaller outer islands, travel to the hospital is difficult due to limited and often expensive transport options. The journey also presents further risks as TB is airborne and highly contagious. "They would

have to travel to the main island with a lot of people on a boat, and we know TB can spread very fast, especially where it's crowded'. To prevent the spread of the disease and to enhance diagnostic capacity in remote and hard to reach locations, the United National Development Program (UNDP) and the Global Fund have provided the Government of Tuvalu with GeneXpert machines, along with portable X-ray machines and training for health teams.

On the small island of Amatuku, a short boat ride from Funafuti, the mobile health team is hosting a TB awareness session for the local community and carrying out chest X-rays for those presenting with TB symptoms. "It's very easy for us to reach people now, because the X-ray machine is portable," Pisisami explained. At Funafuti hospital, the state-of-the-art GeneXpert machine has also drastically reduced the time it takes to test for TB while also allowing health workers to diagnose drug-resistant strains of the disease. "It only takes two hours to get a result," said Pisisami. "So now we can quickly inform the patient if they have TB or not."

Local communities and volunteers also play a vital role in supporting patients to stay on treatment. UNDP and the Global Fund, through the Ministry of Health, are partnering with volunteers from the Tuvalu Red Cross to ensure people are supported during the treatment regime. "Sometimes patients won't fully access their treatment because they are ashamed to go out in public," explained Foma, 28, a Tuvalu Red Cross community-based health promoter. "That is why it's better that we collect the medicines and treat them at home". "Every day I go by motorbike to the patient's house and deliver the pills. I ask them to make sure they drink enough water when taking the medication."

Another major hurdle in the fight against the spread of TB in Tuvalu is the lack of knowledge about the disease. If you ask people how TB is spread, many think its spread by touching or by using the same utensils. To address this, the community based workers are using radio to broadcast information on TB to the local community and conducting education and awareness programs when visiting their patients to ensure they are taking their medication.

Source: Tackling TB in Tuvalu, United Nations Development Programme 2019. https://stories.undp.org/tackling-tb-in-tuvalu.

Case study review

1. Identify the SDG/s being addressed in this program.
2. Explain the purpose of the program.
3. Describe the program and why it was introduced.
4. Provide examples of how the program reflects the features of effective aid.
5. Discuss how the program could promote health and wellbeing.
6. Discuss how the program could promote human development.

13.5 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information about one of the programs described in this section to answer the following questions:

1. Apart from SDG 3, what other SDGs may be achieved?
2. Who were the target groups for the program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.5 Exercise 2 APPLY your knowledge

1. Explain how the program would help to achieve SDG 3: good health and wellbeing.
2. Use the four features of effective aid to evaluate the success of the program.
3. Explain how the program would promote health and wellbeing.
4. Discuss how the program would promote human development.

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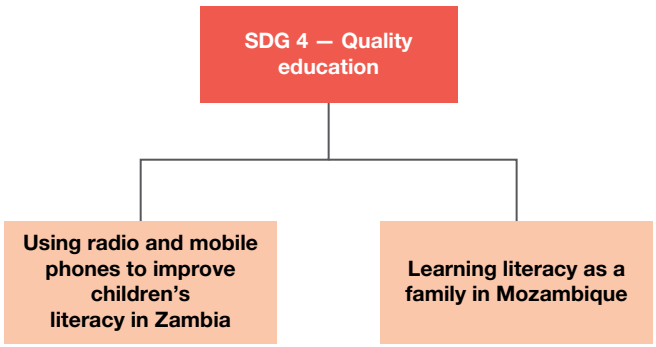
13.5 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.6 Aid programs addressing SDG 4 Quality education

KEY CONCEPT Aid programs implemented to achieve quality education

FIGURE 13.28 Programs included under SDG 4



When focusing on SDG 4 students can explore any one of the programs implemented.

13.6.1 Using radio and mobile phones to improve children's literacy in Zambia — 'The way we live' program

Background and purpose

In Zambia, children often miss out on the opportunity to develop literacy skills because there are few trained teachers, and many primary schools lack a variety of reading materials. In addition, less than 50 per cent of children in Zambia start primary school at the age of seven, which is the expected starting age. In 2014, the Ministry of General Education in Zambia mandated that children start their learning in all subjects in local language in primary schools so they could develop literacy skills in their mother tongue before transitioning to English. However, there is a limited supply of published local language books, which restricts children from improving their reading skills.

Although literacy levels are low across Africa, the rates of mobile phone usage are quite high, with 93 per cent of people having access to a mobile phone service. The purpose of the program is to develop mother-tongue reading materials and promote parental engagement in reading using mobile phone technology in Eastern Province, Zambia. The program is called 'The way we live' or Makhalidwe Athu in the local language. It uses digital Short Message Service (SMS) and Interactive Voice Response (IVR) messaging to regularly share local language stories with the children and their families using their personal mobile device. The project also aims to illustrate story booklets so they can be distributed to schools to provide children with new reading materials.

Implementation

The program is implemented by Creative Associates International in partnership with the local community and radio station, and is funded by USAID, World Vision and the Australian government as part of a larger program known as All Children Reading: A Grand Challenge for Development.

Each week, stories are provided by community members. Literacy specialists then adapt the local stories so they are age-appropriate and at a level that can be understood by the children. The stories are then sent by SMS to parents' phones so children can practise reading at home. Parents can engage with their children by asking reading comprehension questions that also come by SMS.

Another program partner Breeze FM, a popular Zambian radio station, is using radio to raise community awareness about the literacy program and to generate the collection of local stories. People can submit their stories online, via text, or by dropping stories off at the radio station. The radio station reads local stories on the air as part of a contest. Listeners call in and vote for their favourite story, building interest in generating more stories for children's literature. It also builds a sense of community belonging.

FIGURE 13.29 Parents receive stories by SMS on their mobile phones so children can read them. This helps build literacy skills.



Children and their caregivers gather together to read the short stories on their mobile phones. As each story segment — a total of three — is received on the device, the child writes them down in their exercise books. For further understanding, each story segment is followed by a question parents can ask their children. The questions are asked through SMS, and a recorded version of the story is available to assist illiterate parents. Sixty-eight per cent of participants who were surveyed in the pilot phase said they listen to the voice recording with their child.

More than 200 stories have been collected and shared during the project's pilot phase and now the community can revisit the reading materials for further practice and understanding. In the future, the stories can be reused for other education programs. The program not only helps build literacy but is also helping to preserve culture. It brings families together and all community members are participating in the program.

FIGURE 13.30 Local radio stations were part of the program to raise literacy levels by reading out the local stories that were submitted to the station.



Outcomes

To evaluate the effectiveness of the program, the University of Chicago collected results through an Early Grade Reading Assessment (EGRA), household survey and learner questionnaires. Around 1200 students in 40 school communities were expected to benefit. In the first 12 months it was found that parents, grandparents and other extended family members in all 1200 participating households reported reading the mobile stories with their children at least once a week, and 78 per cent said they read every SMS message when it was received three times a week. All caregivers reported that the project helped their children's learning process, and many household members actively participated in the reading activity.

Providing reading tools and resources helps empower children to achieve academic success. With the proper resources, an educated girl or boy can help break the cycle of poverty within their families and

communities. Students who fall behind in the classroom struggle to grow their reading skills at home. Often, these students don't return to the classroom.

13.6.2 How the program promotes health and wellbeing and human development

Programs that focus on improving literacy enable individuals to develop the skills to increase their opportunities for living a healthier life. Educated individuals are more likely to be employed in higher paid positions, thereby earning an income to improve their standard of living and being able to make decisions that may affect their lives and the lives of their families. With greater income, families have increased access to the quantity and quality of food required for good physical health and wellbeing. Good nutrition increases immunity and reduces the risk of disease. Greater income also means families can afford other resources, such as clean water and healthcare, which are important for reducing the risk of illness and disease. Being able to treat illnesses once they develop is important for improving physical health and wellbeing.

Educated individuals can read and understand information related to health and wellbeing, which enables them to not only prevent illnesses from occurring but also to seek the required medical assistance. They are also more likely to understand medical instructions, ensuring that medications are taken in the required dosage. This improves mental health and wellbeing by reducing stress and anxiety associated with the care of a family member who is ill as well as improving the physical health and wellbeing of individuals and populations.

FIGURE 13.31 Educated women are more likely to seek medical care and to take action to prevent ill health occurring.



By attending schools or groups where education programs are conducted, individuals become socially connected, which promotes social health and wellbeing. The literacy program in Zambia also built a sense of community belonging, promoting spiritual health and wellbeing.

The health and wellbeing of individuals and communities has a significant impact on the achievement of human development. Healthy individuals can work and earn an income, and are more likely to be involved in their communities, which is important for promoting human development. In this program, not only did it help build literacy skills, but it also helped to preserve culture, bring families together and encourage participation by all community members. All this promotes human development and social and spiritual health and wellbeing.

Similarly, creating an environment in which human development is promoted is important for ensuring that infrastructure, resources and services are available to improve health and wellbeing. At the national level, educating individuals results in a more skilled workforce, which contributes to a country's level of income. A country with a higher income can implement programs and develop infrastructure projects that promote health and wellbeing and human development. This can be achieved through creating an environment in which people can develop to their full potential and lead creative, productive lives in accord with their needs and interests. Educated individuals have more choices, have access to knowledge and a decent standard of living, and have greater opportunities to participate in the lives of their communities and the decisions that affect their lives. Educated parents are more likely to educate their own children, which is important for ensuring that improvements in health and wellbeing and human development are continued in the future.

CASE STUDY

Learning literacy as a family in Mozambique — Family Learning program

In Mozambique, adult illiteracy stands at 45% and is almost twice as common for women than for men. It is more prevalent in rural areas, where 57% of non-literate people live compared to 23% in urban settings. Illiteracy has a significant impact on the daily lives of individuals. It prevents them from accessing high-paying jobs, as well as equal involvement in their local community, and social and political discussion and debate. It also perpetuates intergenerational cycle of poverty and slows long-term economic growth. The Capacity Development for Education (CapED) Programme, UNESCO's delivery platform for the Education 2030 Agenda, has engaged in efforts to tackle this challenge. CapED is working alongside the government to develop a new curriculum for Primary Education for Youths and Adults, which is currently being piloted in Mozambique. The Programme also builds the capacities of teacher-trainers who will go on to instruct teachers of non-literate adults and youths.

CapED is also supporting a Family Learning Programme, which was originally developed by the Malala Fund. CapED enriched the programme by developing the content of its learning manual, and supported the training of literacy teachers to use this manual.

The Programme's aims are to equip non-literate families with literacy, numeracy and life-skills, such as hygiene techniques, nutrition and parenting. The programme also aims to address the scarcity of early childhood education in Mozambique, as only 4% of under 5-year-olds receive this type of education. The programme equips parents with the skills they need to support the early development of their children and prepare them for primary school education through joint learning.

The Family Learning Programme is currently being rolled out in two provinces, Nampula and Maputo. Nampula province has a population of 6.1 million and over half of adults are non-literate. 40-year old Maria Nhagegue and her husband Augusto Bernardo, who works as a fisherman have seven children and both enrolled in the Family Learning Programme. The programme has had a large impact on their family, affecting their relationships with each other, and with their wider community, as with literacy skills they can better participate in society.

Due to financial difficulties, neither Augusto nor Maria attended school as children. When asked what the Family Learning Programme brought them Augusto said they are both more open with their children now. Maria added that she "can feel changes within my family and with the outside community," explaining that their interpersonal relations had improved. Augusto also discussed how his children have better Portuguese skills. "I can see a big difference between children who go to school and children who do not go."

A 27-year-old mother of four, Zanaida Ayuba who is a trained adult educator, responsible for 24 learners in the Family learning Programme said, "Our main challenge is the lack of books for post-literacy programmes. In addition, we don't have an appropriate place to learn but my students come anyway." She said learners appreciated learning about nutrition, hygiene, and family dynamics and they found leaning to read and speak Portuguese the most challenging.

"They use the knowledge [mathematics] for their daily lives, for calculations in the market, paying for transport, how to manage and understand their machamba [small plots of agricultural land]." Zanaida's own training on teaching the Family Learning Programme had encouraged her to change her own habits with her four children. "I am now more motivated to oversee and support my children with homework, discuss issues and what they learn at school", she says.

Source: Learning literacy as a family in Mozambique UNESCO 2018. https://en.unesco.org/news/learning-literacy-family-mozambique.

Case study review

1. Identify the SDG/s addressed in this program.
2. Why was this program introduced?
3. What was the purpose of the program?
4. Why is literacy important?
5. How has this program promoted health and wellbeing and human development?
6. Use the features of effective aid to discuss whether the program is an example of an effective aid program.

13.6 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information in this section about the 'Way we live' literacy program in Zambia to answer the following questions:

1. Apart from SDG 4, what other SDGs may be achieved with this program?
2. Who were the target groups for the program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.6 Exercise 2 APPLY your knowledge

1. Explain how the program would help to achieve SDG 4: Quality education.
2. Use the four features of effective aid to evaluate the success of the program.
3. Explain how the program would promote health and wellbeing.
4. Discuss how the program would promote human development.

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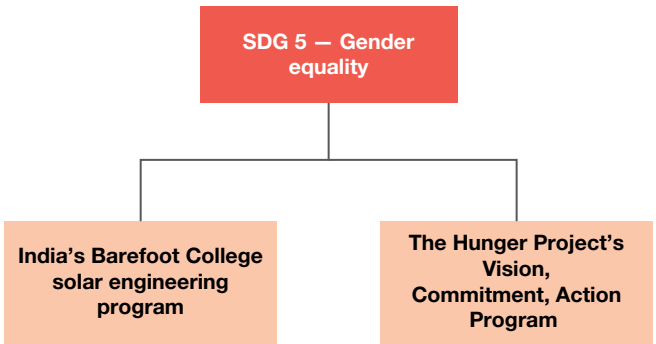
13.6 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.7 Aid programs addressing SDG 5 Gender equality

KEY CONCEPT Aid programs implemented to achieve gender equality

FIGURE 13.32 Programs included under SDG 5



These programs are examples of programs implemented to address SDG 5: Gender equality

13.7.1 India's Barefoot College solar engineering program

Background and purpose

In many remote villages in low-income countries around the world, there is no access to electricity and women rely on having to purchase expensive kerosene, wax candles or batteries to provide some form of lighting. Without electricity and lighting, evenings become more dangerous for women and children, who are at greater risk of violence. Income generating activities are restricted and children are unable to read or

study at night. The use of kerosene and wax candles can result in fires, and the use of kerosene for lighting and cooking contributes to indoor air pollution and the associated illnesses such as lower respiratory infections.

The Barefoot College is a non-government organisation that was started in Tilonia, India, in 1972 by a farmer and social worker. They believed that the way to improve living conditions in poor areas was to empower rural women, particularly those who are illiterate or semi-literate. In many countries, women are often discouraged from getting an education, banned from participating in their communities and do not have access to money or other assets.

Barefoot College launched their first solar program in 1990. The purpose of the program was to provide access to solar-powered electricity in remote and isolated parts of India. They started training young people and semi-literate and illiterate women to become solar engineers. The trainees, who came from all over India, learned to identify parts by their shape and colour, to develop their skills by following verbal instruction and were taught technical skills by watching and following their trainers.

Middle-aged women, most of whom were grandmothers were found to be the most successful participants in the program. They were easier to teach and were committed to improving life in their village, and had no desire to leave the village once they had received training. The grandmothers also maintained strong connections in their villages and played a major role in community development, bringing sustainable electricity to remote, inaccessible villages. The program has expanded and is now being implemented in low-income countries in Africa, the Middle East, Asia and South America.

FIGURE 13.33 Many women in Africa rely on kerosene and candles to provide lighting. This contributes to indoor air pollution.



Implementation

In partnership with local and national organisations, a team from the Barefoot College and the Village Energy and Environment Committee (VEEC), look for rural communities where they believe solar energy will make a substantial difference. They travel to the community where they establish a relationship with village elders who help ensure there is community support. The program is based on the belief that the village community needs to manage, control and own the solar generators as well as repair and maintain them. Therefore, the program will only be implemented in villages that make a commitment to do this. This builds a sense of ownership of the program.

When the VEEC team come to the village, all members come together so they can understand the benefits of having solar power and how the program will operate. Once the women engineers are trained, the ongoing cost of providing the service must be paid for by the community. The community themselves decide how much they can contribute each month for the maintenance and repair of the equipment. This amount is usually based on what they currently spend buying kerosene, batteries or candles. The community chooses two women in their mid to late 40s who will travel to Tilonia in India to live for six to nine months to become trained as solar engineers. Funding is provided by a range of donor organisations,

including the United Nations Development Program, the Indian government, international aid agencies and private and corporate foundations. Training and travel costs are provided free for participants.

During the six to nine months of training, the women are taught by listening, memorising and being shown how to:

- handle sophisticated charge controllers and inverters (solar cells produce direct current, (DC) which is converted into standard alternating current (AC) using an inverter)
- install solar panels and link them to batteries
- build solar lanterns
- establish a local electronic workshop where they can carry out all major and minor repairs to the solar power system themselves.

FIGURE 13.34 The Barefoot solar engineer program trains illiterate middle-aged women to become solar engineers. They are taught by listening, memorising and by demonstration.

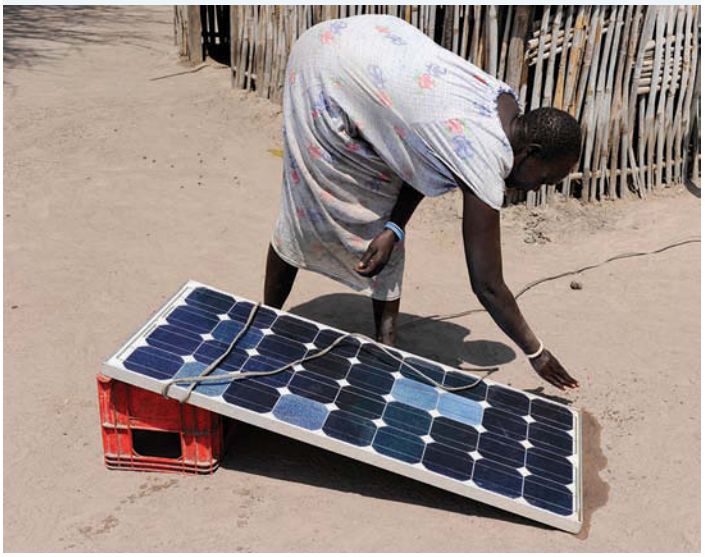


The Barefoot College provides each village with up to $50 000 in solar equipment for 120 households. Once the course is finished, the women return to their villages where they install the solar lamp kits and are paid a monthly salary for fixing and repairing them. A committee headed by four women and three men from the village remain in charge of the equipment.

Outcomes

The Barefoot College has trained hundreds of semi-literate and illiterate women, many of them grandmothers from the poorest countries, to be solar engineers. They have all gone back home to install solar panels and batteries, maintain and repair them and change life in their remote villages. An estimated 10 000 women students have passed through the college's doors, while previous students from the college are running more than 800 night schools across India.

FIGURE 13.35 Women are trained to clean and maintain the solar panels in their community and are paid a monthly salary for their services.



The solar program empowers village communities but, more importantly, they empower women. As one Barefoot engineer whose husband and in-laws did not want her to go for training explained, 'My husband will never say it, but I know he's proud of me. Now he asks me to maintain his accounts for him.' Another said, 'I now look back at my childhood when I always dreamed of doing something big for my society. My mother used to laugh at me. Today my family, my neighbours, and even the village elders respect me and value my contribution. It feels wonderful.'

Solar power also reduces carbon dioxide emissions, slows the impacts of deforestation and decreases air pollution from burning firewood and kerosene. It also contributes to improved health and wellbeing outcomes.

13.7.2 How the program promotes health and wellbeing and human development

The program has provided communities with a clean source of energy for lighting, which promotes physical health and wellbeing. The solar energy sources replace the kerosene and wax candles previously used for indoor lighting. These sources produced indoor air pollution and contributed to lower respiratory diseases for all family members, particularly children, who are more vulnerable to the pollutants. Providing communities with lighting also promotes emotional health and wellbeing, as women and children feel safer at night and less vulnerable to violence. This also reduces stress and anxiety promoting mental health and wellbeing.

This program promotes gender equality. Women, who are traditionally discouraged from gaining an education or being employed, are provided with the knowledge and skills to contribute to their community and earn an income doing so. This promotes emotional health and wellbeing because it brings a sense of pride to the women involved and increases their self-esteem promoting mental health and wellbeing. Being given a chance to attend the Barefoot College also promotes social health and wellbeing as new relationships are developed during this time.

The program brings strong connections to the community and builds a sense of pride and ownership. Women feel proud to be able to give something back to their community, which promotes spiritual health and wellbeing.

The program also promotes human development. It improves the quality of life for the women and for those living in the community. The women have more freedom and opportunities to have control and make choices about factors affecting their lives. Improved health and wellbeing outcomes contributes to an improved standard of living and a chance to live a long and healthy life. The program helps develop knowledge and addresses the basic human right of gender equality. The women feel a greater connection to their community and can now participate in its political and social life. This assists women to develop to their full potential and lead productive and creative lives.

CASE STUDY

The Hunger Project's Vision, Commitment, Action workshop



Louise is from a small village in Benin, West Africa. She lives with her six children and her husband, who works the land and grows corn.

In the past, Louise wasn't allowed to participate in decision-making, either in her own home or the community — simply for being a woman. Traditional cultural practices meant Louise didn't have a voice of her own.

When she participated in The Hunger Project's unique Vision, Commitment, Action workshop, Louise saw that she had vision for the future and that she could be the one to turn it into reality. Since then, she has gained confidence in her own capacity and leadership, and has become the leader of a microfinance group within her community. Her opinions, and her voice, are now respected.

"Before, my voice wasn't heard when I brought something up for discussion. Now, I am part of the village council. I bring the local women together around microfinance, and I also share information I've learned about the importance of reading and writing, nutrition and hygiene," Louise says.

As a result of leading the small, local microfinance group, she has been able to expand her fruit, corn and peanut businesses to support her family — together with her husband. She now also advises other women on running their small businesses.

When the microfinance group gathers, Louise also takes the opportunity to educate them on literacy, health and nutrition, so that the whole community flourishes.

"It gives me a lot of joy when I see the results of my work. For example, many women are now supporting their families financially — and they know how to feed their children nutritious food. That makes me feel good. I will stand by these women to achieve what they want," she says.

Source: Meet Louise: The Hunger Project Australia. August 2018. https://thp.org.au/meet-louise/.

Case study review

1. What was the purpose of the Vision, Commitment and Action workshop?
2. Other than SDG 5, what other SDGs could be achieved by this workshop?
3. Select two features of effective development and explain how these are evident in the workshop.
4. Discuss how the workshop promotes health and wellbeing and human development.

13.7 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information in this section about the Barefoot College solar engineering program to answer the following questions:

1. Apart from SDG 5, what other SDGs may be achieved with this program?
2. Who were the target groups for the program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.7 Exercise 2 APPLY your knowledge

1. Explain how the program would help to achieve SDG 5: Gender equality.
2. Use the four features of effective aid to evaluate the success of the program.
3. Explain how the program would promote health and wellbeing.
4. Discuss how the program would promote human development.

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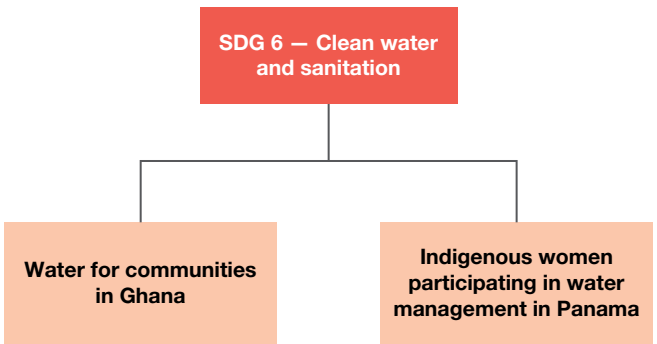
13.7 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.8 Aid programs addressing SDG 6 Clean water and sanitation

KEY CONCEPT Aid programs implemented to achieve clean water and sanitation

FIGURE 13.36 Programs included under SDG 6



When studying programs implemented to address SDG 6, students can choose either of these two programs that have been implemented.

13.8.1 Water for communities in Ghana

Background and purpose

Zabzugu is in one of the poorest regions in Ghana, and 85.3 per cent of the people live in poverty. Only 38.3 per cent of the population has access to drinking water and suitable latrines. Others have a well, but it is not enough to provide all members of the community with the required 20 litres per person required for drinking and cooking food every day. Some of these communities only have access to nearby streams where they collect water. However, these streams are also used to water their livestock and wash their clothes, which makes them dangerous as water sources. In some communities, the women and children must walk many kilometres to fetch water supplies. The people live mainly from subsistence agriculture from corn, sorghum and cassava. The land is also very rocky, making it difficult to find underground water sources. When it can be found, it is often 45 metres down in the deeper layers of rock. The building of wells is, therefore, complicated and expensive. Out of every 1000 newborn infants, 50 will die before reaching their first birthday, and 71 per cent of children under the age of five suffer from chronic malnutrition.

FIGURE 13.37 In countries such as Ghana, the only water sources are those that are also used to water livestock and for washing.



The purpose of the water program was to provide sustainable access to 20 litres of clean drinking water per person per day to 10 communities in Zabzugu to reduce the prevalence of diseases in the community caused by drinking unsafe water.

Implementation

The program was included in the Ghana government's development program for the Zabzugu area. It was funded by the We Are Water Foundation and supported by World Vision. It involved:

- careful planning to ensure the wells were placed in areas of greatest need; there was community participation in establishing this
- using mapping and research techniques to locate the best water sources before building the wells
- testing the quality and flow of the water to ensure the water was high quality
- installing hand pumps as well as protection for the wells to avoid contamination
- establishing a water committee within each community who were trained and provided with the tools necessary for the maintenance and upkeep of the wells

FIGURE 13.38 In the first phase of the water program 3000 people benefited from access to safe water. In the second phase a further 3300 people benefited.



- training two technicians and providing them with the tools needed to be able to carry out the necessary repairs
- establishing a system within the community to raise the funds needed for the ongoing repair and maintenance of the hand pump.

Outcomes

In the first phase of the program, at least 3000 people benefited from access to clean water. In the second phase, access to clean drinking water was provided to a further 3300 people in another nine communities.

13.8.2 How the program promotes health and wellbeing and human development

The provision of clean water and sanitation is essential for the prevention of a range of diseases, such as diarrhoea and cholera, which improves physical health and wellbeing and reduces under-five mortality rates. Having access to clean drinking water means that children will have better nutrition and will be able to attend school. Parents will also have improved physical health and wellbeing and will be able to undertake work and provide an income for their family. The time spent by the population, usually women and children, collecting water will be dramatically reduced, which means children are able to attend school and women are able to work to earn an income. This promotes social health and wellbeing and brings about a sense of pride and self-esteem, which promotes emotional and mental health and wellbeing. When people are free from water-related diseases and able to interact with others, they are more likely to engage in activities within their villages. This is important for building positive relationships with members of the community, which promotes spiritual health and wellbeing. When individuals feel connected to their community, they are more likely to uphold the rules, laws and values of their communities. This is important for creating an environment in which human development can be promoted. People feel empowered to participate in the social and political life of their community and have greater control over the decisions that affect their life.

The program not only focused on the provision of clean water and sanitation, but also includes education regarding the maintenance of these resources. Educated individuals have an increased capacity to earn a higher income, which improves their access to resources such as medications, food and other resources that are required to improve physical health and wellbeing. This is important for human development, as it provides opportunities for people to enjoy a decent standard of living and develop to their full potential. Life expectancy is increased and individuals have a greater chance of living a productive and creative life in accord with their needs and interests.

CASE STUDY

Indigenous women participating in water management in Panama

Panama had a high Human Development Index in 2010 but there was significant social and economic inequality between those living in urban, rural and indigenous areas. Poverty affected 16 per cent of the population in urban areas, while 96 per cent of the indigenous population lived in poverty, with 42 per cent living in extreme poverty. 61 per cent of households in the region had no access to drinking water and 59 per cent had no sanitary way to get rid of their excrement. Common practice was using rivers for drinking water and other domestic uses, including the disposal of excrement.

Access to safe and affordable water is important for eradicating poverty and to achieve good health and wellbeing, however, it is also important for the empowerment of women. When there is no easily accessible water, it is mostly women who have to collect it, often spending large amounts of time and energy. It brings problems ranging from physical disorders to the near impossibility of women being involved in other activities such as education, income generation, politics, or rest and recreation. The lack of accessible services also leads to tension within a household, which increases the vulnerability of women to domestic violence.

This program aimed to provide access to water and sanitation services for the excluded populations in Ngäbe Buglé in Panama, giving men, women, girls and boys in the communities the opportunity to improve their living conditions and quality of life. There was a particular focus on the participation of women.

The aims of the programme were to:

- Improve the infrastructure to provide access to water, sanitation and health services.
- Increase awareness of the importance of civic participation in an organized manner to increase the monitoring of the quality of water for human consumption, and to develop the skills to operate, manage, protect and maintain the water supply services that were built.

The Programme provided the community with education and specific training in different areas such as: water management, hygiene and sanitary education, environmental awareness, and the rights of women and children. The programme trained 23 school brigades, creating a network of 117 educators and 160 young people. There were also workshops for disease prevention and training of small businesses among rural and indigenous populations in building water infrastructures. Audio-visual materials that were developed were adapted to the Ngäbe culture.

At the beginning of the programme it was difficult to involve women, but each of the United Nations agencies involved took on a share of this work. UNICEF managed to involve them in programme activities, the ILO (International Labour Organisation) trained women entrepreneurs, and WHO identified women leaders capable of teaching knowledge and ensuring sustainability.

As well as providing access to drinking water and sanitary systems, one of the biggest impacts was the empowerment of indigenous women. They participated actively in all phases of the programme, and afterwards took on leadership responsibilities with water management. It offered women the opportunity to learn, share experiences, and demonstrate their ability to perform tasks which were previously only accessible to the men.

Source: Indigenous women participating in water management in Panama United Nations Sustainable Development Goals Fund. http://www.sdgfund.org/case-study/indigenous-women-participating-water-management-panama.

Case study review

1. Why was the water and sanitation program important for the indigenous communities in Panama?
2. In addition to achieving SDG 6, what other SDGs were being addressed in this program?
3. Using the features of effective aid, discuss whether this program represents effective aid.
4. Discuss how the program would promote health and wellbeing and human development.

13.8 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information in this section about the safe water and sanitation program in Ghana to answer the following questions:

1. Apart from SDG 6, what other SDGs may be achieved with this program?
2. Who were the target groups for the program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.8 Exercise 2 APPLY your knowledge

1. Explain how the program would help to achieve SDG 6: Clean water and sanitation.
2. Use the four features of effective aid to evaluate the success of the program.
3. Explain how the program would promote health and wellbeing.
4. Discuss how the program would promote human development.

studyON

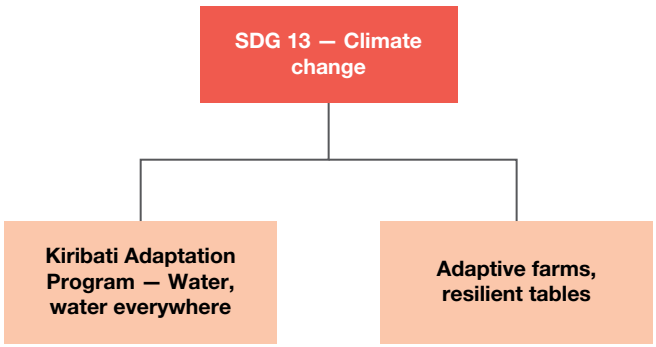
13.8 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.9 Aid programs addressing SDG 13 Climate action

KEY CONCEPT Aid programs implemented to take action on climate change

FIGURE 13.39 Programs included under SDG 13



These two programs have been implemented to address SDG 13 and students can study either of these.

13.9.1 Kiribati Adaptation Program — water, water everywhere

Background and purpose

Kiribati is located in the Central Pacific Ocean and is made up of 33 coral atolls spread across 5.3 million square km. Most of the islands are less than two kilometres wide, with an average height of 1.8 metres above sea level. With the entire population and most of the infrastructure located on the coast, damage and coastal erosion from high tides, storm surges and strong winds is an increasing issue. King tides can wash over entire islands, causing flooding for days and contaminating drinking water supplies for weeks and even months. Prolonged droughts can cause extreme water shortage, affecting agriculture and peoples' health and wellbeing.

FIGURE 13.40 Kiribati is very vulnerable to the impact of climate change. King tides can wash over entire islands, causing flooding and contaminating drinking water supplies.



North Tarawa, while still part of the main island of Kiribati, is only accessible by boat and remains largely subsistence-based, with residents gathering most of their food and water from their surroundings. Until recently, communities used ground water from wells for all their cooking, drinking and farming needs. While usually safe after boiling, ground water can become contaminated by seawater during floods and king tides, making people, especially children, sick. Prolonged periods of drought often mean heavy rationing of water, affecting general health and wellbeing and agriculture. Infant mortality in Kiribati is the highest in the Pacific Islands, at 43 deaths per thousand live births, with diarrhoea contributing to most of these deaths.

Implementation

The World Bank has been working with the government of Kiribati since 2003 on three phases of the program. The first phase focused on supporting education programs to raise awareness of the impacts of climate change and incorporating climate change into government policies. The second phase of the program focused on mangrove planting and the construction of seawalls to address coastal erosion and the third phase is focused on developing rainwater collection systems (rainwater tanks). These measures are designed to help Kiribati better prepare and withstand climate related impacts in the future.

FIGURE 13.41 The installation of water tanks provides Kiribati with clean water that is not contaminated by seawater during floods and king tides due to climate change.



Extensive consultations with local authorities and community members was undertaken to design the systems to be used, decide on the most appropriate buildings and locations (to be retrofitted with gutters and piping to help catch rain and direct it to the tanks) and to establish operation and maintenance committees, which are responsible for the systems and their maintenance. The water goes straight to the tanks where it is stored and shared among the people, who also decide on how the water will be rationed during times of drought.

Key coastal areas of Kiribati are also being protected through locally managed adaptation plans, identifying vulnerable areas or infrastructure and mapping out ways to maintain or protect it from climate-related events. The Kiribati Adaptation Project and its activities are supported through the governments of Australia, Japan and Kiribati, as well as the global Environment Facility and the World Bank Global Facility for Disaster Reduction and Recovery.

Outcomes

The program will benefit over 100 000 people living in Kiribati. By better adapting to effects of climate change, Kiribati can improve water resources and better protect its coast against storm waves and flooding. These adaptation measures will also help the country better manage natural hazards.

13.9.2 How the program promotes health and wellbeing and human development

Clean water is essential for the prevention of many diseases, such as diarrhoea, which is the leading cause of infant deaths in Kiribati. A clean and adequate water supply promotes physical health and wellbeing. When children have good physical health and wellbeing, they can attend school. With clean water, parents will also have improved physical health and wellbeing. This enables them to work and provide an income for their family. Attending school and being able to work promotes social health and wellbeing and brings about a sense of pride and self-esteem, which promotes emotional and mental health and wellbeing. This program provides opportunities for communities to be involved in the design and implementation of the program, which builds positive relationships with members of the community and promotes social and spiritual health and wellbeing. When people feel connected to their community, human development is promoted. They are more likely to participate in the social and political life of their community and have greater control over the decisions that affect their lives.

The Kiribati Adaption program is also focused on building resilience to climate change. Through action taken to stop erosion of the coastal areas and the building of sea walls, flooding will be reduced and people's livelihoods are more likely to be protected. As sea levels rise, the islands are more likely to be able to withstand the impact. Fewer homes and farming areas will be lost, which will reduce stress and anxiety

and provide families with a more optimistic outlook for the future promoting mental health and wellbeing. The loss of crops and homes contributes to poverty and ill health.

The program not only focuses on the provision of clean water and sanitation but also includes education regarding the maintenance of these resources. Educated individuals have increased capacity to earn a higher income, which improves their access to resources, such as medications, food and other resources that are required to improve physical health and wellbeing. This is important for human development because it provides opportunities for people to enjoy a decent standard of living and develop to their full potential. Life expectancy is increased and individuals have a greater chance of living a productive and creative life in accord with their needs and interests.

CASE STUDY

Adaptive farms, resilient tables

Climate change is affecting the types and availability of food in many parts of the world. In some countries, climate change is bringing about food insecurity due to increasing food scarcity, and many people are struggling to get enough to eat. In other countries, climate change is bringing about changes in the types of food that are available for consumption, which is changing food culture and customs. The impact of climate change means many countries will have to make changes to agricultural practices and food customs to allow them to adapt.

A program has been implemented by the United Nations Development Program Climate Change Adaptation Facility (CCAF), with support from the government of Canada and the Global Environment Facility's Least Developed Countries Fund, to support six low-income countries and small island developing states (Cabo Verde, Cambodia, Haiti, Mali, Niger and Sudan) to strengthen climate resilience and improve food security. The CCAF is working with rural farmers to improve both the access to water and the management of available water, and to introduce new varieties of crops that are more resilient to the impact of climate change.

Making land available for cultivation, and improving the agricultural inputs for women is not only enhancing food security in these countries, but is also promoting gender equality, improved nutrition through an increased diversity in vegetable gardens and providing an income for women. Sweet potatoes are part of the high-nutrition crops that have been distributed to the farmers in the project's targeted communities.

In Niger increased yields from crop production is increasing food security and reducing the need for money to purchase food. In Niger, the CCAF program helped groups of women secure collective plots of land to grow vegetables. In Niger, new and improved varieties of millet and other crops have been introduced, such as cowpeas cultivated by a women's collective. In Niger, project activities included establishing village seed banks.

In Cambodia and Mali, women are enhancing their vegetable gardens to produce a wider variety of crops for families to eat, which helps improve nutrition. In Cinzana, Mali, cooperative vegetable gardens were established with access to water, tools and land to diversify their food and livelihoods. In Cambodia, project activities have improved water access, including water for staple crops, like rice, and small-scale vegetable gardens. In Cambodia, thanks to improved water access, individual gardening plots serve to enhance nutrition and increase income.

In Cabo Verde and Sudan, farmers are trialling new varieties of crops that are more resilient to drier conditions. In Haiti, farmers are developing and implementing individualised farming plans to achieve subsistence food production and income. In Haiti, wood and fruit tree species were introduced in seedling nurseries, combatting deforestation and increasing food supply.

To celebrate the successes of this program, a cookbook using traditional recipes has been created to examine and raise awareness of the links between food security and climate change. The cookbook presents information on how climate change is affecting specific foods and how each country's adaptations are changing the foods and cooking methods traditionally used.

Source: Adapted from 'Adaptive farms, resilient tables', from Climate Change Adaptation UNDP, 2017.

Case study review

1. Which SDGs are addressed by this program?
2. Explain how climate change is affecting food security.
3. Who are the partners involved in the implementation of this program?
4. Briefly outline how the program was implemented.
5. What are the benefits or outcomes of the program?
6. Use the features of effective aid to draw conclusions about the effectiveness of this aid program.

13.9 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Use the information in this section about the Kiribati Adaptation Program to answer the following questions:

1. Apart from SDG 13, what other SDGs may be achieved with this program?
2. Who were the target groups for the program?
3. Explain the purpose of the program.
4. What partnerships were involved in the program?
5. Describe how the program was implemented.

13.9 Exercise 2 APPLY your knowledge

1. Explain how the program acts on climate change.
2. Use the four features of effective aid to evaluate the success of the program.
3. Explain how the program would promote health and wellbeing.
4. Discuss how the program would promote human development.

studyON

13.9 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

13.10 Taking social action

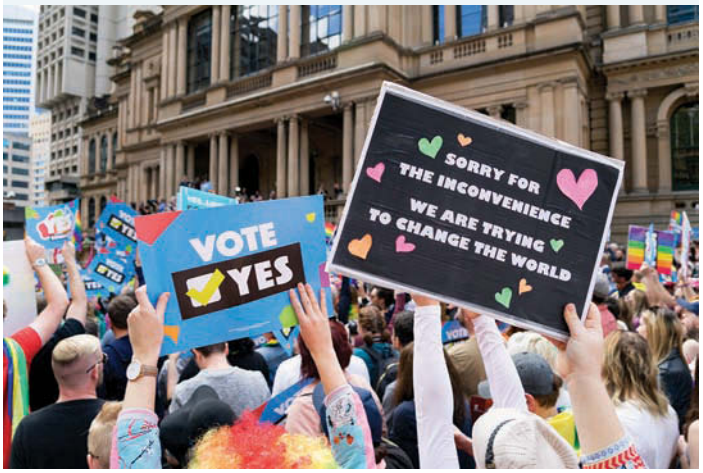
KEY CONCEPT Understanding ways in which people can take social action

on Resources

Teacher-led video Taking social action (tlvd-0264)

Social action is about doing something to help create positive change. Individuals can take social action at a personal level, or can join an organised group to advocate for change. Large-scale social action in the past has been successful in bringing about significant social change such as the **suffragette movement** of the late nineteenth and early twentieth centuries which was successful in giving women the right to vote; or the civil rights campaign in Australia from the late 1950s during which Aboriginal and non-Aboriginal activists came together to fight for equal civil rights for Indigenous Australians. This is often the image people have about taking social action: being part of demonstrations, rallies and marches and carrying signs and placards. By working together, groups can exercise greater power because of their numbers.

FIGURE 13.42 People often associate taking social action with demonstrations, rallies and marches.



However, social action is not just about being part of large-scale campaigns and demonstrations. There are many ways individuals can take action to bring about social change. Social action can be used to influence the decisions of those who have the power to make changes, or actions can be taken to directly address a problem and effect change. People can use their purchasing power, the media, their votes, **boycotts**, and other types of social, political, and economic pressure to convince governments and other decision makers to rethink their decisions, or take action that helps those who are worse off than themselves. Having a say shows understanding and concern about issues such as poverty, inequality and climate change. Social action has been demonstrated to be effective in bringing about change. When people come together, unite and advocate for change, they can make a difference.

Some of the reasons why people might engage in social action include:

- *to help those who are less fortunate than themselves.* Social action raises awareness of their situation.
- *to ensure that the needs of all people are represented*, particularly those who are often ignored such as minority groups, those with low income or those with a disability.
- *to eliminate discrimination.*
- *to prevent harm and damage to the community or the environment*. An example is advocating against large-scale development of fragile environmental areas.
- *to preserve something of historical or social value*.

FIGURE 13.43 There are many ways in which people can take social action.



13.10.1 Ways of taking social action

While there are many reasons why people take social action, there are also many different types of social action that can be taken. People can:

- volunteer their time to assist in raising funds or be part of a volunteer program designed to help improve the lives of others and their communities. An example of this could be volunteering to collect money as part of the Red Shield Appeal for the Red Cross. These funds are often used to help those people who are disadvantaged in the local community.
- donate money to non-government organisations such as World Vision, Oxfam, Red Cross and others to help them continue the work they do in low- and middle-income countries. Through these organisations, people can donate money to fund development programs, provide emergency assistance, sponsor a child or provide microfinance to help families start a small business.
- conduct fund-raising events in the school or community to support a social change project
- show support for a social change campaign by signing online petitions, being involved in online competitions and other social media activities. Community support from around the world can be a powerful way to show the leaders of countries that people around the world are watching and following and the issue is not hidden.
- find out more about social issues and implement an awareness campaign locally or through social media outlets
- use purchasing power to buy products that support actions to promote social change. Many non-government organisations provide online shopping where the profits from selling goods is given back to communities or used to bring about social change.

- lobby governments or decision makers by organising a group of people to write letters to newspapers, send emails to politicians and invite politicians to attend a community gathering to answer questions
- organise a boycott, which means people collectively decide not to buy particular products because of how they are made, how the workers are treated or the impact they have on the environment
- start a social enterprise activity. A social enterprise activity is based on identifying and researching a problem, planning a solution, developing an action plan and then taking action to solve the problem.

FIGURE 13.44 There are many different ways people can take social action.



CASE STUDY

Citizens of the Great Barrier Reef: going beyond our backyard to protect the reef

By Georgina Gurney

From place-based to problem-based campaigns, we are seeing a rise in initiatives aiming to foster collective environmental stewardship among concerned citizens across the globe. These international communities

have arisen to meet new environmental challenges and seize the opportunities presented by our increasingly connected world.

Traditional approaches to community engagement have tended to focus only on the involvement of local people. However, the recently launched Citizens of the Great Barrier Reef initiative highlights the changing nature of community engagement aimed at fostering environmental stewardship.

In a globalised world, maintaining treasures like the Great Barrier Reef and other ecosystems affected by global-scale threats demands new approaches that involve participation not only of people living locally, but also those in distant places.

A connected world

Today's environmental problems tend to be characterised by social and environmental connections with distant places.

In terms of environmental connections, places such as the Great Barrier Reef are increasingly affected by global threats. These include: poor water quality associated with port dredging driven by international mining; reef fisheries influenced by national and international markets; and, most importantly, coral bleaching caused by climate change. Social and political action beyond the local is needed to combat these threats.

Social connections are increasing through both ease of travel and social media and other forms of virtual communication. This provides opportunities to engage more people across the globe to take meaningful action than ever before. People are able to form and maintain attachments to special places no matter where they are in the world.

Our recent research, involving more than 5000 people from over 40 countries, shows that people living far from the Great Barrier Reef can have strong emotional bonds comparable to locals' attachments. These bonds can be strong enough to motivate them to take action.

Harnessing social media

Increasing social connections across the globe don't only allow people in distant locations to maintain their attachments to a place, they also provide a vehicle to leverage those attachments into taking meaningful actions to protect these places.

Such strategies can now be used even in the most remote of locations — such as 60 metres above the forest floor in a remote part of Tasmania.

During her 451-day tree sit, activist Miranda Gibson co-ordinated an online action campaign. She was able to engage a global audience through blogging, live streaming and posting videos and photos.

Social media provide a new way to foster a sense of community among people far and wide. In this sense, "community" doesn't have to be local; individuals with common interests and identities can share a sense of community globally. Indeed, this is a key ingredient for collective action.

Employing images and language targeted to appeal to people's shared attachments to a place can help increase collective stewardship of that place.

Beyond slacktivism

An important challenge in engaging distant communities in environmental stewardship is to avoid the pitfalls of "*slacktivism*".

This refers to the phenomenon of people taking online actions that require little effort, such as joining a Facebook group. It makes them feel good about contributing to a cause but can stop them from taking further action that has real on-the-ground impacts.

More meaningful options are available to people in remote places that can result in real change. These include lobbying national governments, international organisations (such as the World Heritage Committee), or transnational corporations (to prioritise corporate social responsibility, for example). Most organisations that have successfully engaged distant people in environmental stewardship, including *Fight for Our Reef*, have tended to take a political approach to help with lobbying efforts.

Other meaningful actions that can be undertaken remotely include supporting relevant NGOs and reducing individual consumption.

A new approach to global citizenship

The Citizens for the Reef emphatically *state* that they are "not looking for Facebook likes" but seek "real action".

The six actions being promoted include reducing consumption of four disposable products, eliminating food wastage, and financially supporting crown-of-thorns starfish control. Signed-up citizens are given an "impact score", based on undertaking these actions and recruiting others, and can compare their progress to others around the world.

The initiative provides an example of a new form of environmental activism that is emerging in response to increasing global environmental and social connection. The significant challenge for this initiative is to gain the sustained engagement of enough people to achieve real-world impact.

Ultimately, however, while the local to global public certainly have a critical part to play in addressing these threats, this does not diminish the responsibility of government and the private sector for safeguarding the future livelihood of the Great Barrier Reef.

Source: 'Citizens of the Great Barrier Reef: going beyond our backyard to protect the reef', Georgina Gurney, *The Conversation online*, March 9, 2018, https://theconversation.com/citizens-of-the-great-barrier-reef-going-beyond-our-backyard-to-protect-the-reef-86858.

Case study review

1. Using examples from the case study, justify why social media can be an effective way to undertake social action.
2. What does the article mean by slacktivism and how does this impact on the effectiveness of taking social action?
3. Explain how the Fight for our Reef initiative are seeking 'real action' and what does this mean?
4. What are the range of options for taking social action identified in the article?
5. Discuss how this example of social action could promote health and wellbeing.

13.10.2 Social action and the Sustainable Development Goals

Taking social action is important for the achievement of the Sustainable Development Goals (SDGs). If people are not aware of the problems that exist and the extent and causes of poverty, inequality and climate change, then the need for governments and decision makers to take action may not be considered a priority. Public pressure is important to build political will. When the community demands change and it is driven by people, positive change is possible.

A SDGs in Action app has been developed that can be easily downloaded onto any mobile device. It provides information on each of the goals and the targets, provides videos to help explain each goal, provides facts and figures, pushes out news items and provides ideas about how people can achieve the goals, create an action and invite others to participate. People can choose the goals that are important to them and automatically receive notifications about them and find actions and events they can join to support the goals.

FIGURE 13.45 The SDGs in Action app can be easily downloaded onto any mobile device and provides information on how people can get involved in taking social action for each of the SDGs.



13.10.3 Social enterprises and purchasing power

There are now many examples of social enterprises. Their development has been motivated by a sense of needing to make a change to existing practices. Social enterprises aim to raise awareness of the injustices that exist in the world and harness social action to make changes. Two examples are Who Gives a Crap and Fairtrade.

Who Gives a Crap

Who Gives a Crap is a social enterprise that was implemented in 2012 to overcome a global problem. Three university graduates became aware that 2.3 billion people across the world don't have access to a toilet and that diarrhoea-related diseases accounted for over half of sub-Saharan African hospital beds and killed 900 children under five every day. They developed a plan for addressing the problem. Their plan was to sell

environmentally friendly toilet paper in a way that was financially sustainable and helped address water and sanitation issues. They launched a **crowdfunding campaign**. To generate awareness and raise the funds necessary to establish their enterprise, one of the creators sat on a toilet and refused to move until they had raised enough pre-orders to start production. Within 50 hours they had raised over $50 000.

Their first product was delivered in March 2013. For every roll of toilet paper sold, they donate 50 per cent of the profits to a portfolio of non-profit organisations working to deliver sanitation and hygiene projects in developing countries. This includes WaterAid, which delivers sanitation projects in East Timor and Papua New Guinea, and Sanergy, which is working in Nairobi (Kenya) to build a sustainable public toilet infrastructure for urban slums. In the first three years, this social enterprise had donated almost $500 000.

This enterprise focused on changing people's purchasing habits rather than their behaviour, and using purchasing power to bring about change.

Who Gives a Crap's impact

Since the establishment in 2012, Who Gives a Crap has donated $428 500 to help fund hygiene and sanitation projects, saved 30 797 trees as a result of using forest-friendly paper products and saved 740 million litres of water by making the products using eco-friendly materials. By using environmentally cleaner processes to manufacture the products, they have also avoided 5922 tonnes of greenhouse gases being emitted into the environment.

FIGURE 13.46 Who Gives a Crap is a social enterprise that uses purchasing power to address the issues of poor sanitation and hygiene in low-income countries.



Fairtrade

Fairtrade is an example of social action being taken to address poverty and some of the problems that come with it. Their goal is to help producers in low- and middle-income countries achieve better trading conditions and to promote sustainable farming. Fairtrade is an independent certification system that offers farmers and workers in low- and middle-income countries a better deal when they trade their products.

The existing trade arrangements disadvantage small farmers, who don't have the resources to compete against the large multinational corporations that tend to dominate world markets and product processing and distribution. As a result, small farmers tend to be excluded. This puts them at greater risk of poverty as they are unable to receive an income for their produce. In addition, if they can sell their products, the large multinational corporations often dictate the price they will pay for them, which also disadvantages small farm owners. Many agricultural products are sold by auction, which means when a product is in plentiful supply its selling price goes down. This means having more product to sell does not guarantee more income. There is also wide fluctuations or changes in prices, making markets unstable.

Many low- and middle-income countries can produce goods more cheaply than high-income countries, as labour costs tend to be cheaper and, in some cases, countries do not have in place the same workplace laws

to protect workers. When people live in poverty, young children and women often have no choice but to work for very low wages and in unregulated and unsafe environments. This means that children are unable to go to school and are often victims of abuse and long working hours.

Fairtrade works to provide millions of producers around the world with better opportunities to sell their product and improve their working and living conditions by providing an alternative approach to international trade. It is a trading partnership aimed at achieving sustainable development for excluded and disadvantaged producers.

How the Fairtrade system works

Under the Fairtrade system, small producers are organised into cooperatives or groups, and buyers and sellers establish long-term, stable relationships. Buyers must pay the producers the minimum Fairtrade price, or more, and when the market price is higher, they must pay the market price. Farmers and workers are therefore guaranteed a fair price for their produce, which helps protect them from changes in world market prices. Fairtrade also works with farmers to help them produce in more sustainable and ecological ways. Buyers must also pay a social premium. This social premium helps improve standards of living by providing funds that can be invested in community healthcare, education and training. Producer groups also re-invest their Fairtrade premium back into their farms and businesses. They buy capital, such as trucks and machinery, and provide organic farming education for their members.

FIGURE 13.47 Fairtrade takes action to address poverty in low-income countries by ensuring small-scale farmers get a fair price for their products and receive a social premium.



Products covered by Fairtrade

In Australia, the main Fairtrade Certified products available are chocolate, coffee, tea, cotton, and on a smaller scale, sports balls, rice, quinoa and roses. There are many brands that have Fairtrade Certified products. Fairtrade Certified chocolate, tea and coffee products can be found in most supermarkets and independent grocers.

FIGURE 13.48 In Australia, Fairtrade Certified products include coffee, rice and chocolate.



By purchasing Fairtrade Certified products, people are helping to reduce poverty through their everyday shopping. They are also helping to end the use of child labour, as it is prohibited under the Fairtrade Certification standards. If enough consumers begin purchasing Fairtrade products, retailers are more likely to stock and sell these products. Some larger supermarket chains began carrying Fairtrade products, such as coffee, after individual consumers exercised their power by writing postcards requesting they sell these products. This is an example of the power of individuals taking social action. Other examples include organising an awareness raising activity in your community, school or workplace, or writing to local food outlets and asking them to stock Fairtrade products.

CASE STUDY

It's a fashion revolution

Charlotte April 27, 2017

Have you heard the latest buzz about Fair Trade fashion and ethical branding? It's a hot topic for a diverse audience all around the globe. Why?

Because Fair Trade fashion matters

This is a topic that heavily affects us all — 1 in 6 people on Earth are involved in the global fashion industry in some way, and this now 3 trillion dollar sector is the second most polluting industry in the world. In the past several decades, the fashion industry has undergone dramatic changes. In the mid-1960s, 95 percent of our clothes were made in the United States. Today only 3 percent are made domestically, with the other 97 percent imported from abroad.



These statistics are sourced from what is now the most widely recognized Fair Trade Fashion Documentary, The True Cost. I'll admit, this film had me crying like a baby within the first five minutes of watching. After seeing *The True Cost* I made drastic changes in the way I shop and even began selling my non-Fair Trade clothes so I could use my earnings to invest in new Fair Trade fashions. The film altered my thinking so much that I was compelled to change my actions. I was proud that I changed my mind not because anyone forced me to, but because the evidence of injustice was so contrary from what the industry wants us to think that it was irrefutable. This film took a bold stance on the harsh realities of "fast fashion."

According to the film's executive producer, Lisa Firth, *"fast fashion depletes the Earth's resources and uses slave labor all over the world. Eventually the resources will deplete, the profit margins will shrink, and there will be revolutions in the streets."*

Fair Trade Fashion extends to clothing that has been made with social, environmental, and economic standards in place. The Fair Trade standards ensure that workers receive a set premium for the beautiful clothing they stitch, and furthermore Fair Trade provides the opportunity for them to reinvest in education, health care, and other areas of their local economies. The standards also ensure that children are not bonded into labor in sweatshops and factories, but rather are receiving an education in a nurturing school environment.

What can you do to support the cause? Join in on social media using the hastags #WhoMadeMyClothes and #WeWearFairTrade as well as get involved by asking local stores and shop owners who made the clothes they are selling and where are they from. *As a consumer, it is your right to know.*

Source: Adapted from: IT'S A FASHION REVOLUTION, https://fairtradecampaigns.org/2017/04/its-a-fashion-revolution/.

Case study review

1. List the examples of social action provided in this case study.
2. Justify why the forms of social action selected in part (a) would be effective in bringing about change.
3. Describe how the social action outlined could promote health and wellbeing.

13.10 Activities

1. Access the **Who Gives a Crap** weblink and worksheet in the Resources tab then complete the worksheet
2. Download the SDG Action app and select one of the Goals. Outline the resources that are provided in the app.
3. Using the SDG Action app, explain the World's Largest Lesson. Why might this resource be useful in bringing about change in order to meet the targets?
4. Visit your local supermarket and check how many Fairtrade products are stocked. Suggest actions that could be taken to encourage supermarkets to stock these products

13.10 Exercise 1 TEST your knowledge

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

1. What is meant by taking social action?
2. Why is taking social action effective in bringing about change?
3. List four reasons why people take social action.
4. Outline three different ways that people can take social action.
5. What is meant by using purchasing power to bring about social change? Give one example.
6. Explain the two social enterprises described in this topic and outline how they work to bring about change.
7. Explain why the SDG Action App has been developed.

13.10 Exercise 2 APPLY your knowledge

1. 'Buying products from producers in low-income countries at a fair price is a more efficient way of promoting sustainable development than traditional charity and aid.' Explain whether you agree or disagree with this statement.
2. Select one global health issue and discuss social action that could be taken to bring about change to improve health and wellbeing.

studyON

13.10 Exercise 3 studyON: Past VCAA exam questions online only

To answer past VCAA exam questions online and to receive immediate feedback and sample responses for every question, go to your learnON title at www.jacplus.com.au.

on Resources

Digital document Who Gives a Crap worksheet (doc-32245)
Weblink Who Gives a Crap

13.11 Topic 13 review

13.11.1 Key skills

KEY SKILL Analyse and evaluate the effectiveness of aid programs in promoting health and wellbeing, and human development

To address this skill, you need to study, in detail, one aid program implemented to address the SDGs and then apply your understanding of what makes an effective aid program to a range of unfamiliar contexts. The first part of the skill requires you to understand what makes an aid program effective. There are four main features that contribute to an effective aid program.

These include the following:

- *Ownership* — The program should be owned by the community and addresses their needs. If a program is owned by the community, it is likely to be meeting their needs and be implemented in a socioculturally appropriate way.
- *Focus on results* — The program is focused on bringing about improvements in health and wellbeing and human development and is therefore results focused.
- *Partnerships and collaboration* — The program includes partnerships, which help contribute to sustainability and long-term results.
- *Transparency and accountability* —There is a system in place to monitor the progress and publicise results to ensure the resources are being used appropriately.

The second part of the skill requires you to use these features to analyse an aid program that has been implemented and make judgements about (evaluate) its effectiveness. This includes being able to show an understanding of the purpose of the program and recognise the SDG/s being addressed. It is important to note that some programs will address more than one SDG.

The third part of the skill requires you to discuss how the aid program will promote health and wellbeing, and human development.

The following example can be used to demonstrate this skill. Read the information relating to the vaccination program that has been implemented in the Solomon Islands, and evaluate its effectiveness by:

- outlining the purpose of the program
- identifying the relevant SDG/s being addressed
- explaining how its implementation reflects the key features of effective aid
- describing how it promotes health and wellbeing, and human development.

A GAME CHANGER FOR CHILDREN IN THE SOLOMON ISLANDS

Vaccines are responsible for saving millions of lives around the world. In countries like the Solomon Islands where reliable power supply and proper refrigeration of vaccines isn't always possible, UNICEF has partnered with the Solomon Islands Ministry of Health and Medical Services, government and the US Centers for Disease Control and Prevention to trial new ways to ensure that children get the vaccines they need.

There are a lot of challenges to deal with in ensuring that children in the Solomon Islands have access to vaccination programs. These challenges range from access to health facilities, limited vaccine availability and vaccine wastage due to frequent problems with the refrigerators (cold chain) among many other factors.

Rebecca Lima is a registered nurse from the Solomon Islands who serves rural communities, and recalls a couple of years ago a mother who had delivered her baby at home in the village walking hours with her husband to the clinic where she was posted, to check if their child should receive the baby nila (vaccination). Due to a malfunctioning refrigerator a week earlier, they had to dispose of our hepatitis B and tuberculosis vaccines. She felt so sad and helpless hearing the father whispering to his wife that they don't have enough money to vaccinate their child elsewhere and they should go back to the village instead. These are the two most challenging vaccines, since they must be given 24 hours after birth. But many of the rural clinics face challenges

with refrigeration problems, affecting storage and causing wastage. Even the outreach programs are limited by the challenges of carrying vaccine carriers and ice boxes.

Some mothers in rural communities also prefer home birth. Too many babies born at home miss getting the Hepatitis B and tuberculosis vaccines in time. In order to seek new solutions to this old problem, UNICEF's immunisation experts have been working with the Solomon Islands' Ministry of Health and Medical Services and the US Centers for Disease Control and Prevention to explore alternative means of vaccine distribution and storage. In 2015 a pilot project tested new evidence about the hepatitis B vaccine, which found that it is stable enough to be transported and stored without refrigeration (for a limited period of time) for the final leg of its journey to children in need. A special heat-sensitive sticker on the vaccine vial also ensures that quality is maintained and children are only given effective vaccines.

For countries like the Solomon Islands, where just 65 per cent of health facilities have well-functioning refrigerators and 15 per cent of births occur at home, this is a game changer; it means that even communities without reliable power supply or refrigeration can still store and administer the hepatitis B vaccine to newborn children. The results of the pilot study were impressive: it more than doubled the percentage of children vaccinated against hepatitis B at health facilities (an increase from 30 per cent–68 per cent), and an even greater jump for children born at home (an increase from 4 per cent to 23 per cent).

During the outreach programs, it's easier to carry the vaccines, as the nurses can easily pack the vials in the general containers sold at the local stores, which is much lighter to carry compared to the larger and heavier cold boxes that make it difficult when trying to reach communities that can only be reached by foot.

Furthermore, the nurses managed to visit and vaccinate children born in villages in time because their visit was not dependent on the lifespan of the vaccine carrier. This is a great development in immunisation and there is hope that more of this will follow suit.

'If there is one wish, I'd wish that all vaccines can be kept without refrigeration like the hepatitis B that we piloted. We don't need to store it in a refrigerator so the vaccines were readily available at the clinic and there was no spoilage, making it available to newborn babies until the next batch of Hepatitis B vaccines arrives in almost a month's time,' said Rebecca.

About one in five Solomon Islanders have hepatitis B, resulting in a higher risk of liver cancer and cirrhosis, which leads to death. Being able to transport and store hepatitis B vaccines 'outside the cold chain' (the refrigerated distribution system used for most vaccines) will make a world of difference for children born in the Solomon Islands today.

Source: Adapted from Tahu, A, 'A game changer for children in the Solomon Islands', UNICEF Pacific website, 15 June 2016.

This program is addressing SDG 3: Good health and wellbeing, in particular, ending the preventable deaths of newborns and those under five.[1] The purpose of the vaccination program in the Solomon Islands is to explore alternative means of vaccine distribution and storage to overcome the challenges to vaccination that include lack of access to health facilities, limited vaccine availability and vaccine wastage due to frequent problems with the refrigerators (cold chain).[2]

1 The SDG being addressed in the program is clearly stated.

2 The purpose of the program is outlined and linked to information provided in the example.

The program is effective as it displays each of the four features of an effective aid program.[3] The program is a *partnership* whereby UNICEF's immunisation experts have been working with the Solomon Islands' Ministry of Health and Medical Services and the US Centers for Disease Control and Prevention[4] to develop alternative means of vaccine distribution to overcome the existing challenges. The program is meeting the needs of the community, as vaccination programs are being affected by a lack of access to healthcare facilities and vaccine wastage. The program has ownership by the community, as a local nurse is delivering the vaccinations to children and travelling to rural communities. The program is being delivered in a socioculturally appropriate way

3 A conclusion is made about the effectiveness of the program and is linked to the features of an effective aid program.

4 One of the features of an effective aid program is ensuring that programs are implemented through *partnerships and collaboration*. The partnership between UNICEF's immunisation experts, the Solomon Islands' Ministry of Health and Medical Services and the US Centers for Disease Control and Prevention is identified.

and shows further evidence of meeting the needs of the community. Similarly, the program is meeting the needs of the community as only 65 per cent of health facilities have well-functioning refrigerators and 15 per cent of births occur at home. The vaccines are also easier to carry and much lighter as the nurses can pack the vials in the general containers available from the local stores. This is particularly useful when they have to transport the vaccines to communities that can only be reached by foot.[5]

The Solomon Islands Ministry for Health and Medical Services is a partner in the program, which increases the likelihood of the program being sustainable. The program is results focused as it has a focus on improving health and wellbeing with around one in five Solomon Islanders suffering from hepatitis B, which is contributing to an increased risk of liver cancer and cirrhosis that leads to death.[6] The results of the program have been monitored and reported, with the percentage of children being vaccinated against Hepatitis B at health facilities more than doubling from 30 per cent to 68 per cent and the number of children born at home who had been vaccinated increasing from 4 per cent to 23 per cent.[7]

The vaccination program promotes health and wellbeing and human development. Hepatitis B affects almost one in five people in the Solomon Islands and by vaccinating children against the disease, levels of this infection are likely to reduce, which will reduce the incidence of liver cancer and cirrhosis of the liver, improving physical health and wellbeing. When children are free from disease, mothers, in particular, do not have to stay at home to care for sick children and can go to work and earn an income, which can be used to buy healthy food and water, provide adequate shelter and pay for healthcare, all of which promotes physical health and wellbeing. When parents are able to earn an income, there is money to enable children to attend school and gain an education, which increases their ability to find decent work. This increases social health and wellbeing. Being able to work and earn an income reduces the level of poverty within families and communities. This contributes to reduced stress and anxiety levels and assists people within these communities to have a more optimistic outlook on life improving mental health and wellbeing. Reduced poverty contributes to higher standards of living and empowers people to have control over the decisions that affect their lives. When people feel more empowered, they are also more likely to vote and play a more active role in the decisions that affect their community, all of which promotes human development.[8]

5 Another feature of an effective aid program is *Ownership*. The program is owned by the community, addresses the needs of the community and is delivered in a socioculturally appropriate way. This is outlined clearly.

6 There is a focus on improving health and wellbeing as the program has been linked back to hepatitis B which affects almost one in five people in the Solomon Islands. This shows the program is *results focused* which is another feature of an effective aid program.

7 The program is being monitored and reported which shows *transparency and accountability*. This is another feature of an effective aid program.

8 How the program promotes health and wellbeing and human development is clearly outlined.

Practise the key skill

Read the information about the program in Niger below:

1. Use the information to identify the SDG/s being addressed in the program.
2. Evaluate the effectiveness of the program by:
   a. outlining its purpose
   b. explaining how its implementation reflects the key features of effective aid.
3. Describe how it promotes health and wellbeing and human development.

CLIMATE-SMART AGRICULTURE PROJECT TO IMPROVE PRODUCTIVITY AND RESILIENCE OF NIGER'S AGRICULTURE SECTOR

The World Bank Board of Executive Directors on May 26 approved $111 million in new financing to boost productivity in Niger's agriculture sector and improve its resilience to climate risks.

The Niger Climate-Smart Agriculture (CSA) Support project, which is the first World Bank project in Africa designed specifically to deliver climate smart agriculture — namely increased productivity, enhanced resilience and reduced greenhouse gas emissions — is aligned with the government of Niger's 'Nigeriens Nourish Nigeriens' (3N) Initiative. The 3N is Niger's national strategy to spur sustainable agricultural development and increase food and nutritional security.

The Niger CSA project will directly benefit around 500 000 farmers and agro pastoralists in 44 communities. It will increase distribution and use of improved, drought-tolerant seeds, and increase the number of farmers using irrigation. The project is also expected to expand the use of agroforestry and conservation agriculture techniques. It will promote the reclamation of degraded agro-pastoral land, livestock and other high potential value chains while improving smallholder's access to markets.

Climate change has already affected Niger's food security situation, as well as the more than 80 per cent of Nigeriens who depend on agriculture for their livelihood. Without action, Niger's agriculture sector will continue to be extremely vulnerable to climatic shocks, especially droughts. This new project advances climate-smart agriculture in Niger, and helps address the constraints that inhibit the productivity and resilience of its crop-livestock sector.

'To improve food security for all Africans and drive sustainable economic growth across the continent, African governments are making climate-smart agriculture a priority,' says Simeon Ehui, Practice Manager, World Bank Agriculture Global Practice. 'The Niger CSA project, which will help improve agricultural productivity, enhance resilience to climate shocks, and reduce carbon emissions intensity, is a big step for the World Bank's continuing collaboration with the country's agriculture sector.'

Source: 'Climate-smart agriculture project to improve productivity and resilience of Niger's agriculture sector', World Bank website, 26 May 2016.

KEY SKILL Describe and justify ways of taking social action to promote health and wellbeing

To achieve this skill, it is important to understand that taking social action means doing something to help create positive change. There are many reasons why people undertake social action, and there are many ways to take social action. You need to understand and describe each of these.

The skill also requires you to justify why people might take social action and this can best be done by relating the social action to the issues being faced by a community, village or country.

The last part of the skill requires you to be able to explain how social action could promote health and wellbeing.

In applying this skill, you may be given an example of:

- social action and then be asked to justify why the social action was taken and how it promotes health and wellbeing
- a situation representing an issue which could relate to an SDG and then be asked to describe social action that could be taken, justify why and then describe how social action promotes health and wellbeing.

The following example can be used to demonstrate this skill. Read the information relating to the living conditions in India below.

a. Describe and justify examples of social action that could be taken to bring about change in this community.
b. Describe how this action could promote health and wellbeing.

The slums of Thane in India are home to approximately 340 000 people, many of whom have migrated from rural India to find work. The regular inflow of migrants has contributed to highly congested living conditions. Infrastructure is poor, sanitation and potable water supplies are strained. Despite the hope these families have

for a better life in Thane, most families in the slums live in poverty. Food insecurity, low literacy and regular breaches of human rights are common.

Girls and women experience the greatest disadvantage. Families under financial pressure often privilege sons over daughters. Girls are kept home from school to do chores and display higher rates of malnutrition than boys. Women have little power in family and community life, are financially dependent on male family members, and domestic violence is common.

To bring about social change in this community in India there are a range of ways in which individuals can take social action. There are many non-government organisations who work in India and people can choose to donate money to any of these, such as World Vision, Caritas, Care Australia or Oxfam.[9] Through the collective efforts of many who choose to donate, local agencies will have more resources to work with the women and families and the communities in Thane to change the living conditions and bring about gender equality. When girls are denied education, have no financial independence and are victims of violence, there are limited opportunities for women and the community to escape from poverty and achieve good health and wellbeing.[10]

Other examples of social action that could be taken include raising community awareness of the situation in India by conducting a fundraising and community awareness event at school or in the community. The local media could be invited to cover the event and write articles to increase the level of understanding.[9] This helps bring greater awareness and more community pressure to governments in India to take action to bring about change.[10]

There are also many online events, competitions and petitions that people can sign up to and support.[9] This support shows the international community is aware of the problem and puts greater pressure on governments to take action to address the issues in Thane.[10] Many non-government organisations are based in India so people can contact these organisations and find out what is the best way to support the work being undertaken.[9] This helps ensure the social action will have the greatest impact. Actions such as supporting a microfinance loan to women in Thane to help them establish a small business, providing books and pencils to children so they can use these to learn basic skills, and contributing to the building of a well and latrines might be appropriate actions.[10]

Taking social action to improve the situation in Thane can improve health and wellbeing. Supporting gender equality will provide women and girls with greater access to an education and improved knowledge and skills, and allows women to gain employment and earn an income. This improves social health and wellbeing through relationships formed at work. Having a job provides an income that can be used to purchase food, water and healthcare. This brings about improved physical health and wellbeing as illness and disease can be reduced. When people are healthy and have the resources to meet the needs of their family, they have a higher self-esteem and feel a sense of pride and achievement improving mental and emotional health and wellbeing.

9 This shows one example of social action that could be taken.
10 The reason for this example of social action has been explained and justified.

11 How the social action could improve each dimension of health and wellbeing is discussed.

Healthy people have greater confidence, which empowers them to contribute to their community and brings about improved spiritual health and wellbeing. Eliminating violence against women also improves physical health and wellbeing and eliminates fear, which promotes emotional health and wellbeing.[11]

Practise the key skill

Read the following information about obstetric fistula and answer the questions below:

4. a. Describe and justify two examples of social action that could be taken to reduce obstetric fistula in low-income countries such as Africa.
   b. Discuss how social action could promote health and wellbeing.

Obstetric fistula is a hole in the birth canal. It is caused by prolonged labour without quick and adequate medical help, usually a Caesarean section. The result for the mother is chronic incontinence (leaking urine); the baby is usually stillborn. 'The smell of leaking urine, faeces or both, is constant and humiliating, often driving the patients' family, friends and neighbours away.'

An untreated obstetric fistula can lead to chronic medical problems such as kidney disease, ulcerations and nerve damage in the legs. For $400, surgery could repair the problem; however, most women who suffer it do not have this money, or are not even aware it can be fixed.

The condition is a particular problem in Africa, Asia, the Arab region and Latin America, with about 50 000 to 100 000 new cases occurring each year. As a wholly preventable problem, the fact that it is still endured reveals that the health system is failing these women. It affects the world's poorest women, who don't have access to proper medical services.

Source: Campaign to end fistula website, http://www.endfistula.org/what-fistula.

13.11.2 Topic summary

Features of effective aid programs

- There are four features of an effective aid program: having ownership of the development priorities by the community, having a focus on results that bring about improvements in health and wellbeing and human development, putting in place partnerships for development and collaboration, and transparency and accountability

Aid programs addressing SDG 1 No poverty

- The Nuton Jibon Livelihood program aims to address SDG 1: No poverty. It provides financial support to 2500 villages in Bangladesh and helps them to develop the skills necessary to escape poverty.

Aid programs addressing SDG 2 Zero hunger

- The Food Security and Agricultural Program in Burkina Faso helps to achieve SDG 2: Zero hunger. It helps improve food security by providing opportunities for farmers to own a plot of land by clearing and preparing areas of land for farming. They also receive technical expertise, training and better seed varieties.

Aid programs addressing SDG 3 Good health and wellbeing

- To achieve SDG 3: Good health and wellbeing, in Cambodia, women are being provided with access to sexual and reproductive health and wellbeing services designed to ensure that women understand the important of a healthy pregnancy and the need to get regular antenatal checks during pregnancy. The program also provides information on contraception.
- The Evidence Action: Deworming the World Programs targets the poorest countries and provides wide-scale treatment to children in schools to prevent and treat worm infestations. This addresses SDG 3: Good health and wellbeing.
- The tobacco control program in the Philippines seeks to strengthen the country's capacity for tobacco control, and run sustainable tobacco control programs that protect people from the harmful effects of tobacco smoke. This program is linked to SDG 3: Good health and wellbeing.

Aid programs addressing SDG 4 Quality education

- To address SDG 4: Quality education, Zambia has introduced a children's literacy program that uses radio and mobile phones to develop mother-tongue reading materials and promotes parental engagement in reading using mobile phone technology.

Aid programs addressing SDG 5 Gender equality

- To achieve SDG 5: Gender equality, India's Barefoot College trains illiterate grandmothers to become solar engineers. The program provides access to solar powered electricity in remote and isolated communities in countries around the world.

Aid programs addressing SDG 6 Clean water and sanitation

- The water for communities program in Ghana is providing access to 20 litres of drinking water per person per day. This program helps achieve SDG 6: Clean water and sanitation.

Aid programs addressing SDG 13 Climate action

- The Kiribati Adaptation Program is focused on developing rainwater collection systems (rainwater tanks) to help Kiribati better prepare and withstand climate related impacts. This program addresses SDG 13: Climate action

Taking social action

- Social action is taken to bring about positive action and change.
- There are different ways that people can take social action such as volunteering their time to raise funds for a non-government organisation, donating money to support the work of non-government organisations after an emergency, signing online petitions, using purchasing power to buy products that support social change, lobby governments or organising a boycott.
- People take social action for a range of reasons, such as helping those who are less fortunate, ensuring the needs of all people are represented, eliminating discrimination, preventing harm and damage to the community or the environment and preserving something of historical or social value.
- To help people take social action to achieve the Sustainable Development Goals, an SDG in Action App has been developed.
- There are many social enterprises that use the purchasing power of people to influence decisions.
- Who Gives a Crap was established in 2012 and sells environmentally friendly toilet paper. For each roll of toilet paper sold, 50 per cent of the profits are given to a range of non-profit organisations which deliver water and sanitation projects in low-income countries.
- Fairtrade is an example of social action taken to help farmers get a fair price for their products and to eliminate child labour.
- Fairtrade certified products sold in Australia include chocolate, coffee, tea, cotton, sports balls, rice, quinoa and roses.

on Resources

studyON

To access key concept summaries and past VCAA exam questions, download and print the **studyON: Revision and past VCAA exam question booklet** (sonr-0014).

13.11 Exercise 1 Exam preparation

To answer questions online and to receive **immediate feedback** and **sample responses** for every question, go to your learnON title at www.jacplus.com.au.

Question 1

Read the following information:

LAO PEOPLE'S DEMOCRATIC REPUBLIC'S (PDR) FIRST EVER FLASH MOB INSPIRES CLIMATE ACTION

Vientiane: Families pushing strollers, teenagers taking selfies, determined fitness fanatics young and old running and stretching, tourists marvelling at the Mekong River for the first time and snack carts peddling cold drinks. This usually sedate scene at Vientiane's Mekong recreation riverside area was shaken up last Saturday afternoon when, out of nowhere, 50 people put on Lao PDR's first-ever flash mob with a strong message on climate action.

Flash mobs are public gatherings where people perform an unusual or seemingly random song or dance and then scatter. These performances are typically organised through social media. Lao PDR's first-ever flash mob stopped passers-by in their tracks, as actors wearing giant red masks and green costumes appeared out of nowhere to perform the Lao legend around the Kat Khao Vine and Pu Nye, Nya Nye. In this story from the sixteenth century, an old couple sacrifices themselves by cutting down a vine sent from the gods to block out the sun to punish humans for not taking care of their natural environment. This street theatre piece morphed into a dance, which gradually grew as more and more dancers joined in. Finally, a group of 50 dancers moved and grooved together to raise awareness on climate change and Sustainable Development Goal 13 on climate action.

Stage Director Mrs Thiane Khamvongsa came up with the concept of using an old story to tackle a modern problem. 'Theatre and storytelling is a fantastic way to bring dynamic groups of people together to tackle common issues like climate change. For our young performers, working together with the United Nations Volunteers, the Fanglao Dance Company and other organisations has been a great example of how we can reach a common goal and raise awareness on big issues if we work together,' said Ms Kamvongsa. The unsuspecting audience was encouraged by the Climate Action Flash mob to personally take urgent action to combat climate change and its impacts by volunteering to protect the environment, with practical tips for everyday action shared via flyers linking to the United Nations in Lao PDR website.

The United Nations Volunteers in Lao PDR was one of the organisations behind the Climate Action Flash mob. The surprise performance was organised to coincide with International Volunteers Day to encourage people to become everyday heroes for climate action. Ms Chelsey Parish from United Nations Volunteers in Lao PDR was one of the flash mobbers, 'Volunteering is a powerful way for individuals to get involved in their communities and help fight climate change.'

'You can contribute to achieving the future you want by volunteering in your village, your school, around your home as an individual, or even by forming your own volunteer group. It can also be really fun, like our flash mob today,' said Ms Parish.

The moral of the Kat Khao Vine legend is to respect the natural environment. This story is more relevant today than ever before, as the devastating effects of climate change are being felt around the world.

Source: Adapted from UNDP in Lao PDR website, 'Lao People's Democratic Republic's (PDR) first-ever flash mob inspires climate action', 26 November 2016.

a. What is meant by social action? **(2 marks)**
b. Describe the type of social action undertaken by the Lao PDR flash mob. **(2 marks)**
c. Explain two reasons to justify why the flash mob was taking social action. **(4 marks)**
d. Outline how this example of social action could promote health and wellbeing. **(4 marks)**

Question 2

Read the following information:

Afghanistan is a landlocked country situated in central and southern Asia. According to the Human Development Index, Afghanistan is one of the poorest countries in the world. The average life expectancy is estimated to be around 60 years for both sexes. Despite significant improvements in the coverage and quality of health services, Afghan health and wellbeing indicators remain below average for low-income countries. It has one of the highest maternal mortality rates, as well as the highest infant mortality rate, in the world. Afghanistan has one of the highest levels of child malnutrition in the world, with about 40.9 per cent of children under five suffering from chronic malnutrition while both women and children suffer from high levels of vitamin and mineral deficiencies.

a. Describe two examples of social action that could be taken to reduce the level of child malnutrition in Afghanistan. **(4 marks)**
b. Justify why taking social action is important. **(3 marks)**
c. Discuss how social action could promote health and wellbeing. **(4 marks)**

Question 3

Read the following information:

SUPPORTING MALI'S WOMEN TO ADAPT TO CLIMATE CHANGE

Gardening is a common side job for women in Mali, along with making products from the shea tree or jujube fruits. Traditionally men are the main income earners, supporting their families with cash crops such as cotton, millet or rice. However, climate change has led to more drought and shorter rainy seasons in Mali. As a result, cash crops are suffering, putting pressure on women to support their families with alternative incomes. They are required not only to work but also to secure enough water and food for the family.

'The problem of water is critical, which is why gardening, which was always our favourite activity, is almost impossible to achieve,' says Fatoumata Diarra, a member of the women's cooperative in the village of Massantola, located in western Mali, just north of the capital, Bamako.

The Mali National Directorate of Agriculture has partnered with the United Nations Development Program (UNDP) to strengthen agricultural communities and empower women to mitigate the social and economic consequences of climate change. In Massantola, the project has supported Diarra's cooperative to clear a plot for gardening and provide access to water.

'With the help of the project, we installed a fence and a well that runs on solar energy,' explains Diarra. 'We can sell some of the vegetables we harvest to supply the cooperative's fund and use another part for feeding the family, which helps fight malnutrition.'

A solar-powered platform was provided to the women's collective to help process grain into flour, a very time-intensive process necessary for cooking. In addition, UNDP supports women's collectives in Mali, training them in sustainable agriculture and land management practices, as well as supplying seeds and tools, and establishing funds to help build alternative sources of income to local communities.

Source: Adapted from 'Supporting Mali's women to adapt to climate change', UNDP website, 8 September 2016.

a. List the SDGs that are addressed in this program. **(4 marks)**
b. Outline the purpose of the program. **(1 mark)**
c. Select two features of effective aid and describe each one. **(4 marks)**
d. Explain how the program in Mali reflects the two features described in part (c). **(4 marks)**
e. Describe how the program promotes health and wellbeing. **(4 marks)**
f. Explain how the program promotes human development. **(4 marks)**

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School-Assessed Coursework Unit 4 AOS 2 Outcome 2

Area of Study 2 Health and the Sustainable Development Goals

Outcome 2

Analyse relationships between the SDGs and their role in the promotion of health and human development, and evaluate the effectiveness of global aid programs.

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GLOSSARY

Acidification decrease in the pH levels of the ocean that occurs when carbon dioxide in the atmosphere reacts with the sea water

Acquired immune deficiency syndrome (AIDS) the most advanced stages of HIV infection

Adolescent/ce a stage of the lifespan that commences at puberty and ends when a person turns 20 years of age. It is a biological marker that signals the transition to adulthood and is included as part of youth.

Aid assistance given to countries or communities in the event of a crisis or for the development of long-term sustainable improvements

Allied health services health services provided by trained health professionals who are not doctors, dentists or nurses. Examples include services provided by physiotherapists, psychologists and occupational therapists.

Anaemia a condition characterised by a reduced ability of the body to deliver enough oxygen to the cells due to a lack of healthy red blood cells

Antenatal relates to the medical care given to pregnant women before their babies are born

Antenatal care healthcare provided to women during pregnancy and just after birth

Antioxidants compounds in foods that neutralise free radicals

Aquifer an underground layer of rock, sediment or soil that contains water

Asphyxia interrupted breathing leading to low levels of oxygen in the body, unconsciousness and often death

Assistive technology a device, system or design, that allows an individual to perform a task that they would otherwise be unable to do, or increase the ease and safety with which a task can be performed

Asylum seeker a person seeking international protection and whose refugee status is yet to be determined

Atherosclerosis the build-up of plaque on blood vessel walls, making it harder for blood to get through

Bilateral aid the provision of aid from the government of one country to the government of another country

Biodiversity the variety of different plants, animals and micro-organisms, their genes and the ecosystems of which they are a part

Biological factors factors relating to the body that impact on health and wellbeing, such as genetics, body weight, blood pressure, cholesterol levels, birth weight

Biomedical approach to health focuses on the physical or biological aspects of disease and illness. It is a medical model practised by doctors and health professionals and is associated with the diagnosis, treatment and cure of disease.

Birth asphyxia a condition in which a baby's brain and other organs do not get enough oxygen before, during or immediately after birth. It can cause temporary or permanent damage.

Body mass index (BMI) a statistical measure of body mass calculated by dividing weight (in kilograms) by height (in m^2). A score of 18.6–24.9 is considered a healthy weight. Between 25–29.9 is considered overweight and 30 and over is considered obese.

Boycott refusing to buy or use the goods or services of a certain company or country as a protest

Bubonic plague an infectious disease that is caused by bacteria transmitted to humans by fleas from infected rats

Bulk billing when the doctor or specialist charges only the schedule fee. The payment is claimed directly from Medicare so there are no out-of-pocket expenses for the patient.

Burden of disease a measure of the impact of diseases and injuries, specifically it measures the gap between current health status and an ideal situation where everyone lives to an old age free of disease and disability. Burden of disease is measured in a unit called the DALY (VCAA).

Caesarean section a surgical procedure in which a baby is born through a cut made in the mother's abdominal wall and the wall of the uterus rather than through the normal birthing process

Cardiovascular diseases diseases that affect the heart and blood vessels in the body and interfere with the circulation of blood throughout the body

Cholesterol a type of fat required for optimal functioning of the body that in excess can lead to a range of health concerns including the blocking of the arteries (atherosclerosis). Can be 'bad' low-density lipoprotein (LDL) or 'good' high density lipoprotein (HDL).

Chronic condition any disease or condition that lasts a long time (usually longer than six months). It usually can't be cured and therefore requires ongoing treatment and management. Examples include arthritis and asthma.

Civic participation refers to involvement in a community group such as a union, professional association, political party, environmental or animal welfare group, human and civil rights group, or body corporate or tenants' association

Civil society individuals and organisations in a society that are independent of the government

Collateral a security that is provided to guarantee the repayment of a loan

Communicable diseases infectious diseases which are transmitted from the environment; including through air, water, food and other infected organisms (including other humans)

Congenital malformations refers to physical defects developing either in the uterus or dating from birth

Cooperatives people who come together to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled business

Crowdfunding campaign funding a project or venture by raising many small amounts of money from large numbers of people, usually via the internet

CT scans computed tomography scan, which is a specialised x-ray taken from many different angles to build a three-dimensional picture of the body

Degradation the deterioration of the environment through the depletion of resources, such as clean air, water and soil; the destruction of ecosystems; and the extinction of wildlife

Dental caries decay of teeth caused by a breakdown in the tissues that make up the tooth

Dermatologist a medical doctor with specialist training relating to conditions of the skin

Desalination plant the process of removing salt, especially from sea water so that it can be used for drinking or irrigation

Dimensions of health and wellbeing these are the variables that influence an individual's level of overall health and wellbeing. The variables, frequently referred to as dimensions, are physical, social, emotional, mental and spiritual.

Disability-adjusted life year (DALY) a measure of burden of disease. One DALY is equal to one year of healthy life lost due to illness and/or death. DALYs are calculated as the sum of the years of life lost due to premature death and the years lived with disability for people living with the health condition or its consequences (AIHW, 2018).

Discrimination when a person or group of people are treated differently than other people, often a result of factors such as race, religion, sex, sexual orientation and gender identity.

Disease a physical or mental disturbance involving symptoms, dysfunction or tissue damage

Displaced people those who are forced to leave their home because of war or persecution

Double burden of disease when conditions associated with both poverty and wealth exist side-by -side in one community, such as undernutrition and obesity.

Dynamic continually changing

Economic sustainability ensuring that average incomes in all countries are adequate to sustain a decent standard of living and continue to rise in line with inflation and living costs in the future

Ecosystem a community of living things and the non-living components of the environment in which they live. An ecosystem can include plants, animals, micro-organisms, water, air, soil and rocks.

Emergency aid rapid assistance given to people or countries in immediate distress to relieve suffering during and after emergencies such as wars and natural disasters, for example floods, tsunamis or earthquakes. Emergency aid is also called 'humanitarian aid'.

Emotional health and wellbeing relates to the ability to express emotions and feelings in a positive way. Emotional health and wellbeing is about the positive management and expression of emotional actions and reactions as well as the ability to display resilience. Emotional health and wellbeing is the degree to which an individual feels emotionally secure and relaxed in everyday life.

Energy balance when the amount of energy consumed is the same as the amount of energy required. Energy balance contributes to neither weight gain or weight loss.
Energy dense (foods) foods that contain significant amounts of fat, carbohydrates and/or protein, therefore contributing large amounts of energy to the diet
Environmental factors the physical surroundings in which we live, work and play. Environmental factors include workplaces, housing, roads and geographical access to resources such as healthcare.
Environmental sustainability ensuring the natural environment is used in a way that will preserve resources into the future
Epidemic when the rate of disease significantly exceeds what is expected based on recent trends
Equilibrium a state of balance and/or calmness
Essential medicines a range of medicines that meet the priority healthcare needs of the population
Extreme poverty living on less than US$1.90 per day
Extremism belief in and support for ideas that are very far from what most people consider correct or reasonable
Fertilisation the fusing of a sperm and egg cell. Marks the beginning of pregnancy. Also known as conception.
Fertility rates the number of live births per 1000 women aged 15–49 in one year
First trimester the first three months of pregnancy
Foetal alcohol spectrum disorder a group of conditions that can occur in a person whose mother drank alcohol during pregnancy. Problems that may occur in babies exposed to alcohol before birth include low birth weight, distinctive facial features, heart defects, behavioural problems and intellectual disability.
Food insecurity when healthy, affordable food is not obtainable
Food security 'the state in which all persons obtain nutritionally adequate, culturally appropriate, safe food regularly through local non-emergency sources' (VicHealth, 2008)
Fortified (foods) when a nutrient has been artificially added to food to increase its nutritional value
Free radicals molecules formed when oxygen is metabolised. Free radicals can damage healthy body cells and increase the risk of diseases such as cardiovascular disease and cancer.
Gender equality when males and females have the same opportunities in society in relation to the goods and services available
Genetic predisposition an increased likelihood of developing a particular disease based on a person's genetic makeup (often indicated by a person's family history of disease)
Glacier a slowly moving mass or river of ice formed by the accumulation and compaction of snow on mountains or near the poles
Globalisation the process whereby boundaries between countries are reduced or eliminated allowing individuals, groups and companies to act on a global scale. It can be described as transforming the different societies of the world into one global society. A reduction in barriers to trade, communication and transport contributes to this process.
Governance the structures and processes that are designed to ensure accountability, transparency, rule of law, inclusiveness and broad-based participation in society
Greenhouse gases gases that contribute to the greenhouse effect by absorbing heat. Carbon dioxide and chlorofluorocarbons (used in the manufacture of aerosol sprays) are examples of greenhouse gases.
Gross Domestic Product (GDP) a measure that reflects the economic state of a country. GDP is the value of all goods and services produced in a country in a 12-month period.
Gross National Income (GNI) the total value of goods and services a country's citizens produce, including the value of income earned by citizens who may be working in an overseas country
Health-adjusted life expectancy (HALE) The average length of time an individual at a specific age can expect to live in full health; that is, time lived without the health consequences of disease or injury (AIHW, 2018)
Health and wellbeing the state of a person's physical, social, emotional, mental and spiritual existence, characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged

Health indicators standard statistics that are used to measure and compare health status (e.g. life expectancy, mortality rates, morbidity rates)
Health literacy the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions
Health promotion the process of enabling people to increase control over, and to improve, their health
Health status 'An individual's or a population's overall health, taking into account various aspects such as life expectancy, amount of disability and levels of disease risk factors.' (AIHW, 2008)
Hospital separation episodes of hospital care that start with admission and end at transfer, discharge or death
Human development creating an environment in which people can develop to their full potential and lead productive, creative lives according to their needs and interests. It is about expanding people's choices and enhancing capabilities (the range of things people can be and do), having access to knowledge, health and a decent standard of living, and participating in the life of their community and decisions affecting their lives (adapted from the UN Development Programme, 1990).
Human Development Index a tool developed by the United Nations to measure and rank countries' levels of social and economic development. It provides a single statistic based on three dimensions — a long and healthy life, knowledge and a decent standard of living — and four indicators — life expectancy at birth, mean years of schooling, expected years of schooling and Gross National Income per capita.
Human immunodeficiency virus (HIV) an infection that results in the gradual depletion and weakening of the immune system, resulting in increased susceptibility to other infections such as pneumonia and tuberculosis
Humanitarian assistance *see* Emergency aid
Human rights relates to the freedoms and conditions to which every person is entitled
Hunger the continuing lack of food needed for an active and healthy life
Hypertension high blood pressure
Illness a subjective concept related to personal experience of a disease or injury
Incidence refers to the number (or rate) of new cases of a disease/condition in a population during a given period
Income test a determination of whether an individual or family is eligible for government assistance based on their level of income
Indigenous Australians Australians of Aboriginal or Torres Strait Islander origin
Indivisible unable to be divided or separated
Infant mortality rate the rate of deaths of infants before their first birthday, usually expressed per 1000 live births
Infectious diseases diseases caused by micro-organisms, such as bacteria, viruses, parasites or fungi that can be spread, directly or indirectly, from one person to another
Infirmity the quality or state of being weak or ill; often associated with old age
Infrastructure the physical and organisational structures, facilities and systems (e.g. buildings, roads, power supplies) needed for the operation of a society
Interdependent mutually reliant on each other
Intersectoral collaboration having groups from many sectors such as government, health and the private sector working together to achieve a common goal
Latrine a simple communal toilet facility, often a trench dug in the ground or a pit
Legislation relating to a law or set of laws
Life expectancy the number of years of life, on average, remaining to an individual at a particular age if death rates do not change. The most commonly used measure is life expectancy at birth (AIHW, 2018).
Low birth weight weighing less than 2500 grams at birth
Malaria a communicable disease that is transmitted via infected mosquitoes
Malignant abnormal cells that invade and destroy nearby healthy tissue

Marketing the activities of a company associated with selling a product or service, including advertising, selling and delivering products to people.
Maternal mortality death of a mother during pregnancy, childbirth or within six weeks of delivery
Maternal mortality ratio the number of mothers who die as a result of pregnancy, childbirth or associated treatment per 100 000 women who give birth
Menopause when the menstrual cycle stops permanently, ending the ability of a female to reproduce
Mental health and wellbeing the current state of wellbeing relating to a person's mind or brain and the ability to think and process information. A mentally healthy brain enables an individual to positively form opinions, make decisions and use logic.
Metastasise when cancer has spread from one site to another
Microfinance small, low-cost financial services for poor people that involve low-interest loans to develop small businesses
Millennium Development Goals a set of goals that were introduced in 2000 to guide global action until 2015
Modern contraceptive methods technological advances designed to overcome biology and enable couples to have sexual intercourse at any mutually-desired time
Morbidity ill health in an individual and levels of ill health within a population (often expressed through incidence, prevalence) (AIHW, 2018)
Mortality the number of deaths in a population in a given period (AIHW, 2018)
Mortality rate (sometimes referred to as 'death rate') the measure of the proportion of a population who die in a one-year period (usually per 100 000)
Multilateral aid aid provided through an international organisation, such as the World Bank, United Nations or World Health Organization. Multilateral aid combines donations from several countries and then distributes them to the recipients.
Neonatal period the first 28 days after birth
Neural tube defects conditions characterised by damage to the brain and spine, and to the nerve tissue of the spinal cord during prenatal development. Examples include spina bifida and anencephaly.
New public health an approach to health that expands the traditional focus on individual behaviour change to one that considers the ways in which physical, sociocultural and political environments impact on health. Also referred to as the social model of health.
Non-communicable diseases conditions that are usually long lasting, and generally progress slowly. Non-communicable diseases are not spread through the environment and include cardiovascular disease, cancer, respiratory diseases and diabetes.
Non-government organisation (NGO) aid NGOs take different approaches to aid, which can include specific projects or programs, emergency aid, volunteering, education and development. The aid provided by NGOs often focuses on communities.
Non-renewable resources resources that are not replenished in a short period, so once they are used they are not available for future generations. Non-renewable resources include coal, natural gas, petroleum and nuclear substances.
Nutrient dense (foods) foods that contain a large amount of nutrients such as vitamins and minerals
Obstetric fistula a condition that is caused by complications associated with obstructed labour. The tissues between the woman's vagina and pubic bone are damaged by continuous pressure from the infant's neck trapped in the birth canal. The damaged tissue later falls off resulting in a hole through which the woman continuously leaks urine or faeces or both.
Obstetric haemorrhage heavy bleeding occurring as a result of pregnancy or childbirth
Official Development Assistance (ODA) financial assistance provided by donor government agencies to low- and middle-income countries or to multilateral aid agencies. Also known as aid.
Old public health government actions that focused on changing the physical environment to prevent the spread of disease, such as providing safe water, sanitation and sewage disposal, improved nutrition, improved housing conditions and better work conditions

Open defecation using open spaces rather than a toilet to pass human waste

Ottawa Charter for Health Promotion an approach to health developed by the World Health Organization that aims to reduce inequalities in health. It reflects the social model of health and provides five action areas that can be used as a basis for improving health status, all of which are centred around three strategies for health promotion which are enabling, mediating and advocacy.

Outreach bringing services or information to people where they live or spend time

Paleo diet a diet characterised by consuming foods available to humans during the Paleolithic period (from around 2.5 million to 12 000 years ago). The Paleo diet restricts the consumption of dairy, refined grains such as bread and pasta, and refined sugar such as chocolate and soft drink. The main components of the Paleo diet are meat, fish, nuts, vegetables and seeds.

Palliative care an approach designed to improve the quality of life of patients with a life-threatening illness with little or no prospect of a cure. This is achieved through the prevention and relief of suffering and the treatment of pain.

Pandemic the spread of infectious disease through human populations across a large region such as multiple continents or worldwide

Pathogens bacteria, viruses and other microbes that can cause disease

Patient co-payments the payment made by the consumer for health products or services in addition to the amount paid by the government

Periodontitis a condition characterised by inflammation and infection of the tissues that support the teeth

PET scan involves having an injection of a small amount of radioactive material, which enables a scanner to build up a picture of the body

Physical health and wellbeing relates to the functioning of the body and its systems; it includes the physical capacity to perform daily activities or tasks

Poverty not having the resources to meet basic needs such as food, clothing and shelter

Premium the amount paid for insurance

Prevalence the number or proportion of cases of a particular disease or condition present in a population at a given time (AIHW, 2008)

Primary production the process of producing natural products for human use such as plants and animals

Private sector part of a country's economic system that is run by individuals and companies, rather than the government

Productivity relates to the efficiency of production of goods and services. Productivity is measured by the amount of output produced per unit of input

Protected Special Category visa these visas are held by some people who arrived in Australia on a New Zealand passport and meet other specific criteria

Public health the ways in which governments monitor, regulate and promote health and wellbeing and prevent illness

Quarantine laws that require a person, animal, plant or any type of material that might be carrying an infectious agent to be kept isolated to prevent the spread of disease

Renewable resources resources that are replenished naturally and over a relatively short period, and include crops, water, oxygen, forests and fish stocks

Sanitation the process of eliminating contact between humans and hazardous wastes, including human and animal faeces and urine, solid wastes, domestic wastewater (sewage and grey water), industrial wastes and agricultural wastes

Schedule fee the amount that Medicare contributes towards certain consultations and treatments. The government decides what each item is worth and that's what Medicare pays. Doctors and private hospitals may choose to charge more than the schedule fee.

Schistosomiasis a worm infection that occurs when people swim, bathe or have contact with fresh water contaminated with human excreta

Secular not concerned with religion or religious matters

Self-assessed health status 'An individual's own opinion about how they feel about their health, their state of mind and their life in general.' (AIHW, 2018). It is commonly sourced from population surveys.

Sistergirls Indigenous transgender women (assigned male at birth) who have a distinct cultural identity and often take on female roles within the community, including looking after children and family (2015, Sisters & Brothers NT)

Social exclusion the segregation that people experience if they are not adequately participating in the society in which they live

Social health and wellbeing relates to the ability to form meaningful and satisfying relationships with others and the ability to manage or adapt appropriately to different social situations. It also includes the level of support provided by family and within a community to ensure that every person has equal opportunity to function as a contributing member of the society.

Social isolation refers to individuals who are not in regular contact with others

Social model of health an approach that recognises improvements in health and wellbeing can only be achieved by directing effort towards addressing the physical, sociocultural and political environments of health that have an impact on individuals and population groups

Social protection measures measures put in place to prevent individuals and families from suffering from poverty because of a crisis or another unexpected event. They include healthcare, income security for children, those who become sick or disabled and the elderly.

Social sustainability creating an equitable society that meets the needs of all citizens and can be maintained indefinitely

Sociocultural factors the social and cultural conditions into which people are born, grow, live, work and age. These conditions include socioeconomic status, social connections, family and cultural norms, food security, early life experiences, and access to affordable, culturally appropriate healthcare.

Socioeconomic status the social standing of an individual in comparison to others in that society. It is based on education, income and occupation.

Solarium a unit that uses UV radiation to create a tan

Spiritual health and wellbeing relates to ideas, beliefs, values and ethics that arise in the minds and conscience of human beings. It includes the concepts of hope, peace, a guiding sense of meaning or value, and reflection on a your place in the world.

Stakeholders people, groups and organisations who are involved in, or affected by, a course of action

Statelessness a situation where a person does not have citizenship of any country. These individuals have no protection of their human, social or political rights and cannot access education or healthcare or have freedom of movement.

Stillbirth the birth of an infant that has died in the womb

Subjective influenced by or based on personal beliefs, feelings or opinions

Subsistence self-sufficient farming carried out by individuals to provide food for themselves and their family

Subsistence farming self-sufficient farming carried out by individuals to provide food for themselves and their family

Suffragette movement the struggle to win women's right to vote and to take on leadership roles within the government. Often referred to as the women's rights movement.

Sustainability meeting the needs of the present without compromising the ability of future generations to meet their own needs

Sustainable agriculture the capacity of agricultural practices over time to provide sufficient food in ways that are economically efficient and profitable, socially responsible and environmentally sound

Sustainable development development that meets the needs of the present without compromising the ability of future generations to meet their own needs

Syndrome X (also called metabolic syndrome) when a person exhibits a range of factors that increase their risk of cardiovascular disease and type 2 diabetes. Examples of the factors include abdominal obesity, high cholesterol and insulin resistance.

Syphilis a bacterial infection usually spread by sexual contact. Without treatment, it can damage the heart, brain or other organs, and can be life threatening. It can be passed from mother to an unborn child.
Trachoma a bacterial infection of the eye that can cause complications including blindness
Transnational involving several nations
Trend a general change or movement in a particular direction. For example, trends indicate a significant increase in obesity rates over the past 20 years.
Tropical diseases a group of diseases that mainly occur in tropical and subtropical environments and are most common in countries where people lack access to safe water and sanitation
Under-five mortality rate (U5MR) the number of deaths of children under five years of age per 1000 live births (WHO, 2008)
Urban slums a settlement, neighbourhood or region comprised of housing that does not provide the essential conditions required to live a healthy life
UV index a scale from 0–10 that provides an indicator of how intense UV radiation will be. Sun protection methods are recommended for any UV index score of 3 and over.
Vector a living thing that carries and transmits pathogens to other living things
Vector control actions taken to control and eradicate the carriers of disease and infection
Venereal disease a disease contracted by sexual intercourse with a person already infected; a sexually transmitted infection
Years lost due to disability (YLD) a measure of how many healthy years of life are lost due to disease, injury or disability
Years of life lost (YLL) a measure of how many years of expected life are lost due to premature death

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