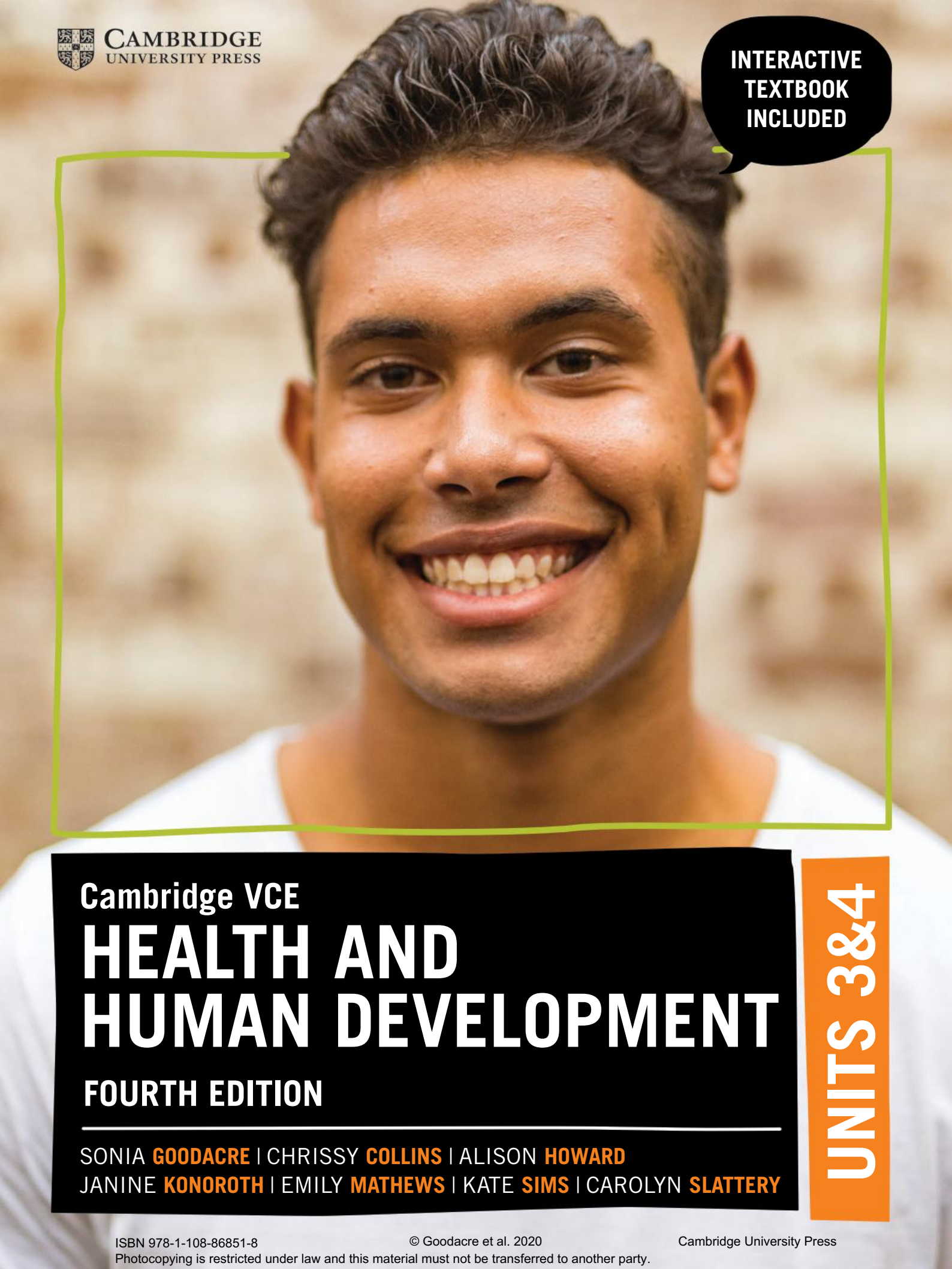

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FOURTH EDITION
SONIA GOODACRE | CHRISSY COLLINS | ALISON HOWARD
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UNITS 3&4



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UNITS 3&4

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OVERVIEW

Welcome to your studies of Health and Human Development Units 3 & 4.

The authors of this book, teachers in schools just like yours, have a shared desire to provide you with an informative and helpful resource written in language designed for students.

Make sure you consolidate each concept as it is covered; it will be too hard to master all at once during the end of the year revision. Extension questions throughout chapters are designed to check your deep understanding of each concept.

Analyse each piece of data provided even if it doesn't form part of an activity or is not set by your teacher. The more you practise your data analysis skills, the better you will be able to complete these tasks in the exam.

Extended-response questions at the end of chapters build your skills in this assessment type that students traditionally struggle with. Additional sample questions are available in the teacher edition, so ask your teacher to support you with this.

Activities are designed to assess your understanding, so even if your teacher doesn't set all tasks, they will provide an excellent opportunity for you to check how you are going.

Chapter introductions and summaries and end-of-chapter questions and videos are excellent revision tools.

When studying content that you will need to recall in the exam (e.g. examples of dimensions of health and wellbeing), studying them from recall is the best way to move them into your long-term memory. Do you remember the look-cover-write-check method that you used in primary school? The same principle can be applied to learning key information in VCE.

We wish you well with your studies this year!

The Authors

For a list of websites and links related to this book, go to: www.cambridge.edu.au/hhd344ed



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Emily's passion for Health and Human Development began early in her life and has continued to develop throughout her career. She has been teaching Health and Human Development for a number of years and has gained additional experience as an examination assessor. Emily enjoys teaching junior and senior students, inspiring their passion for health and wellbeing, not only to succeed in their studies, but also to live long and healthy lives.



KATE SIMS

Kate has been working in a government school in country Victoria for more than 20 years. For a large part of these years, she has been a teacher of Health and Human Development and has really enjoyed seeing the study evolve to reflect the changing needs of individual and population health and wellbeing. Kate has undertaken a variety of roles outside of school, such as working with preservice teachers at university institutions, VCAA exam marking, being a member of the VCAA study design review panel in 2016, and writing for the VCAA Advice for Teachers. Her biggest passion is being in the classroom, sharing her knowledge and seeing her students became health-literate citizens.

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UNIT 3



AUSTRALIA'S HEALTH IN A GLOBALISED WORLD

AREA OF STUDY	OUTCOME
1 Understanding health and wellbeing	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.
2 Promoting health and wellbeing	Explain changes to public health approaches, analyse improvements in population health over time and evaluate health-promotion strategies.

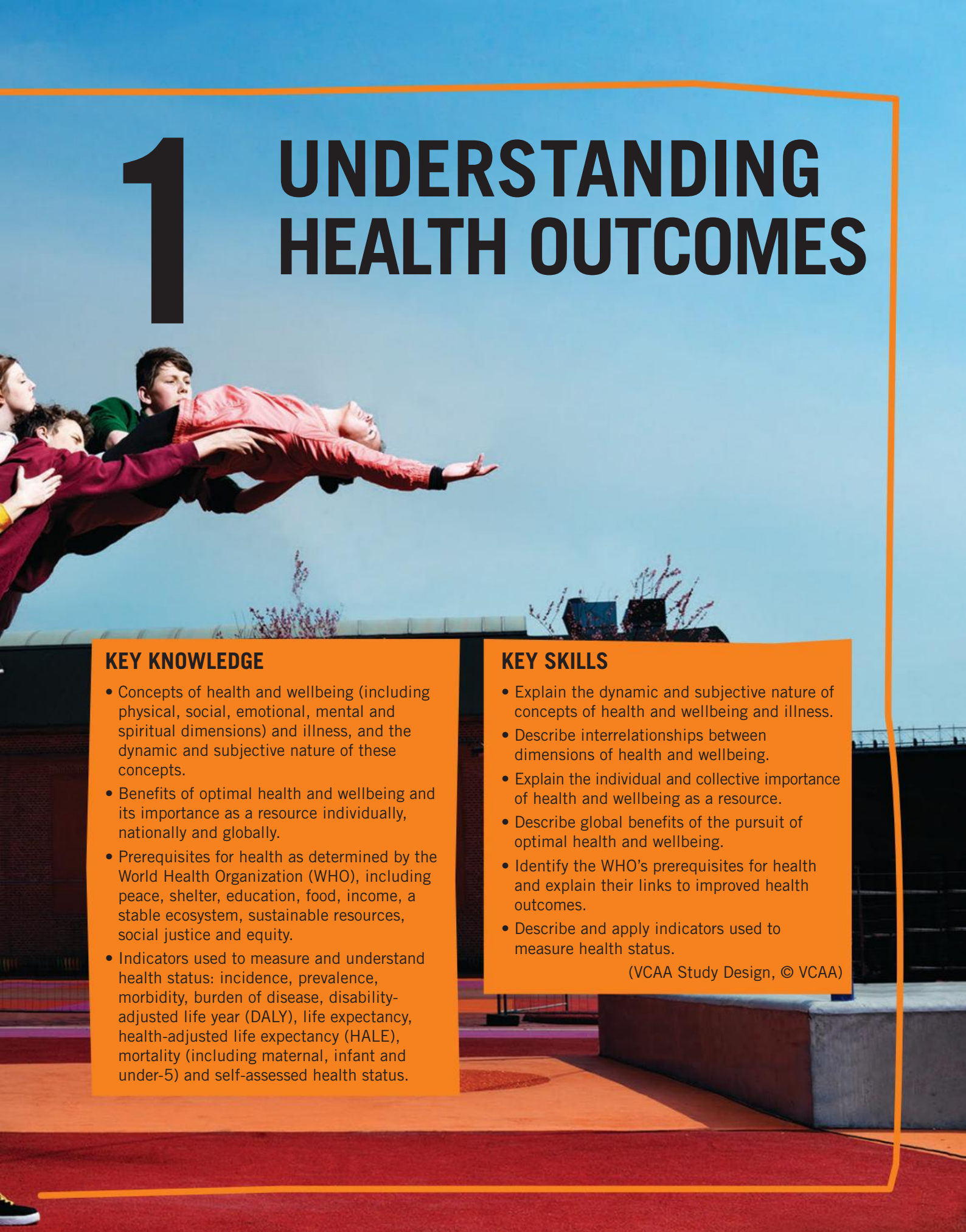
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1 UNDERSTANDING HEALTH OUTCOMES



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 World Health Organization (WHO), including peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity.
- 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

- Explain the dynamic and subjective nature of 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.
- Describe and apply indicators used to measure health status.

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AOS 1

INTRODUCTION

This chapter introduces you to the concepts of health and wellbeing that underpin your studies in VCE Health and Human Development. They include the five dimensions of health and wellbeing: physical, social, emotional, mental and spiritual. You will look at how optimal health and wellbeing is a resource to be experienced individually, nationally and globally. This will set the scene for your study throughout Units 3 and 4. The World Health Organization (WHO) identifies a number of prerequisites for health and this chapter looks at how they can improve health outcomes. You will also identify and apply the indicators used to measure health status nationally and globally.

What you need to know

- The concepts of health and wellbeing and illness
- The five dimensions of health and wellbeing
- The subjective and dynamic nature of health and wellbeing and illness
- The benefits of optimal health and wellbeing
- How optimal health and wellbeing is a resource individually, nationally and globally
- The WHO prerequisites for health
- The indicators used to measure and understand health status

What you need to be able to do

- Describe the five dimensions of health and wellbeing (physical, social, emotional, mental and spiritual).
- Explain the dynamic and subjective nature of health and wellbeing and illness.
- Describe the interrelationships between the dimensions of health and wellbeing.
- Explain the importance of health and wellbeing as a resource individually, nationally and globally.
- Identify the WHO prerequisites for health.
- Explain the links of the WHO prerequisites to improved health outcomes (health and wellbeing and health status).
- Describe the indicators used to measure health status.
- Apply (use) the indicators used to measure health status.

1.1 CONCEPTS OF HEALTH AND WELLBEING, AND ILLNESS

optimal health and wellbeing: The best possible state of an individual's health and wellbeing for their age.

health: 'A state of complete physical, social and mental wellbeing, and not merely the absence of disease or infirmity' (WHO, 1946).

Health and wellbeing are complex concepts. The overall state of a person's health and wellbeing is dependent on the interaction between the five dimensions of health and wellbeing: physical, social, emotional, mental and spiritual, with **optimal health and wellbeing** ensuring best possible state of an individual's health and wellbeing for their age.

Throughout a person's life, their level of health does not always remain the same – it can be affected by their genetic makeup, their environment and the individual choices they make.

Health is a complex, multidimensional concept that is usually measured in terms of the absence of physical pain, physical disability or a condition that is likely to cause death;

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emotional and mental wellbeing; and adequate social functioning. The most universally used definition of health was developed by the WHO in 1946. At this time, health was defined as 'a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity'.

This broad definition of health also includes the concept of **wellbeing** for which a single definition is difficult to establish because it is strongly connected to how an individual assesses the quality of their life. Wellbeing can be described most simply as the state of being healthy, happy and contented. Wellbeing includes the presence of positive emotions (contentment, happiness) and resilience, satisfaction with life, a sense of fulfilment and positive functioning.

Illness is the experience of feeling unwell or being in poor health, often due to disease or injury. Illness can occur due to a specific condition that prevents the body from functioning normally and involves the individual experiencing symptoms that can be described subjectively.

While the WHO definition of health will be referenced throughout the study of Health and Human Development, it is important to acknowledge other concepts relevant to an understanding of how we explain health and wellbeing. In 1986, the WHO, in the Ottawa Charter for Health Promotion, stated that health is 'a resource for everyday life, not the objective of living. Health is a positive concept emphasising social and personal resources, as well as physical capacities' (WHO, 1986).

Health and wellbeing definitions can include a focus on the absence of illness, or on the ability to cope with everyday activities, or on satisfaction with life. In any organism, health is a form of homeostasis – a state of balance, with inputs and outputs designed to create equilibrium.

wellbeing: A complex combination of all dimensions of health, characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged.

illness: The state of feeling unwell or being in poor health, often due to disease or injury.

Overall, when considering the concept of health, there needs to be an acknowledgement that it is the complex process of attainment of wellbeing and progression away from disease and infirmity. The commonly accepted explanation of health created by the WHO incorporates physical, mental and social dimensions of health and wellbeing. Therefore, being healthy does not just mean being physically well; it also means feeling good about every aspect of your life. In this way, being of sound mind is also important, as is social wellness, or the ability to form and maintain a network of friends.

Over time, we have become aware that emotional and spiritual health and wellbeing need to be recognised for their impact on overall health and wellbeing.

Dynamic nature of the concepts of health and wellbeing, and illness

An individual's state of health and wellbeing is ever-changing and can be affected by **dynamic** interactions with the environment. When something is dynamic, it is changing or moving continually in response to its environment and experiences. In the case of health and wellbeing, and illness, changes

dynamic: Constantly changing.

DISCUSS



FIGURE 1.1 Health and wellbeing are interrelated concepts.

Discuss the characteristics of optimal health and wellbeing. Why is it important to be in optimal health and wellbeing?

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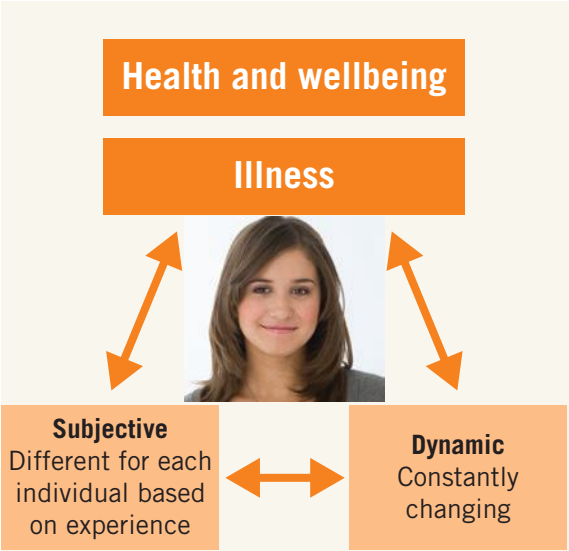


FIGURE 1.2 Concepts of health and wellbeing

that occur can be rapid and intense, with little notice given. For example, someone might be experiencing a positive state of health and wellbeing and then suddenly come down with a cold or sustain an injury, creating a negative impact on their physical health and wellbeing.

For the most part, however, a person's state of health changes slowly. For example, unhealthy habits such as a lack of physical activity or regular consumption of unhealthy foods will cause a gradual change in a number of health and wellbeing attributes, including a physical decline in muscle strength and lung fitness, damage to the heart, emotional distress and change in moods, and a possible change in social activity that impacts on the dimensions of health and wellbeing.

subjective: Influenced by or based on a person's feelings, opinions and experiences.

Generally, health is adaptive to the influences that exist both within the body and in the environment. The dynamic nature of health and wellbeing means that some of these changes are predictable. However, many are unpredictable and are based on the everyday circumstances of the individual. A high level of wellbeing does not exclude periods of illness. A combination of physical, mental, emotional, social and spiritual wellbeing is necessary to achieve overall health and wellbeing.

DISCUSS



FIGURE 1.3 Health and wellbeing is dynamic (constantly changing).

Discuss how breaking your arm could impact on the dimensions of health and wellbeing, given that the arm will heal in time.

Subjective nature of the concepts of health and wellbeing, and illness

When something is **subjective**, it is considered to be influenced by personal opinions and feelings. The concept of health and wellbeing means different things to different people, based on their past experiences and the current circumstances of the individual. Because of this, health and wellbeing is considered to be very individual and highly subjective. An individual's personalised perceptions of health and wellbeing can be based on a number of different factors, such as their personal interpretation of the meaning of health, their past level of health and wellbeing, how much they value health or believe it is important to them, and the influence of the beliefs of family and friends in relation to health and wellbeing.

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A number of factors in our environment also influence our opinions of health and wellbeing. For example, the media have a substantial influence on our view of health and wellbeing. Media campaigns – such as road safety advertising – raise awareness of health issues and increase our understanding of health and wellbeing. On the other hand, sometimes media advertising can be misleading and negatively shape an individual's views; for example, in the way they might portray an ideal body shape. This demonstrates the subjective nature of how an individual views their own health and wellbeing.

Determining the level of health and wellbeing of an individual or population is difficult because the interpretation of health and wellbeing is so subjective, and relies on personal perceptions. For example, some people suffer from one or more chronic disease, yet regard themselves as being healthy; while others will say they are ill despite no objective evidence of any disease being present.

An individual will have fluctuating states of health and wellbeing relating to their capacities in body structure and function, emotional functioning, and social activities and participation. This state or level of health and wellbeing can be determined by the use of a health continuum. Health and wellbeing falls somewhere on a line (continuum) from a high to a low level (Figure 1.4). The choices made by an individual determine whether they have a high or low level of health and wellbeing. A high level of health and wellbeing could be characterised by optimal levels of functioning or capacity in all the dimensions of health, and freedom from any type of illness or disease. As an individual moves towards the other end of the continuum, they are progressing towards chronic illness and premature death. In between these states, there are many degrees of wellness or illness.

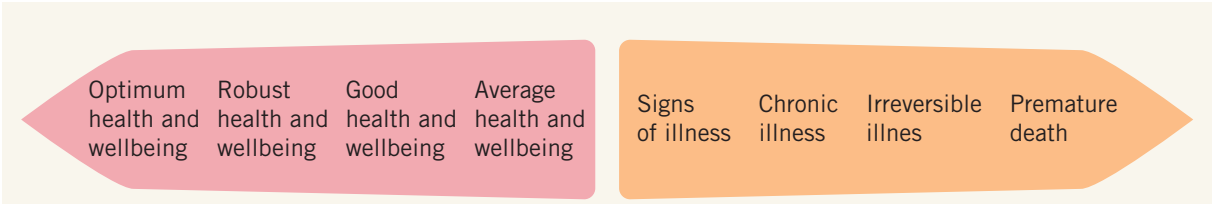


FIGURE 1.4 The health continuum

ACTIVITY 1.1: DYNAMIC AND SUBJECTIVE HEALTH AND WELLBEING

1 Define the term dynamic.
2 Using examples, explain why health and wellbeing and illness are considered to be dynamic.
3 Define the term subjective.
4 Using examples, explain why health and wellbeing and illness are considered to be subjective.



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AOS 1

1.2 DIMENSIONS OF HEALTH AND WELLBEING

While the WHO definition of health includes *physical, social* and *mental dimensions* of health and wellbeing, in 1983 the WHO also recognised a fourth dimension – spiritual wellbeing – acknowledging that 'the *spiritual dimension* plays a great role in motivating people's achievements in all aspects of life' (WHO, 1983). The *emotional dimension* of health and wellbeing is also recognised as an important component of day-to-day life.

chronic disease: Diseases marked by a long duration and frequent recurrence that often progresses slowly, especially degenerative diseases such as osteoarthritis.

cholesterol: A waxy, fat-like substance used by the body to build cell walls. It is either produced in the liver or absorbed from animal fats eaten.

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. Physical health and wellbeing 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.

Perceptions of good levels of physical, social, mental, emotional and spiritual health and wellbeing will differ from one person to another. The mental, emotional, social and spiritual dimensions of health and wellbeing are often overlooked in order to focus on the more visible physical functioning. If a person 'looks' healthy, we often assume that they are healthy, without looking beyond their physical condition. This is due to the fact that risk factors such as physical fitness and **chronic disease** are often more easily defined and unambiguous. No one dimension of health and wellbeing works independently, and each dimension will influence the others to determine the overall level of wellbeing, the dynamic nature of an individual's wellbeing and the personal perception that an individual experiences of their health and wellbeing.

Physical dimension of health and wellbeing

The physical dimension of health and wellbeing refers to the efficient functioning of the body and its systems. It includes the physical capacity to perform tasks and physical fitness.

Physical health and wellbeing includes factors such as appropriate body weight for height, level of fitness, and the functioning of the body's organs and systems, which will impact body functions such as blood **cholesterol** and glucose levels. Healthy eating, reduced levels of risk-taking behaviour, such as tobacco use, reduced exposure to damaging environmental conditions and appropriate levels of physical activity, are important for good physical health and wellbeing.

The physical dimension of health and wellbeing is often the first dimension considered when examining an individual's level of health. This may be due to the fact that the outcomes of physical health, or ill-health, are often visibly discernible and easily diagnosable by healthcare professionals.

Physical health and wellbeing is the overall physical condition of an individual at a given time. It includes the reliability of their body functions, freedom from disease or illness, and the condition of optimal physical wellbeing. If an individual is experiencing good physical health and wellbeing, then they are able to perform in accordance with how their body has been designed to function.

A high level of physical health and wellbeing is the result of regular exercise, a suitable diet and good nutrition, and proper rest for physical recovery. In order to obtain and maintain good physical health and wellbeing, an individual needs to take responsibility for and take care of minor illnesses, take actions to prevent injury and disability where possible, seek professional medical attention when necessary, and understand the relationship between sound nutrition and physical activity and the functioning of the body. Physical activity is important for physical fitness. This optimises lung capacity and function, cardiovascular strength and overall flexibility of muscles and joints. An appropriate level of physical activity can also optimise immune response, which can provide beneficial defence against some viruses and other micro-organisms.

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A high level of physical health and wellbeing also necessitates appropriate use of knowledge and decision-making. For example, good physical health and wellbeing encourages regular physical activity, appropriate use of medical care, the undertaking of safety practices such as wearing a seatbelt when travelling in a car or a helmet when riding a bicycle, and the application of knowledge about food and nutrition. It also discourages the use of tobacco and drugs as well as excessive alcohol consumption.



FIGURE 1.5 Examples of physical health and wellbeing

DISCUSS

Good physical health and wellbeing includes reliability of the body and its systems.

Discuss why the level of physical health and wellbeing of an individual is what most people think of when they hear the terms *health* and *wellbeing*.

Social dimension of health and wellbeing

The social dimension of health and wellbeing refers to being able to interact and develop relationships with others in a meaningful way, and participate in the community in a way that adapts or manages different social situations appropriately.

Maintaining **social health and wellbeing** depends on how effectively people are able to interact with others in their society and/or the environment. Being accepted by others and interacting well within different groups of people, including family and peers, is very important for good social health and wellbeing.

social health and wellbeing: Relates to the ability to form meaningful and satisfying relationships with others and 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 society. Social health and wellbeing is supported by strong communication skills, empathy for others and a sense of personal accountability.

The definition of social health and wellbeing incorporates elements of personality and social skills, and reflects social norms and social functioning. The consideration of social health and wellbeing as a major dimension was stimulated by its inclusion in the WHO's definition of health, and by the resulting emphasis on the healthcare system 'treating patients as social beings who live in a complex social context. There is also increasing evidence that those who are well integrated into their communities tend to live longer and recover faster from disease. Conversely, social isolation has been shown to be a risk factor for illness. Hence, social health and wellbeing may be described in terms of social adjustment and social support and the ability to perform normal roles in society.'

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FIGURE 1.6 A state of social health and wellbeing involves positive interactions.

The social dimension of health and wellbeing encourages an individual to contribute to their environment in order to increase the welfare of their community. Social health and wellbeing emphasises interdependence with others and being aware of each person's importance in society, as well as the impact they have on their community. A major component of an individual's social health and wellbeing involves experiencing good communication with those around them.

A high level of social health and wellbeing involves positive, enjoyable interactions with others. Positive interaction implies being comfortable and at ease in various social situations, as well as communicating effectively with others. In order for this to occur, it is important to build close friendships, engage in effective listening, care about others, recognise the need for leisure and recreation that involve others, and ensure that enough time is given to these activities.

Shared social support is also commonly viewed as an aspect of social health and wellbeing. Social support contributes to positive adjustment in children and adults, and also encourages personal growth.

Having a sense of community is an important indicator of social health and wellbeing. According to recent research, understanding the way humans interact – in person or online – could help to prevent disease and promote general health and wellbeing. For example, most people easily recognise the positives of social networking: the ability to connect with people even when you're in an isolated situation, experiencing happiness from staying in touch with friends and family who are far away and having the flexibility to communicate whenever time allows. The negatives are often more difficult to recognise, but one of the most obvious effects is that it encourages a lifestyle shift from active to sedentary. Social networking can also reduce face-to-face contact with family and friends and increase the risk of bullying and depression.



FIGURE 1.7 Examples of social health and wellbeing

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ACTIVITY 1.2: SOCIAL NETWORKING – GOOD OR BAD FOR YOUR HEALTH?

The intriguing new science of social networks is demonstrating how personal interconnections can affect our health and wellbeing. Social networks have both negative and positive impacts, depending on a variety of factors. For example, ideas and habits that influence health and wellbeing for better or for worse can spread through social networks.

1 Describe the social dimension of health and wellbeing.
2 Identify as many ways as you can of how individuals can participate in their community.
3 In what ways do you think social networking positively and/or negatively impacts the health and wellbeing of individuals? In your answer, address all the dimensions of health and wellbeing.
4 Social networking is said to increase feelings of loneliness. Research and discuss the impact of loneliness on physical, mental, emotional and spiritual health and wellbeing.

Emotional dimension of health and wellbeing

A state of **emotional health and wellbeing** relates to being able to manage and express feelings in a healthy way, and to display resilience in everyday life. Overall, the emotional dimension of health and wellbeing emphasises an awareness and acceptance of one's feelings and the related behaviours involved in expressing those feelings. The individual is able to freely express their own feelings and manage them effectively to arrive at personal choices that allow them to be a productive member of the community. Understanding the value of feelings in order to use them in a positive way increases an individual's ability to enjoy life.



FIGURE 1.8 Displaying resilience is an example of positive emotional health and wellbeing. Resilience is the ability to 'bounce back' after adversity.

The maintenance of good emotional health and wellbeing, a positive attitude, high self-esteem and a strong self-image facilitate the individual's ability to respond with resilience to emotional states and the stresses of everyday life.

emotional health and wellbeing: Relates to the ability to express feelings in a positive way. It 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 you feel emotionally secure and relaxed in everyday life.



FIGURE 1.9 Examples of emotional health and wellbeing

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Mental dimension of health and wellbeing

The mental dimension of health and wellbeing refers to the current state of wellbeing of the mind or brain. It also relates to the ability to think and process information in order to positively form opinions and make decisions.

mental health and wellbeing: The current state of wellbeing relating to the mind or brain and its 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. It is associated with low levels of stress and anxiety, positive self-esteem, as well as a sense of confidence and optimism.

Mental health and wellbeing is dependent on how well a person can function where their thoughts, feelings and behaviours are concerned, not only in relation to their own life but to the world around them. A key facet of mental health and wellbeing is the ability to control one's response to stress. A feeling of belonging is important for good mental health, as is maintaining a high level of self-esteem because this increases coping abilities.



FIGURE 1.10 Examples of mental health and wellbeing

Mental health and wellbeing involves an individual being able to use their healthy brain's capabilities, being able to function in society and being able to meet the normal demands of everyday life.

A high level of mental health and wellbeing enables an individual to feel capable and competent, to handle normal levels of stress, to maintain satisfying relationships and to be able to lead an independent life. A positive state of mind and a sense of self-esteem enable a person to function effectively within society. Individuals who have good mental health and wellbeing are able to maintain a basic feeling of satisfaction with themselves and their role in society. A good level of self-esteem allows the individual to form interdependent relationships with others based on a foundation of mutual commitment, trust and respect, where emotional needs are met constructively.

EXTENSION QUESTION 1.1

Mental health and wellbeing and emotional health and wellbeing can seem very similar. In your own words, explain the difference between these dimensions.



FIGURE 1.11 Positive self-esteem, as well as a sense of confidence and optimism, are examples of mental health and wellbeing that can also impact on the other dimensions of health and wellbeing.

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Spiritual dimension of health and wellbeing

The spiritual dimension of health and wellbeing refers to a phenomenon that is not material in nature. Instead, it belongs to the realm of ideas (in particular, ennobling ideas), beliefs, values and ethics that have arisen in the minds and consciences of human beings. The spiritual dimension is interpreted as the need for meaning, purpose and fulfilment in life. For many individuals, it involves identification with a belief or faith system that contributes to their hope and their will to live.

Spiritual health and wellbeing is a highly individualised concept that can be measured by the amount of peace and harmony an individual experiences in their day-to-day life. It involves endeavouring to be involved in a community in ways that are appropriate to their value systems, beliefs, attitudes and customs. The value systems that individuals use to guide and/or measure their sense of happiness, fulfilment and meaning vary widely. They can include religious beliefs and practices, political ideologies, moral sentiments, national, tribal or other group solidarity, and the desire to preserve local and family traditions and cultural heritage.

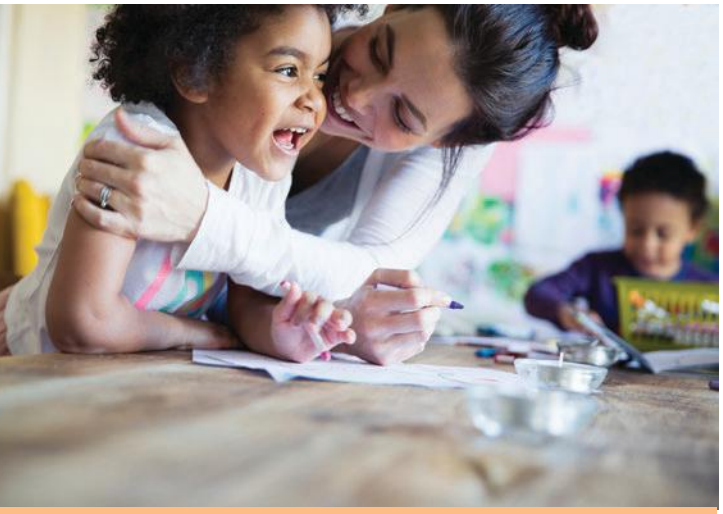


FIGURE 1.12 Maintaining spiritual health and wellbeing involves developing a sense of purpose in life, connection or belonging. For many people, these are provided by family.

The spiritual dimension plays an important role in motivating people to strive for happiness in all aspects of life. Developing spiritual health and wellbeing generally begins with an individual's desire to give life purpose and, for many, a belief in a higher power that is present in their life.

Optimal spiritual health and wellbeing involves developing a sense of purpose in life and reflecting on major events that have occurred along with their impact and meaning. It also involves an understanding of right or wrong in a way that allows for consideration of, and care for, the welfare of others and the environment, and practising compassion and forgiveness.

spiritual health and wellbeing: Not material in nature but 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. Spiritual health and wellbeing can be highly individualised; for example, in some spiritual traditions health may relate to organised religion, a higher power and prayer, whereas in other practices it can relate to morals, values, a sense of purpose in life, connection or belonging.



FIGURE 1.13 Examples of spiritual health and wellbeing

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Interrelationships between dimensions of health and wellbeing

Maintaining an optimal level of health and wellbeing requires a balance between all the dimensions described previously. It involves an individual taking good care of their physical self, using their mind constructively, expressing emotions effectively and being involved successfully with those around them.

Strong interrelationships are also needed since no single dimension of health and wellbeing works independently. Each dimension influences the others, determining the overall level of wellbeing and hence the health and wellbeing of the individual. Each of the dimensions of health and wellbeing is an active state affected by various influences such as sociocultural, biological and environmental factors, as well as the individual's past experiences lifestyle choices. How the dimensions interrelate in response to these influences may require extensive management by an individual in order to gain balance and achieve optimal health.

An example of this is a person who works long hours in an office, undertaking solitary and sedentary work, who could feel resentful of others who are able to spend more time with their family and friends. The office-worker may lose some of their confidence and sense of self, potentially experiencing a negative impact on all of the dimensions of health and wellbeing because they interrelate so strongly with one another. The individual may be advised to incorporate into their lifestyle more physical activity with their family in order to bring the dimensions of health and wellbeing into balance and provide a sense of fulfilment, as well as gain control over negative feelings. Making even a small effort in a previously neglected dimension often results in a much more balanced perspective.

Experiencing change in one of the dimensions will result in a change to some degree (but not necessarily the same degree) to one or more of the other dimensions. This also highlights the dynamic nature of health and wellbeing.

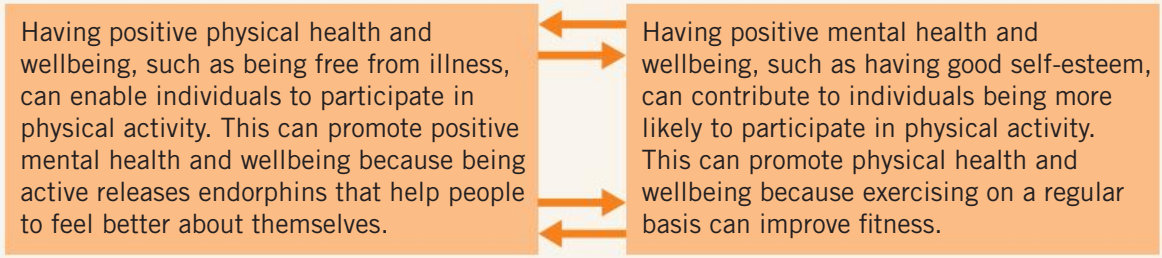


FIGURE 1.14 Example of an interrelationship between physical and mental health and wellbeing that are continually interrelating in both directions

CASE STUDY: HEALTH AND WELLBEING

Read the following case study and complete the activities that follow.

Chris is in Year 12 completing VCE. It has been a challenging year so far, with Chris having to work consistently, but the hard work is paying off with pleasing results. However, last week's SAC result was a bit lower than usual. Chris really had put in a lot of effort to stay focused and keep going because the feelings of giving up were strong. To help balance study, Chris plays basketball with friends from outside school. It is great to have mates that are different from those at school, as there is a strong sense of belonging within the team. Basketball has often been a welcome distraction from school work and a chance to do something physical. Last

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year Chris had some issues with a dislocated shoulder, impacting playing time. But Chris never missed a game, cheering the team on and always being involved. There were times when Chris even did some coaching and strategic play set up. This year has been better, with no shoulder issues. The rest time has clearly paid off, with the shoulder healing well. They are top of the ladder and hoping to win the grand final. Chris is looking forward to finishing Year 12 and hopes to go to uni next year – but isn't sure what course yet.

1 Identify examples of each of the dimensions of health and wellbeing identified in the case study.
2 Provide two examples from the case study where one dimension of health and wellbeing is having an effect on another dimension.
3 Choose one of your examples from Question 2 and discuss whether the interrelationship between the dimensions of health and wellbeing identified is a positive or negative one. Justify your response.
4 Using example/s from the case study, explain how Chris's health and wellbeing is dynamic.
5 Using example/s from the case study, explain how Chris's health and wellbeing is subjective.

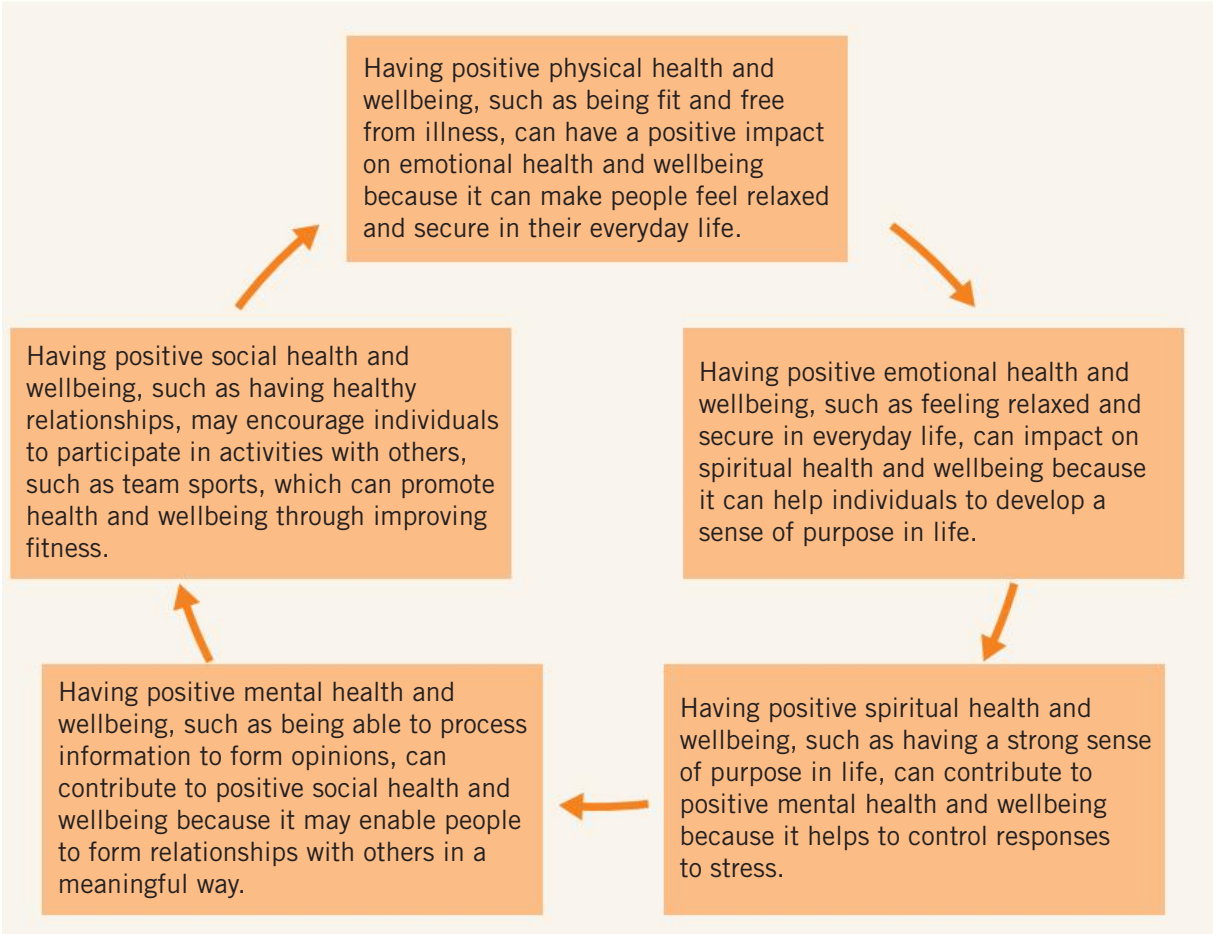


FIGURE 1.15 Examples of the relationships between the dimensions of health and wellbeing

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1.3 IMPORTANCE OF HEALTH AND WELLBEING AS A RESOURCE

The WHO, via the Ottawa Charter for Health Promotion, identifies health 'as a resource for everyday life, not the objective of living'. The WHO (1986) also states that, 'Health is a positive concept emphasising social and personal resources, as well as physical capacities.' Achieving optimal health allows individuals and countries to benefit from all members being able to lead socially and economically productive lives. Just as money is a resource that ensures a decent standard of living, health is a resource that enables a range of opportunities for individuals.

type 2 diabetes mellitus: A disorder in which a person's body produces insulin in order to metabolise blood sugar, but either does not produce enough or does not use it effectively.

cancer: A range of diseases categorised by uncontrolled and abnormal cell growth. Cancer cells can spread to other parts of the body, causing further damage.

Individually

Optimal health and wellbeing is essential for growth and development to occur throughout the lifespan. When individuals are healthy enough to participate fully in life and society, they are able to contribute to the creation of strong social bonds, engage with supportive communities, maintain healthy relationships and commit to responsible lifestyles. They can gain an education, work to provide for themselves and their family, spend time in leisure activities and feel a strong sense of self-worth and purpose in life.

Optimal health and wellbeing benefits an individual by:

- increasing their life expectancy
- increasing self-esteem and positive self-image by helping them to feel good about themselves
- enabling the development of meaningful engagement with the wider community
- reducing the pain and suffering associated with chronic conditions and injuries such as heart disease, stroke, high blood pressure, **type 2 diabetes mellitus**, osteoporosis and many types of **cancer**
- reducing the pain and suffering associated with physical ailments as well as psychological distress
- increasing the ability of an individual to maintain independent living in older age
- increasing the likelihood of feeling a sense of fulfilment and success in life
- reducing medical costs due to illness, allowing individuals to maximise income as a resource.

- Increased ability to run a household
- Increased ability to maintain independence
- Increased self-esteem, feeling good about oneself
- Meaningful engagement with community
- Increased energy
- More time to attend school/work



- Increased life expectancy
- Reduced health care costs
- Greater choices
- Increased productivity/income
- Sense of purpose, fulfilment, success
- Spend time with friends/family

FIGURE 1.16 Optimal health and wellbeing as a resource for individuals

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DISCUSS



FIGURE 1.17 Independent living in old age is an individual benefit of health and wellbeing as a resource.

Discuss why living to an old age in full health is a benefit for individuals and the communities in which they live.

EXTENSION QUESTION 1.2

Debate the statement 'health is wealth'.

Nationally

A healthy population has countless benefits for a country, many of which relate to the economy and productivity of the country compared with its expenditure on ill-health. Ill-health carries with it a number of associated costs to individuals and the community. There are benefits of reduced monetary expenditure associated with treating or diagnosing illness, such as the costs of medical treatment and medication if the population is in optimal health and wellbeing.

When populations are well, the unquantifiable impact of reduced quality of life for sufferers and their families, and the individual's diminished capability to contribute to society, are less likely to be significant. The whole of the Australian community, as well as the smaller groups within it, suffers from the burden of the combined health problems of its members. Consequences of ill-health for both the individual and the community can include monetary costs in addition to those relating to quality of life and productivity within society.

The World Bank reports that 50 per cent of the economic growth differentials between low- and high-income countries are attributed



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FIGURE 1.18 A productive workforce is a national benefit of health and wellbeing as a resource. People working generates income for the nation through taxation, which is then spent on national needs such as the healthcare system, education, governance and infrastructure.

to poor health and low life expectancy. It recognises that healthier citizens of a country equate to a more effective workforce, healthier children, fewer births and hence fewer dependants (Bloom & Canning, 2008).

Below are some examples of the benefits and importance of optimal health and wellbeing nationally in Australia:

- A healthy population helps to build a productive workforce for Australia, hence increasing national income.
- If those groups not contributing to the workforce, and therefore the funding of the healthcare system in Australia (for example, children, the elderly) are in optimal health, this reduces the burden on the healthcare system.
- When optimal health is experienced by the population, there is a reduction in absenteeism from the workplace as well as reduced levels of stress.
- Positive thinking and societal participation by the larger community enable the existence of high-functioning government systems, such as education and healthcare, as well as improvement in the development of resources, such as technology.
- A healthy population reduces the expenditure of the government on healthcare, enabling the money saved to be invested in progressive and sustained development.
- Less reliance on social security.

- Healthy populations help to build a productive workforce, increasing national income through taxation
- Reduced burden on the healthcare system, resulting in taxation money being able to be spent elsewhere, such as education, infrastucture
- Reduced levels of stress in the community
- Increased social development



- Fewer people relying on social protection
- Higher average incomes
- Reduced absenteeisms from workplace
- Improved life expectancy
- Increased economic development

FIGURE 1.19 Optimal health and wellbeing as a national resource

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Globally

As the world increasingly becomes globalised, with an increase in international travel, trade and commerce, it is necessary to think about health in a global context. There are many benefits of global health and wellbeing and health as a global resource is having more significance now than ever before. Due to public health measures and biomedical advances worldwide, life expectancy and prosperity generally are increasing, resulting in a growing number of people worldwide who are experiencing optimal health and wellbeing. However, many global health issues can still directly impact the health of Australians – for example, infectious diseases, food-borne illnesses or contaminated pharmaceuticals and other products can spread easily from country to country and influence international trade and travel. Global health and wellbeing is an important resource for global sustainability, economic and social development.

When populations are experiencing optimal health and wellbeing, they are more likely to experience prosperity, ensuring a decent standard of living. This promotes opportunities for nations, providing stability and opportunity, securing increased global security and human rights.

The benefits and importance of experiencing optimal health and wellbeing globally can include:

- a decrease in the emergence or re-emergence of an infectious disease or other health threat somewhere in the world, which can cross borders
- a decrease in the vulnerability of older people to non-communicable chronic diseases, including cancer, diabetes, heart disease and the risk factors associated with them
- an increase in social and mental wellbeing due to an decrease in the number of children from low-income countries dying needlessly from malnutrition or preventable disease
- an increase in economic and social development of more low-income countries in an increasingly interdependent world
- an increase in people's ability to engage freely in economic pursuits worldwide, thereby increasing global economic activity and productivity.

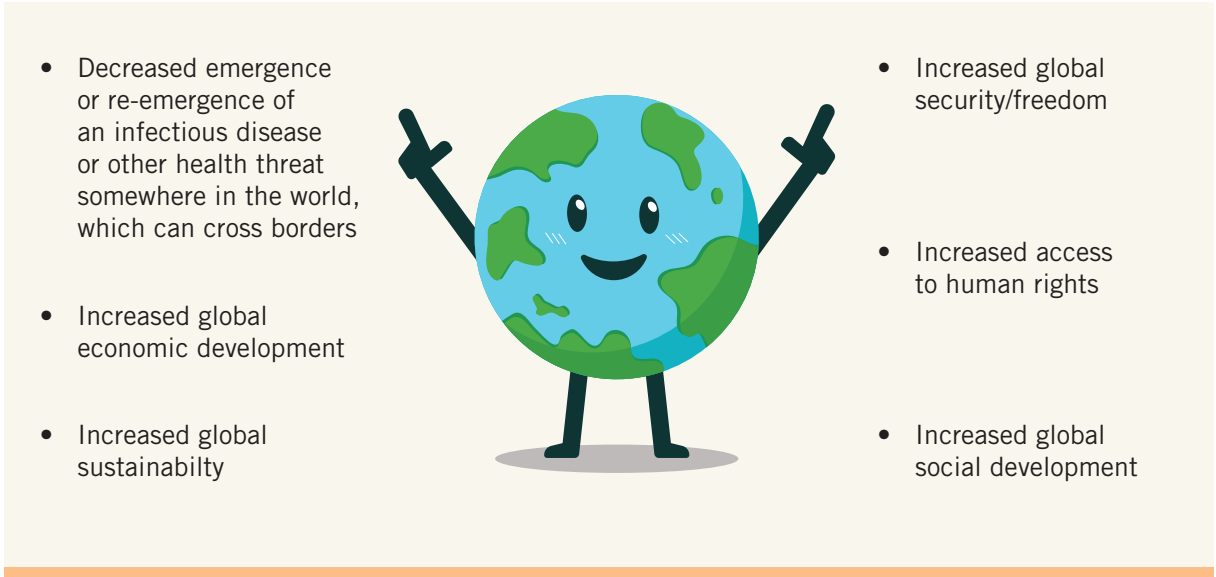


FIGURE 1.20 Benefits of optimal health and wellbeing as a resource globally

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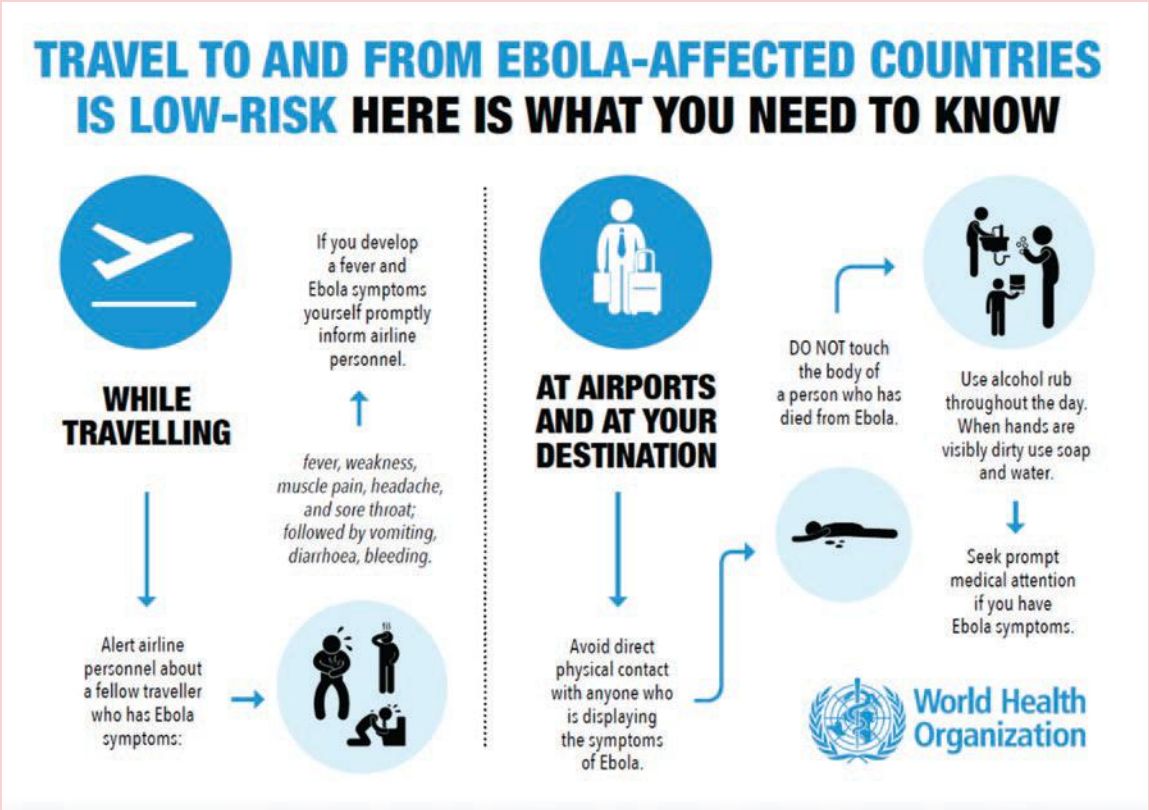


FIGURE 1.21 Increased global travel can result in increased transmission of infectious diseases between countries.

Discuss the impact that infectious disease outbreaks have on populations globally.

1.4 INDICATORS OF HEALTH STATUS

Health status refers to the overall health of an individual or a population, taking into account various factors such as life expectancy, amount of disability and levels of disease risk. An individual's health status is an overall evaluation of their degree of wellbeing or illness with a number of indicators, including quality of life and functionality. The level of health of an individual, group or population can be assessed subjectively by the individual through self-assessment or through the use of more objective measures such as statistical data.

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).

The health of an individual can be evaluated via an examination by a health professional. During this examination, a rating may occur through determining the presence or absence of illness, risk factors for premature death, severity of disease and overall health. Individual health status may also be self-assessed by asking the person to rate their own health by gauging physical function, emotional wellbeing, pain or discomfort, and overall perception of health.

The level of health, or health status, of a population can be measured through the use of data and statistics gathered by various organisations. The average lifespan, the occurrence of preventable diseases, and the magnitude and cause of premature deaths are examples of indicators of the health status of a particular population. Judgements regarding

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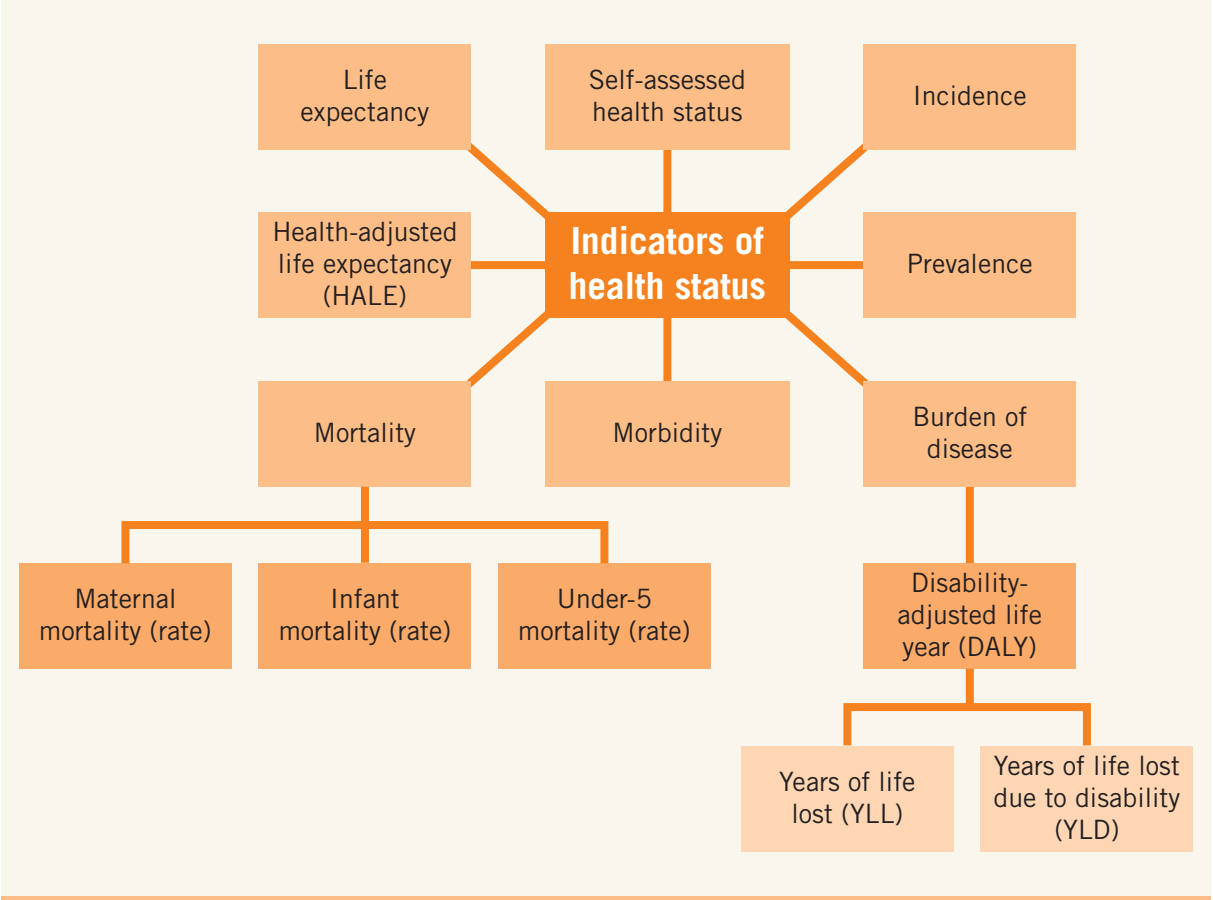


FIGURE 1.22 Indicators of health status

the level of health of a particular population are often made by comparing one population to another, or by studying the trends in a health indicator within a population over time.

The statistics used for the determination of health status draw on many sources of data, each with its own strengths and limitations. Generally, the data used to measure health status focus on assessing the level and distribution of health issues of a population. Even though the goal is to promote good health and wellbeing, this measurement has most often focused on the negative aspects of health, including illness, disease, disability and death.

Self-assessed health status

One way to determine how people are feeling is to get them to measure or rate their own health. **Self-assessed health status** provides an overall measure of a population's health based on a person's own perceptions of their health. Health is rated using five levels; excellent, very good, good, fair and poor. Because health and wellbeing is recognised as having physical, social, mental, emotional and spiritual dimensions, data-based and more objective measurements such as mortality or life expectancy do not necessarily provide a broad measure of the wellbeing of a population. And health and wellbeing is subjective, so data may not always reflect how a person perceives their own health compared with others. Self-assessed health status measurement is dependent on an individual's awareness of all components of their health and provides a broad measure, but may or may not be in line with a health professional's assessment or an objective health assessment technique.

self-assessed health status: An overall measure of a population's health based on a person's own perceptions of their health.

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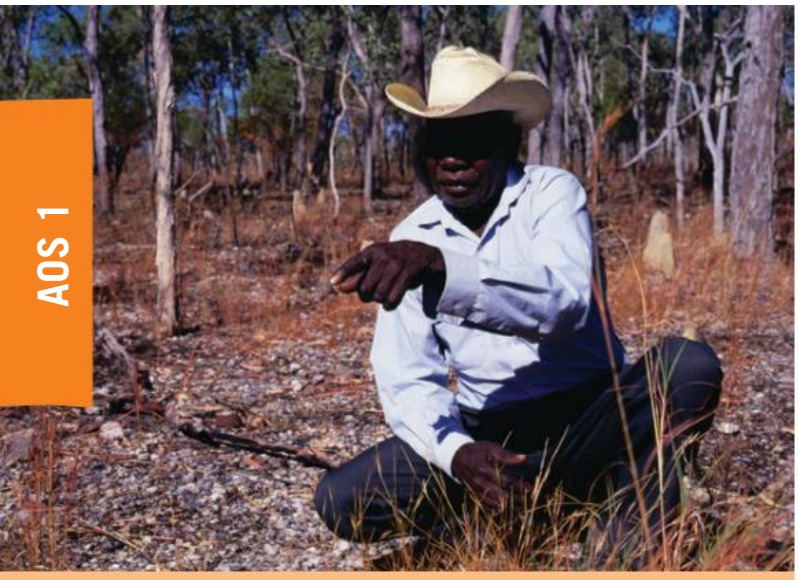


FIGURE 1.23 Self-assessed health status in Australia varies across population groups and geographic locations. According to *Australia's Health 2018*, Indigenous Australians living in very remote and remote areas are less likely to rate their health as 'fair' or 'poor' than Indigenous Australians in major cities.

EXTENSION QUESTION 1.3

Suggest the factors that might influence a person's assessment of their own health.

Life expectancy and health-adjusted life expectancy

In the absence of comprehensive measures of the health of a population, the average lifespan (life expectancy) may be used as an indicator of health status. **Life expectancy** is an indication of how long a person can expect to live. It is the number of years of life remaining to a person at a particular age if death rates do not change. Life expectancy is usually reported at birth but can be calculated from any age during the lifespan.

life expectancy: 'An indication of how long a person can expect to live; it is the number of years of life remaining to a person at a particular age if death rates do not change' (AIHW, 2008).

This calculation is based on changing mortality patterns. Therefore, it is a theoretical measure and can alter for an individual depending on changing trends in disease frequency in the population and individual behavioural changes. Life expectancy is one of the most commonly used indicators to measure health status.

Life expectancy estimates alone certainly do not fully reflect the health status of the population. These estimates provide no indication of the quality of life, only its quantity.

DISCUSS

Australia's performance among OECD member countries, selected indicators, 2015 (or nearest available year of data)

	Bottom performer	OECD average	Australia	Top performer
Life expectancy, males (years at birth)	69.7	77.9	80.4	81.2
Life expectancy, females (years at birth)	77.7	83.1	84.5	87.1

SOURCE: Australia's Health (2018)

FIGURE 1.24 Life expectancy allows us to compare health over time (trends) and make comparisons with other countries.

Australia's life expectancy is one of the highest in the world. Discuss possible reasons why this might be the case.

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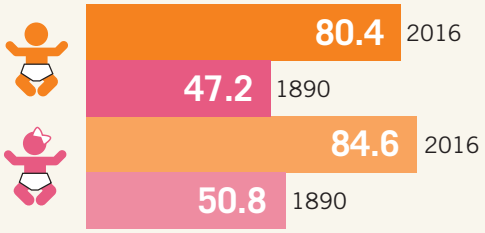
FIGURE 1.25 Experiencing quality of life in older age

Health-adjusted life expectancy (HALE) is a more comprehensive health status indicator than that of life expectancy because it includes the concept of 'quality of life'. As total life expectancy has risen in recent years, greater attention has shifted to determining the number of healthy years for which individuals can expect to live. Increased focus on attaining healthy life expectancy is due largely to advances in medical technology and greater awareness of health issues and disease prevention.

In general terms, HALE is an estimate of the number of healthy years (free from disability or disease) that a person born in a particular year can expect to live based on current trends in death and disease patterns. To calculate HALE, the average number of years spent in unhealthy states or reduced functioning is subtracted from overall life expectancy; however, it is calculated using a formula that takes into account the relative severity of the ill-health. The amount of ill-health that needs to be subtracted is often determined through the use of self-assessed data and Disability Adjusted Life Years (DALY).

Traditional life expectancy and HALE figures are compared to arrive at an estimate of the burden of ill-health because they cannot be used to measure specific health conditions or diseases. HALE can also allow the health of the population to be monitored over time and compared with that of other states and countries.

ACTIVITY 1.3: LIFE EXPECTANCY AT BIRTH



SOURCE: Adapted from Australia's Health 2018: in brief (AIHW) p. 10

FIGURE 1.26 Life expectancy at birth, Australia

1 Describe life expectancy.
2 Identify a trend evident in Figure 1.26 in relation to life expectancy.
3 Outline how HALE differs to life expectancy.
4 Explain why there is often a comparison between life expectancy and HALE figures.
5 'Self-assessed health status' measures how people rate their own health. Explain why this rating might not be in line with a health professional's assessment.

Mortality

Data on death and its causes are vital measures of a population's health status. Examining trends and patterns in mortality can help to explain changes and differences in health status, evaluate health strategies, and guide planning and policy-making.

Mortality data are routinely collected and readily available, and are therefore the instrument most often used for monitoring health status. Mortality refers to the number of deaths caused by a particular disease, illness or

health-adjusted life expectancy (HALE): A measure of burden of disease, based on life expectancy at birth, but including an adjustment for time spent in poor health. It is the number of years in full health that a person can expect to live based on current rates of ill-health and mortality.

mortality: The number of deaths caused by a particular disease, illness or other environmental factor.

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other environmental factor. Causes of death are also widely used for international comparisons of health and disease. The mortality rate is equivalent to the number of deaths in the population during a specified time period, divided by the total number of persons in the population during the specified time period. Mortality rates can be calculated for deaths from specific causes and for specific age and gender groupings. Death rates can be calculated for all causes combined, specific causes and particular age or sex groups.

infant mortality: The number of deaths among children aged under one year in a given period.

infant mortality rate: The number of deaths among children aged under one year in a given period, per 1000 live births in the same period.

under-5 mortality: The number of deaths among children under five years of age.

under-5 mortality rate (U5MR): 'The number of deaths of children under five years of age per 1000 live births' (WHO, 2008).

maternal mortality: Refers to the number of deaths of women due to pregnancy, childbirth or during the six weeks after the end of pregnancy.

Infant, under-5 and maternal mortality

Infant mortality refers to the number of deaths among children aged under one year in a given period. The **infant mortality rate** is based on the probability of a child born in a specific year or period dying before reaching the age of one year. It is measured per 1000 live births for that period of time.

One of the major measures of health status of a population is **under-5 mortality**. This refers to the deaths of children before their fifth birthday and is often reported as a rate. The under-5 mortality rate (U5MR), which estimates the number of deaths of children under 5 years of age per 1000 live births is, strictly speaking, not a rate (i.e. the number of deaths divided by the number of population at risk during a certain period of time) but rather a probability of death derived from a life table. It is sometimes referred to as child mortality and it also encompasses infant mortality.



FIGURE 1.27 Infant mortality rates are extremely low in Australia.

The under-5 mortality rate is a widely used indicator of a population's health status because it is associated with a population's access to education, level of economic development and availability of health services. Such a measure estimates the overall health and wellbeing of a population. This measure enables the monitoring of the number of deaths to specific childhood illness, but may also help to monitor other social conditions, such as access to food, clean water and healthcare; infectious diseases; gender discrimination and the socioeconomic status of a population.

Maternal mortality is the death of a woman while pregnant or within 42 days (six weeks) of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. The complications that women experience during or soon after pregnancy and childbirth are mostly preventable or treatable and the high numbers of maternal deaths in some areas of the world reflect inequities in income and access to healthcare services.

DISCUSS



Data clearly shows that a child whose mother has died is less likely to survive until their fifth birthday. Discuss reasons for this trend.

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WHY DO WOMEN DIE?

Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the woman's care. The major complications that account for nearly 75% of all maternal deaths are:

- severe bleeding (mostly bleeding after childbirth)
- infections (usually after childbirth)
- high blood pressure during pregnancy (pre-eclampsia and eclampsia)
- complications from delivery
- unsafe abortion.

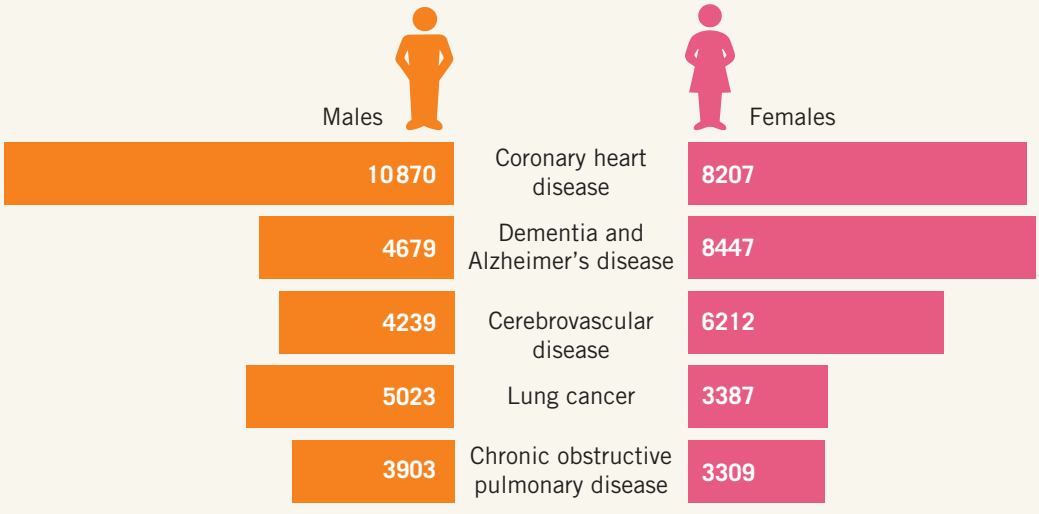
The remainder are caused by or associated with diseases such as malaria, and AIDS during pregnancy.

SOURCE: World Health Organization (2017)

EXTENSION QUESTION 1.4

Explain why decreasing mortality rates and increasing life expectancy do not necessarily equate to the optimal health and wellbeing of a population.

ACTIVITY 1.4: DATA ANALYSIS



SOURCE: AIHW (2018)

FIGURE 1.28 Leading causes of death, 2016

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1 Outline 'mortality'.
2 Compare the leading causes of death between males and females in Australia.
3 Describe how each of the dimensions of health and wellbeing may be affected by the death of a family member or friend from one of these causes.

Morbidity

The occurrence of disease, illness, disability and injury in a population is another measure of health status. This is known as morbidity, which refers to the ill-health in an individual and the levels of ill-health in a population or group.

According to the WHO, morbidity can be measured in terms of the number of individuals who are ill, the illnesses these individuals are experiencing and the duration of these illnesses. As well as chronic disease levels, morbidity data can also include the prevalence of long-term conditions such as hayfever and allergies, long- or short-sightedness, deafness and hypertensive disease. Long-term conditions are health conditions that have lasted, or are expected to last, at least six months. These conditions are commonly analysed in the collection of health data in government health surveys.

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.

Morbidity data are useful for determining patterns of disease occurrence. However, compared with mortality data, the collection of morbidity data is often incomplete and, as a result, poses significant measurement problems.

Burden of disease

A more effective measure of the amount of disease or illness in a population is **burden of disease**. While the commonly used measures of mortality and morbidity have merit in telling us about the health of a population, they are inadequate for providing the information required for developing informed health policies and for assessing the impact on individuals of limited function and ill-health that affect their everyday life. These measures also make it difficult to obtain an unambiguous representation of the extent of disease and injury in a population. For example, some chronic diseases or injuries may cause few fatalities but cause long-term debilitation for an individual, and therefore have an effect on the health of an individual that cannot be measured or included in mortality and morbidity data.

New health indicators or health outcome measures have been developed to assist in the analysis of the consequences of disease and the burden it places on the population.



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Burden of disease is a concept that was developed in the 1990s by organisations such as the WHO to describe death and loss of health due to diseases, injuries and risk factors for all regions of the world.

The burden of a particular disease or condition is estimated by adding together the number of years of life a person loses as a consequence of dying early because of the disease and the number of years of life a person lives with disability caused by the disease.

A unit of measure called the **disability-adjusted life year (DALY)** has been developed to compare the impact of different diseases and injuries on an equal basis. One DALY equals one year of healthy life lost due to premature death and time lived with illness, disease or injury.

The use of DALYs as a measurement of health status allows the determination of the amount of illness or disease that exists in a population and the effect it is having on the population's quality of life. The DALY has been developed specifically to enable international comparative assessments in health to be made. Thus the disease burden between different population groups and for different countries (allowing for different population sizes) can be measured. DALYs can also be applied to the impact of risk factors. The more DALYs (lost 'healthy life') a population has, the greater the burden of disease that population is experiencing. That lost healthy life can be from premature death, prolonged illness or disability, or a combination of these.

DALYs are measured through the use of two key indicators: **years of life lost (YLL)** and **years lost due to disability (YLD)**. YLL refers to the fatal burden of disease of a population and is defined as the years of life lost due to death.

YLL is calculated from the number of deaths multiplied by a standard life expectancy at the age at which death occurs. The standard life expectancy used for YLL at each age is the same for deaths in all regions of the world and is the same as that used for the calculation of DALYs. YLL takes into account the age at which deaths occur by giving greater weight to deaths at younger ages and lower weight to deaths at older ages (WHO).



FIGURE 1.29 How DALYs are calculated

YLD refers to the non-fatal component of the disease burden and is a measurement of the healthy years lost due to diseases or injuries. YLD presents a substantially different picture from that provided by YLL. More than half of the burden of disease is due to non-fatal consequences of disease.

disability-adjusted life year (DALY): A measure of burden of disease; one DALY equals one year of healthy life lost due to premature death and time lived with illness, disease or injury.

years of life lost (YLL): The fatal burden of disease of a population, defined as the years of life lost due to death.

years lost due to disability (YLD): The non-fatal component of the disease burden; a measurement of the healthy years lost due to diseases or injuries.

Incidence and prevalence

Incidence and **prevalence** are terms used when measuring morbidity data.

Prevalence refers to the number or proportion of cases of a particular disease or condition present in a population at a given time. It is calculated by dividing the number of cases of disease present in the population at a specified period of time by the number of persons at risk of having the disease at that specified time.

Incidence is the number or rate of new cases of a particular condition during a specific time. Incidence rates are calculated by dividing the number of new cases of a disease occurring in the population during a specified time period by the number of persons exposed to risk of developing the disease during that period of time.

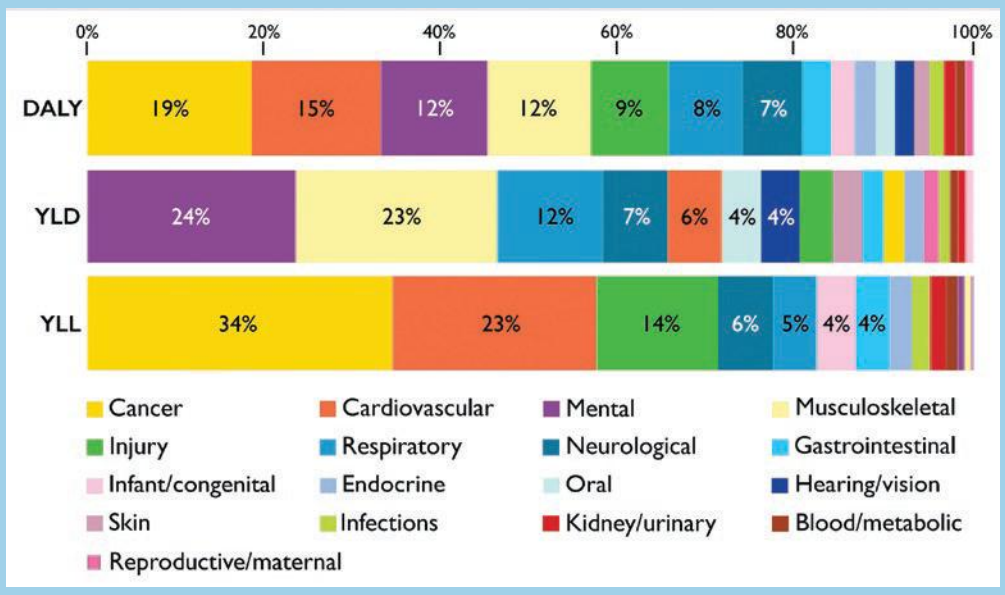
incidence: The number or rate of new cases of a particular condition during a specific time.

prevalence: 'The number or proportion of cases of a particular disease or condition present in a population at a given time' (AIHW, 2008).

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ACTIVITY 1.5: DATA ANALYSIS BURDEN OF DISEASE



SOURCE: AIHW, Australia's Health 2016

FIGURE 1.30 Proportion of total, fatal and non-fatal burden by disease group

1 Describe the terms DALY, YLL and YLD.
2 Outline why burden of disease has been developed as a measure of health status.
3 State which diseases were the two leading causes of total burden of disease for Australians.
4 Compare and contrast the YLL and YLD for these two diseases.
5 Identify the number of fatal and non-fatal DALYs for injury. Give two examples of this burden group.
6 Identify the number of fatal and non-fatal DALYs for mental burden. Give two examples of this burden group.

1.5 PREREQUISITES FOR HEALTH

The WHO believes that all countries should develop the appropriate political, legal, educational, social and economic environments to support health and wellbeing, and the promotion of health.

prerequisites for health: The fundamental conditions and resources that provide a secure foundation for health and wellbeing, as defined by the WHO.

In the Ottawa Charter for Health Promotion, the prerequisites or basic conditions and resources that must be available if any gains in health are to occur are identified as peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity (WHO, 1986).

EXTENSION QUESTION 1.5

Referring to Figure 1.31 on the next page, rank the **prerequisites for health** according to what you believe is most to least important. Justify why you believe each one has been determined as a prerequisite by the WHO.

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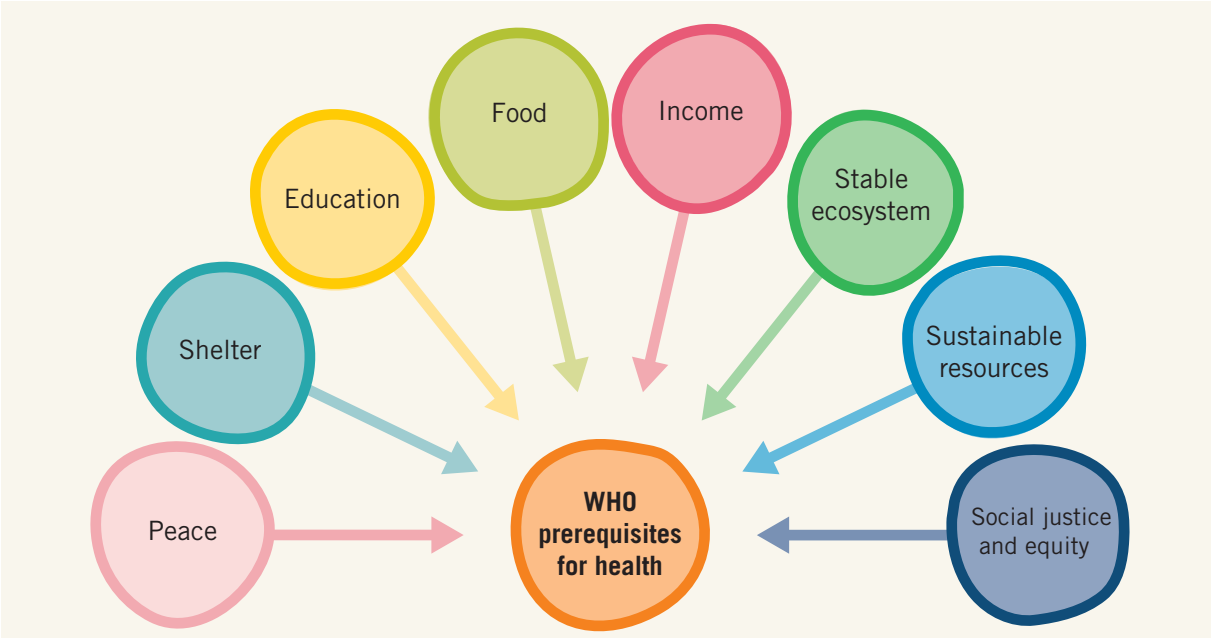


FIGURE 1.31 Prerequisites (requirements) for health as determined by the WHO

Peace

In 2014, at the Forum on the Culture of Peace, the Secretary-General of the United Nations (UN), Ban Ki-moon, stated, 'We know that peace cannot be decreed solely through treaties – it must be nurtured through the dignity, rights and capacities of every man and woman. It is a way of being, of interacting with others, of living on this planet. More than ever, it means living with others on the basis of tolerance, respect and mutual understanding.'

In saying this, the United Nations is recognising that peace is much more that just an absence of war or conflict. It also means access to education, health and essential services, developing sustainably and protecting the planet's biodiversity.

All these items are essential for health and wellbeing and it is evident that without peace, health is greatly challenged. Armed conflict and violence directly and indirectly affect health.

Violence is a major source of disease causing: death and injury, the breakdown of and reduced access to health systems, the increase incidence of communicable diseases, reduced water and sanitation and disease prevention, psychosocial effects, and malnutrition (WHO, 2017).

Countries and communities that are experiencing peace are able to use their resources to ensure the health and wellbeing of their population, whereas those experiencing conflict often divert resources away from health to areas such as defence, further increasing the likelihood of populations experiencing ill-health.



FIGURE 1.32 Living in a peaceful environment can lead to improved health outcomes.

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FIGURE 1.33 Examples of how peace can lead to improved health outcomes

Shelter

The United Nations Habitat Agenda declares: Adequate shelter means more than a roof over one's head. It also means adequate privacy; adequate space; physical accessibility; adequate security; security of tenure; structural stability and durability; adequate lighting, heating and ventilation; adequate basic infrastructure, such as water-supply, sanitation and waste-management facilities; suitable environmental quality and health-related factors; and adequate and accessible location with regard to work and basic facilities: all of which should be available at an affordable cost (United Nations, 1996).

In Australia, shelter is synonymous with housing, which can be described as 'a dwelling that provides safety, security and privacy'.

Adequate housing provides a safe environment where members of a household have the security they need to participate in the social, educational, economic and community aspects of their lives. When housing or adequate shelter is inaccessible, health outcomes can be at great risk. Homelessness places individuals at risk of long-term poverty, unemployment, social exclusion and chronic ill-health, including greater risk of infectious diseases and mental health illnesses. Having adequate shelter often means that basic necessities, including food, clothing, healthcare and heating, are also available and this promotes good health and wellbeing.

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EXTENSION QUESTION 1.6

Discuss how homelessness can impact on long-term health and wellbeing and health status.



FIGURE 1.34 Examples of how shelter can lead to improved health outcomes

FIGURE 1.35 Having a home can provide people with a sense of belonging and also create strong connections within their community.



Education

Education is strongly linked to health and wellbeing, as well as to health factors such as health behaviours (including risk-taking behaviours), use of health-related information and preventative healthcare services, investment in human relationships and personal, family and community wellbeing. Education also has a strong association with employment opportunities, level of literacy skills and level of income. People with low levels of education have a higher risk than people with more education of suffering poor

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health outcomes throughout their lives, and of dying younger.

A low level of education has been associated with a higher risk of premature death from a range of chronic diseases (such as lung cancer and heart disease), a higher rate of infectious diseases and higher illness rates from conditions such as **asthma**, diabetes and mental health conditions such as depression. One example of the impact of education on health is the protection against some adverse health outcomes provided by fostering resilience through the development of self-concept and self-esteem. An individual's positive self-concept is strongly associated with their education across the lifespan (Feinstein et al., 2006).

Education increases an individual's level of 'health literacy': 'Health literacy is described as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions' (Baker, 2006).

When an individual has a low level of health literacy, they are more likely to frequently use healthcare services, have higher healthcare costs and experience higher rates of hospitalisation.

asthma: A chronic condition that affects the small air passages of the lungs. When exposed to certain triggers, the airways of people with asthma will narrow, making it hard for them to breathe.



FIGURE 1.36 Examples of how education can lead to improved health outcomes

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Food

Food is a fundamental human right, yet one in nine people around the world (805 million) go hungry every day. If a child does not have access to adequate nutrition from food in the first 1000 days of life, they are at risk of mental impairment, poor health, low productivity and death (FAO, FAD & WFP, 2014). All people should be able to obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system in order to attain and maintain an appropriate level of health and wellbeing.

Nutritious food gives the individual the ability to withstand the effects of exposure to illness and injury. Undernourishment and malnutrition in children can cause weight loss, fatigue, stunting of growth and frequent colds. Studies have shown that undernourished pregnant women are more likely to have low-birthweight babies, and the babies are then more likely to experience developmental delays that can lead to learning problems (Bissell et al., 2009). There are a number of deficiency diseases that affect people with limited access to food, which can



FIGURE 1.37 Nutritious food allows people to withstand the effects of exposure to illness, promoting physical health and wellbeing and reducing morbidity and mortality rates.



FIGURE 1.38 Examples of how food can lead to improved health outcomes

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have a further impact on their health outcomes. For example, iron deficiency anaemia is common in those experiencing hunger, which can cause ongoing and debilitating symptoms such as fatigue and weakness that may affect the individual's ability to work in order to earn income to provide food. Not only does this impact physical health and wellbeing, but also mental (for example, self-esteem), social (for example, limited relationships with community members) and possibly spiritual health and wellbeing (having a sense of purpose). This is just one example of the strong links between food and improved health outcomes.

Nutritious food can also reduce the impact of chronic diseases such as diabetes and infectious diseases such as malaria, and reduce premature mortality and increase life expectancy. Further, it can avoid psychological distress and mental health conditions, such as depression and anxiety experienced during food insecurity.

Income

The higher a person's income, education or occupation level, the healthier they tend to be. This is referred to as the 'social gradient of health'. In general, people with low income are at greater risk of poor health, have higher rates of illness, disability and death, and live shorter lives than those with high income (AIHW, 2016).

Income is related to health outcomes in two main ways. The first is through the gross national product (GNP) or the total value of the goods and services of a country in a given period of time. The second is the income of individuals. The income of both the country and the individual influences the ability of communities



FIGURE 1.39 Examples of how income can lead to improved health outcomes

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to access other conditions that are essential for optimal health, such as clean water and good sanitation, adequate nutrition, adequate housing and warmth, education and access to a functioning and inclusive healthcare system.

Because income is linked so closely to educational access and attainment, income also enables individuals to access further income-producing resources such as employment, work opportunities, and fair pay and safe working conditions that enable them to continue to work in full health.

DISCUSS

Discuss other links (not included in Figure 1.39) of how income can lead to improved health outcomes.

Stable ecosystem

A stable ecosystem refers to achieving a balance between the living (plants, animals, people and micro-organisms such as bacteria) and non-living (weather, rocks, water and soil) components of an area. Stability indicates that all living things are having their needs for food, air, water, shelter and reproduction met without causing detrimental effects to the natural environment. When the ecosystem is stable or balanced, the resources used are able to rebalance or regenerate at the rate of use, ensuring stability. Overuse will result in an inability to regenerate at the rate of use, reducing availability of what is needed. A stable ecosystem also provides us with the natural resources needed for housing, such as timber materials, and for clothing, such as cotton.



FIGURE 1.40 Examples of how a stable ecosystem can lead to improved health outcomes

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Having the resources you need for a decent standard of living can provide a sense of confidence and optimism, promoting mental health and wellbeing.

Planetary changes such as stratospheric ozone depletion and global warming have the potential to exert powerful effects upon human health. Humans can also influence the 'health' of ecosystems. For example, exceeding air pollution standards will create an unhealthy environment that will disrupt the balance between the living and non-living elements within it. The outcome for humans is widespread effects on respiratory health (particularly among children) and the impacts of unsafe water – increasing premature mortality and reducing life expectancy.

sustainable: 'Meeting the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations, 1987).

DISCUSS

Discuss how the natural environment is often used for leisure activities and the impact this can have on improved health outcomes.



FIGURE 1.41 A stable ecosystem helps to ensure good air quality so that water is purified and clean, and the natural environment is balanced.

Sustainable resources

The resources available in the environment have long been used to sustain living requirements. **Sustainable** resources enable natural systems to function, remain diverse and produce what is required for the ecology to remain in balance; maintaining current living practices while also ensuring these resources will be available for future generations. When previous or current generations engage in practices that damage the environment, this seriously affects their own

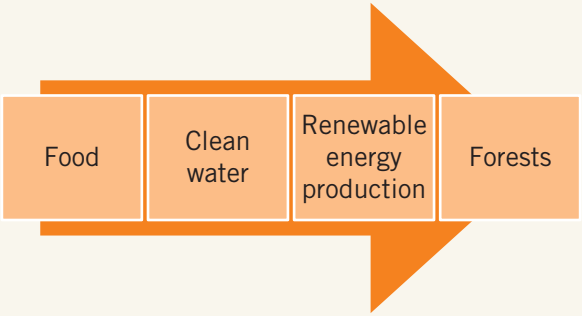


FIGURE 1.42 Examples of resources required for health and wellbeing and which need to be sustainable to ensure their availability for future generations



FIGURE 1.43 Sustainable resources include renewable energy sources such as solar and wind power generation.

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chances of surviving in optimal health. The environmental resources we currently still have available need to be protected from damage and destruction while the world continues to moves forward technologically and economically. Resources most at risk include waterways, energy sources, food production environments, air quality and wildlife habitats.

Of most concern with regard to current use of resources are the continuing issues of land degradation, declining soil fertility, unsustainable water use, overfishing and marine environment degradation, and the growth of energy use – despite technological advances that have promoted energy efficiency gains. This will impact food and water availability.

DISCUSS



One of the world's most important resources is clean water.

Discuss the links between clean and accessible water and improved health outcomes.



FIGURE 1.44 Examples of how sustainable resources can lead to improved health outcomes

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Social justice and equity

Social justice is when all people are treated fairly and experience equal rights in a society. This results in everyone having access to the resources needed, such as food, clean water, shelter, education, employment and healthcare. This includes those most vulnerable, often women and children.

Discrimination has direct and indirect negative consequences for the health and wellbeing of people and communities. The evidence points to a strong link between discrimination and the resulting depression. It also points to direct physical health and wellbeing consequences, such as heart disease, weight problems and diabetes.

social justice: People are treated fairly with equal rights for all.

equity: Equity in relation to health and wellbeing refers to addressing the causes of inequality and providing strategies to ensure fairness. Equity is not about treating everyone equally but rather providing what individuals or groups need for health and wellbeing (VCAA FAQ, © VCAA).

Equity is about all people within a community being required to receive fair treatment at all times. Each member of the community is also responsible for ensuring that they provide **equity** to all.

When communities adopt an approach that fosters equity (fairness of distribution) across the divides of social structure, there is a greater chance of every person experiencing good health. Reducing differences in current health status and ensuring equal opportunities and resources allows everyone to achieve their fullest health potential. This is only possible when equity is a priority. Everyone should have access to an equitable provision of services (including education, health and social services) across their lifespan. They also need access to healthy, safe, accessible and sustainable neighbourhoods in which to live and play, connecting with other community members.

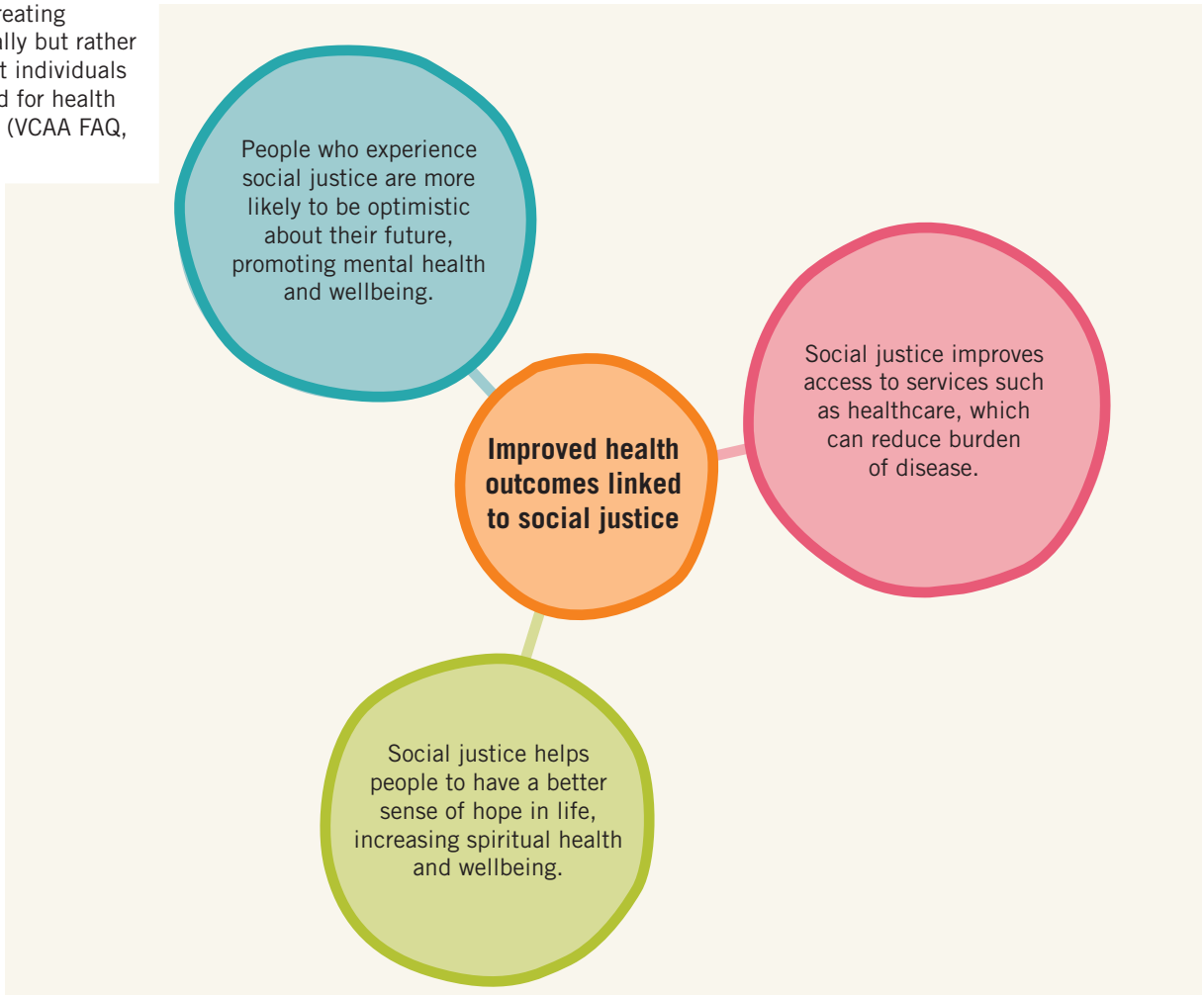


FIGURE 1.45 Examples of how social justice can lead to improved health outcomes

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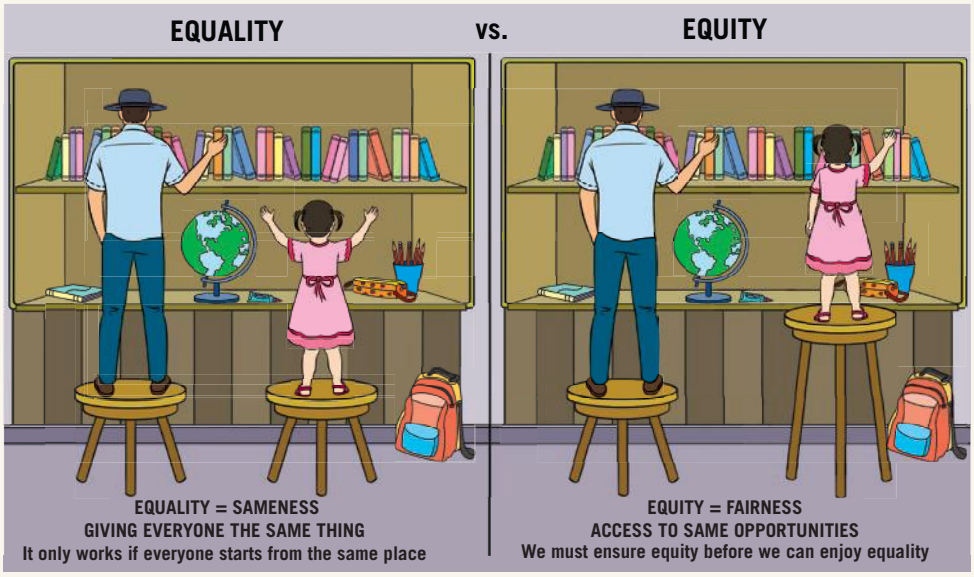


FIGURE 1.46 Equity is ensuring people get what they need so everyone can achieve the same outcome (fairness). This is different to equality, where everyone is given the same (equal).

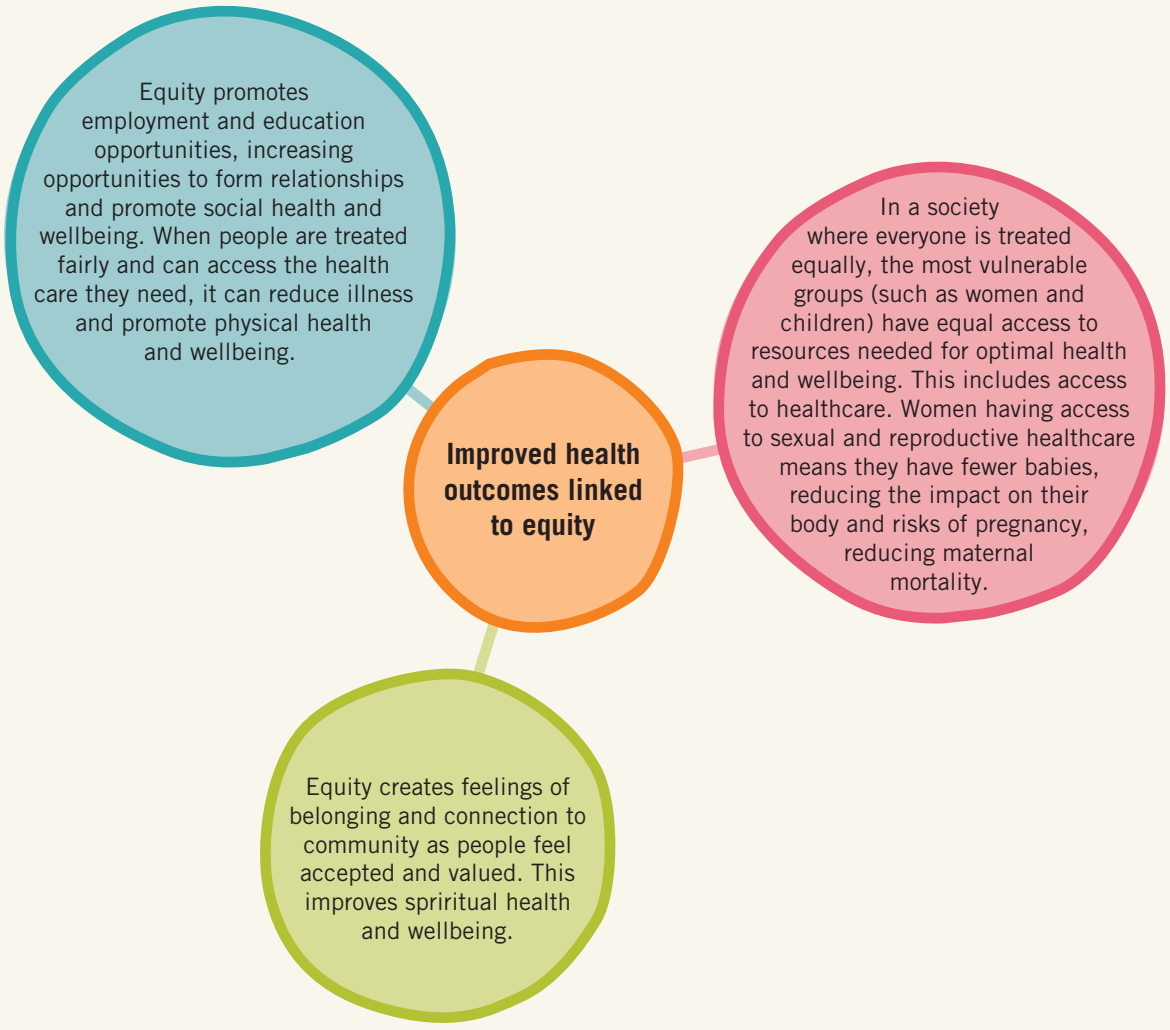


FIGURE 1.47 Examples of how equity can lead to improved health outcomes

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ACTIVITY 1.6: WHO PREREQUISITES

- In groups, divide up the WHO prerequisites so that each person is responsible for 2–3 of the prerequisites.
- Use the program Comic Life to design a poster that represents your understanding of each prerequisite.
- Demonstrate how each prerequisite leads to improved health outcomes
  - include reference to at least two dimensions of health and wellbeing and two indicators used to measure health status for each prerequisite.
- Use different examples of the dimensions for each prerequisite.

ACTIVITY 1.7: SUMMARY TASK

Develop a summary table like the example below to summarise the links of the WHO prerequisites to improved health outcomes.

WHO PREREQUISITE	DESCRIPTION	HEALTH OUTCOMES	
		IMPROVED HEALTH AND WELLBEING	IMPROVED HEALTH STATUS
Peace			
Shelter			
Education			
Food			
Income			
Stable ecosystem			
Sustainable resources			
Social justice			
Equity			



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CHAPTER SUMMARY

- The concepts of health and wellbeing, and illness
  - The WHO defines health as 'a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity' (WHO, 1946).
  - Wellbeing is a complex combination of all dimensions of health, characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged.
  - Wellbeing includes the presence of positive emotions and resilience, satisfaction with life, a sense of fulfilment and positive functioning.
  - Illness is the state of feeling unwell, although the term is also often used synonymously with disease (AIHW, 2016).
- The subjective and dynamic nature of health, wellbeing and illness
  - Dynamic: ever changing
  - Subjective: meaning different things to different people based on their experiences.
- The five dimensions of health and wellbeing
  - 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. Physical health and wellbeing 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.
  - Social health and wellbeing relates to the ability to form meaningful and satisfying relationships with others and 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 society. Social health and wellbeing is supported by strong communication skills, empathy for others and a sense of personal accountability.
  - 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. Spiritual health can be highly individualised; for example, in some spiritual traditions it may relate to organised religion, a higher power and prayer, whereas in other practices it can relate to morals, values, a sense of purpose in life, connection or belonging.
  - Emotional health and wellbeing relates to the ability to express feelings in a positive way. Emotional health is about the positive management and expression of emotional actions and reactions as well as the ability to display resilience.
  - Mental health and wellbeing is the current state of wellbeing relating to the mind or brain; 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 is about the wellness of the mind rather than illness.
- Benefits of optimal health and wellbeing as a resource
  - Individually
  - Nationally
  - Globally



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- The WHO prerequisites for health and wellbeing
  - Peace
  - Shelter
  - Education
  - Food
  - Income
  - A stable ecosystem
  - Sustainable resources
  - Social justice and equity
- The indicators used to measure and understand health status
  - Self-assessed health status: an overall measure of a population's health based on a person's own perceptions of their health.
  - Life expectancy: 'An indication of how long a person can expect to live; it is the number of years of life remaining to a person at a particular age if death rates do not change' (AIHW, 2008).
  - Health-adjusted life expectancy (HALE): a measure of burden of disease, based on life expectancy at birth, but including an adjustment for time spent in poor health. It is the number of years in full health that a person can expect to live based on current rates of ill-health and mortality.
  - Mortality: the number of deaths caused by a particular disease, illness or other environmental factor.
  - Infant mortality rate: the number of deaths among children aged under one year in a given period, per 1000 live births in the same period.
  - Under-5 mortality rate (U5MR): 'the number of deaths of children under five years of age per 1000 live births' (WHO, 2008).
  - Maternal mortality: refers to the number of deaths of women due to pregnancy, childbirth or during the six weeks after the end of pregnancy.
  - Maternal mortality ratio: the number of mothers who die as a result of pregnancy, childbirth or any related cause per 100 000 women who give birth.
  - Morbidity: the number of deaths caused by a particular disease, illness or other environmental factor.
  - 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.
  - Disability adjusted life years (DALYs): a measure of burden of disease; one DALY equals one year of healthy life lost due to premature death and time lived with illness, disease or injury.
  - Prevalence: 'The number or proportion of cases of a particular disease or condition present in a population at a given time' (AIHW, 2008).
  - Incidence: the number or rate of new cases of a particular condition during a specific time.



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KEY QUESTIONS

SUMMARY QUESTIONS

1 Describe the term ‘health status’.

2 Describe the term ‘illness’.

3 Name the five dimensions of health and wellbeing. Provide an example of each.

4 Discuss why the level of physical health and wellbeing of an individual is what most people think of when they hear the term ‘health’.

5 Using examples, explain the interrelationship between spiritual health and wellbeing and another dimension of health and wellbeing.

6 Using examples, explain how the concepts of health and wellbeing are considered to be:
   - **a** dynamic
   - **b** subjective.

7 Explain how health is a resource:
   - **a** individually
   - **b** nationally.

8 Describe the global benefits of the pursuit of optimal health.

9 List and explain how five of the WHO prerequisites are linked to improve health outcomes.

10 Explain why the health status of a population is measured.

11 Describe the following key terms relating to the measurement of health status: life expectancy, HALE, mortality, morbidity, incidence, prevalence, DALYs, YLL, YLD and burden of disease.

12 Explain why infant and under-5 mortality rates are widely used indicators of a population’s health status.

13 Mortality rates have decreased in Australia over time but morbidity rates have increased. Explain why this is the case.

14 Explain why it is helpful to study both the incidence and prevalence rates when reviewing data on morbidity.

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EXTENDED RESPONSE QUESTION

QUESTION

Select two prerequisites for health as determined by the WHO and explain how they can impact on health and wellbeing and health status. (8 marks)

EXAMINATION PREPARATION QUESTIONS

TABLE 1.1 Australia's performance against OECD average, selected health indicators

Indicator	OECD average	Australia	Group
Life expectancy at birth (males)	77.8	80.1	
Life expectancy at birth (females)	83.1	84.3	
Coronary heart disease mortality (per 100000)	117.4	98.2	
Cancer mortality (per 100000)	205.6	197.7	
Suicide rate (per 100000)	12.0	10.1	
Infant mortality rate (per 1000 live births)	3.8	3.1	
Low-birthweight babies	6.6	6.2	
Daily smoking in adults (% of people, aged 15 and over)	19.7	12.8	
Alcohol consumption (litres per person, aged 15 and over)	8.8	9.9	
Obesity (% aged 15 and over, combination of self-reported and measured data)	19.0	28.3	
Overweight/obesity among children (boys)	24.3	22.0	
Overweight/obesity among children (girls)	22.1	24.0	

Best third
Middle third
Worst third

SOURCE: AIHW, Australia's Health 2016

A Identify and define a health status indicator evident in Table 1.1. (2 marks)

B For which health indicators does Australia rate better than other OECD countries? (3 marks)

C Identify and explain two prerequisites for health and explain how they could have contributed to Australia's higher ratings for the health indicators suggested in part b. (4 marks)

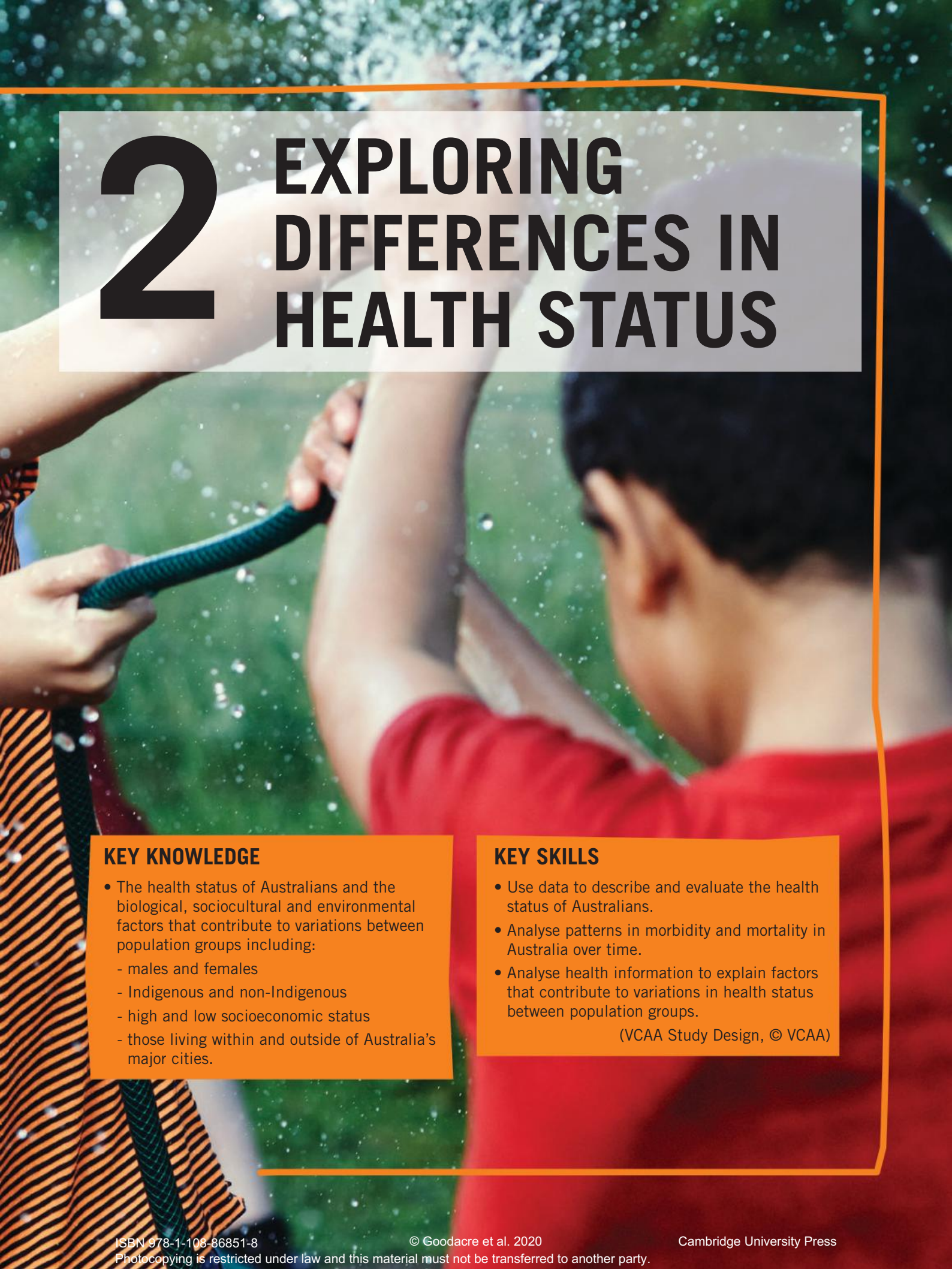
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2 EXPLORING DIFFERENCES IN HEALTH STATUS

KEY KNOWLEDGE

- The 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

- Use data to describe and evaluate the health status of Australians.
- 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.

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INTRODUCTION

This chapter looks at the current health status of Australians and the factors that contribute to differences between population groups. These include: males and females, Indigenous and non-Indigenous Australians, different levels of socioeconomic status, and different geographic locations. The first part of the chapter explores the current health status of Australians. You are not expected to memorise specific health status data but you need to be able to make general statements about the differences in health status between population groups; for example, 'Indigenous Australians have higher infant mortality rates than non-Indigenous Australians'. You also need to be able to use data to identify the health status of Australians and make comparisons between the population groups.

This chapter also contains general information on a number of diseases and conditions. Although these conditions are not specifically outlined in the VCE Study Design, it is important that you have a general understanding of the different diseases, in order to consider the impact that different factors can have on developing them.

The second part of the chapter outlines a range of biological, sociocultural and environmental factors that contribute to health and wellbeing. You need to be able to identify factors and explain the way they impact on the health status of different population groups within Australia. It should be noted that although the factors have been classified into categories in this chapter, many of them could easily fit into different categories, depending on the context. The last part of the chapter looks at the different population groups and explores how the factors have contributed to inequalities in health status between these groups. You need to be able to use factors to provide explanations for key differences and inequalities in health status.

What you need to know

- Differences in health status between population groups within Australia, including: males and females, Indigenous and non-Indigenous, high and low socioeconomic status, those living within and outside of Australia's major cities.
- Biological, sociocultural and environmental factors that contribute to differences in health status in Australia.

What you need to be able to do

- Use data to analyse patterns in morbidity and mortality in Australia over time.
- Use data to analyse key differences in health status between different population groups in Australia.
- Analyse health information to explain the contribution of different biological, sociocultural and environmental factors to variations in health status between population groups.
- Structure a coherent response to compare different population groups levels of health status. Remember that although the factors interact, when discussing how one particular factor impacts on health status, make sure you coherently explain the impact of this factor, rather than expanding to discuss other factors.

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2.1 HEALTH STATUS OF AUSTRALIANS

The majority of Australians enjoy good health compared with people who live in other parts of the world. Nevertheless, ongoing monitoring of the health status of Australians undertaken by government bodies continues to identify groups that are not as healthy as the majority.

Self-assessed health status

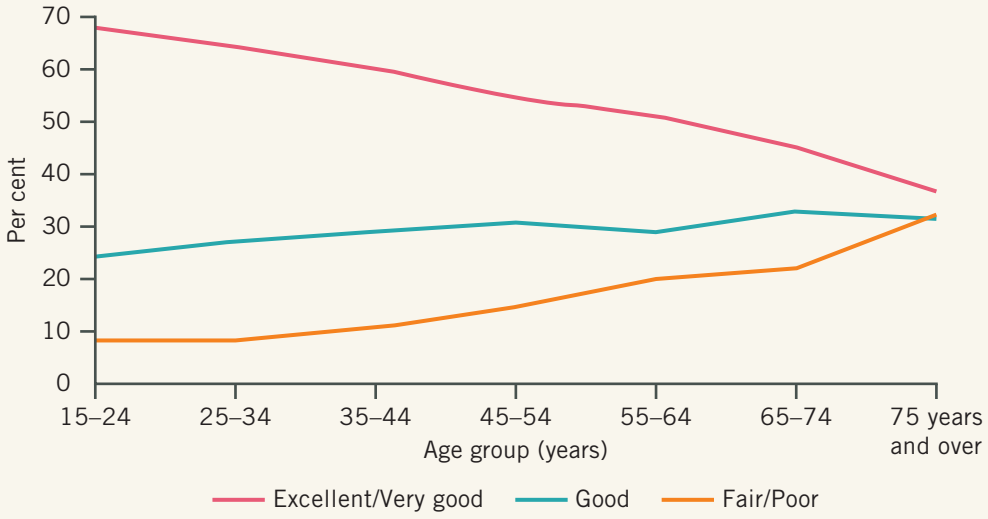
The National Health Survey: First Results, 2017–18 (Australian Bureau of Statistics) revealed that approximately 56 per cent of all Australians aged 15 years and over considered themselves to be in very good or excellent health, 30 per cent felt they were in good health and only 15 per cent rated their health as either fair or poor. The patterns of self-rating varied with age, but were similar for males and females. A higher number of participants in younger age groups assessed their health as very good or excellent, compared with those in older age groups.

Life expectancy and health-adjusted life expectancy in Australia

Life expectancy

On average, Australian babies born today can expect to live for more than 80 years. Females born in Australia 2015–17 can expect to live to the age of 84.6 years, while males can expect to live to 80.5 years (AIHW, 2020).

The improvement in Australia's life expectancy over time is due to a range of factors that will be discussed in more detail in Chapter 4. However, the level of improvements in life expectancy have not been equal across different population groups – for example, Indigenous Australians. These differences will be discussed later in the chapter.



SOURCE: ABS (2018)

FIGURE 2.1 Australians aged 15 and over, self-assessed health status, 2017–18

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Health-adjusted life expectancy

While improved life expectancies indicate increasing longevity of the population, this measure alone cannot accurately reflect the health status of Australia. As discussed in Chapter 1, health-adjusted life expectancy (HALE) is a method of measuring life expectancy that allows governments and organisations to monitor the health of a population over time. HALE signifies the expected number of years that a person can live in full health. This is measured by identifying life expectancy and subtracting the time spent in poor health. When the World Health Organization (WHO) published HALE at birth for 2015 in Australia, the average healthy life expectancy for both sexes was 71.9 years.



FIGURE 2.2 Life expectancy has increased for many Australians, but the growth has not been equal among different populations.

ACTIVITY 2.1: CHANGES IN LIFE EXPECTANCY

TABLE 2.1 Life expectancy (expected age at death in years) at different ages by sex 1881–90, 1960–62 and 2014–16

AGE (YEARS)	MALES 1881–90	MALES 1960–62	MALES 2014–16	FEMALES 1881–90	FEMALES 1960–62	FEMALES 2014–16
0 (birth)	47.2	67.9	80.4	50.8	74.2	84.6
1	54.3	69.5	80.7	57.4	75.5	84.8
15	59.5	70.1	80.9	62.5	76.0	85.0
25	62.1	70.8	81.2	64.7	76.3	85.1
45	68.0	72.4	82.1	70.6	77.4	85.6
65	76.1	77.5	84.6	77.3	80.7	87.3
85	88.9	89.1	91.2	88.9	89.8	92.3
95	97.2	97.3	98.0	97.3	97.6	98.3

SOURCE: ABS (2014a); ABS (2016)

1 Identify two trends evident in this table.
2 Using data from the table, describe how life expectancy has changed over time.
3 Using data from the table, describe how life expectancy changes over the lifespan.
4 Explain why life expectancy is measured at different stages of the lifespan instead of only from birth.

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EXTENSION QUESTION 2.1

Consider the possible impacts on the community when large numbers of people within the population are over the age of 65 years due to an increase in life expectancy.

This HALE is comparative to those ranked highest in the world. HALE in Australia is also increasing, it is forecast that males born in 2011 can expect to have 1.7 more years in full health than males born in 2003, while females can expect 1.2 more years lived in full health (AIHW, 2018).

Leading causes of mortality in Australia

Mortality rates in Australia have been declining over time. Between 1907 and 2014 the age-standardised death rate for males decreased from 2234.2 deaths per 100 000 population to 646.0 deaths per 100 000 population. For females it decreased from 1844.4 deaths per 100 000 population in 1907 to 459.0 deaths per 100 000 in 2014 (AIHW, 2018). Sixty-six per cent of deaths registered in Australia in 2016 were among people aged 75 or more and the median age at death was 78 years for males and 84 years for females (AIHW, 2018). Indicating that premature mortality is decreasing.

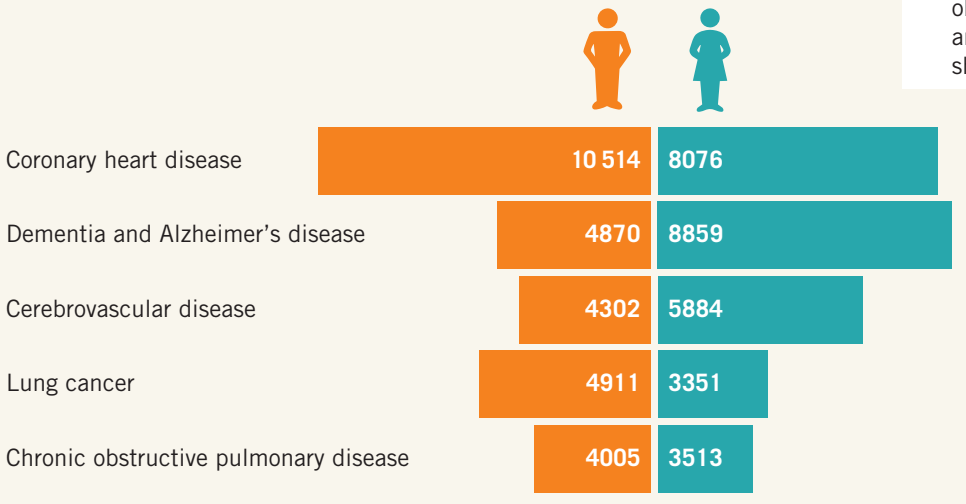
Despite declines in mortality rates in the last 30 years, the leading specific causes of death have changed over time. The major causes of death in Australia are two forms of **cardiovascular disease** – coronary heart disease (heart attack and related disorders) and **cerebrovascular disease** (mainly in the form of stroke), **dementia** (including Alzheimer's disease), lung cancer and **chronic obstructive pulmonary disease (COPD)**.

cardiovascular disease: Includes all diseases and conditions of the heart and blood vessels (including heart, stroke and vascular diseases) caused mainly by blood supply to the heart, brain and legs.

cerebrovascular disease: Any disorder of the blood vessels supplying the brain or its covering membranes. A notable and major form of cerebrovascular disease is stroke.

dementia: A general term for disorders that are characterised by deteriorating mental processes (such as Alzheimer's disease or vascular dementia). Symptoms include impaired memory, understanding, reasoning and physical functioning.

chronic obstructive pulmonary disease (COPD): A progressive and long-term lung disease where damage to the lungs obstructs oxygen intake and causes increasing shortness of breath.



Note: Leading causes of death are based on underlying causes of death and classified using an AIHW-modified version of Becker et al., 2006.

SOURCE: AIHW 2019e; Table S14

FIGURE 2.3 Leading causes of death in Australia by sex, 2017

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Infant mortality

According to the ABS *Deaths in Australia 2017* report, over the past 10 years the number of infant deaths has decreased overall, with some fluctuations. In 2017 there were 1019 infant deaths (that is 3.3 infant deaths per 1000 live births) compared to 1203 in 2007 (that is 4.1 infant deaths per 1000 live births). When we consider the changes in infant mortality over the last 100 years the decline is even greater. In 1917 the infant mortality rate was approximately 58 deaths per 1000 live births (ABS, 2018).

Under-5 mortality

According to World Bank Data the under-5 mortality rate (U5MR) in Australia in 2017 was 3.5 deaths per 1000 live births – one of the lowest under-5 mortality rates in the world. The U5MR in Australia has decreased over time, being 24.9 per 1000 live births in 1960.

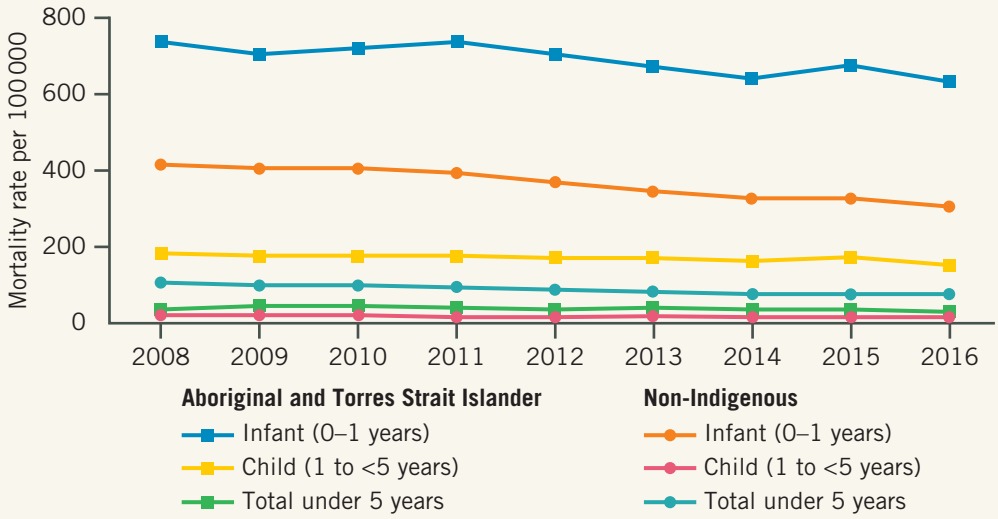
maternal mortality ratio: The number of mothers who die as a result of pregnancy, childbirth or any related cause per 100 000 women who give birth.

Changes in infant and child mortality in Australia are attributable to changes in the healthcare system, health promotion and advances in medical technology as well as improvements in the physical environment. These factors will be discussed in Chapters 4 and 5.

Maternal mortality

The WHO defines maternal death as 'the death of a woman while pregnant or within 42 days of the end of pregnancy, from any cause related to or aggravated by the pregnancy but not from unrelated causes' (WHO, 2019). The **maternal mortality ratio** provides a measurement of the number of maternal deaths per 100 000 live births. In Australia the maternal mortality ratio is low compared to other countries, especially when compared to low-income countries. The WHO reports that 99 per cent of maternal deaths occur in the developing world. According to the 2016 AIHW *Maternal Deaths in Australia* report,

DISCUSS



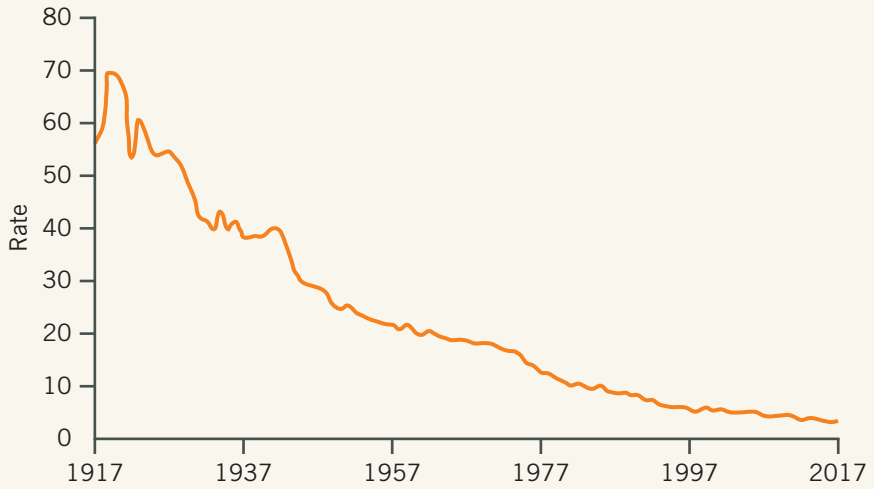
SOURCE: NITV (2018)

FIGURE 2.4 Child mortality, by age and Indigenous status

Discuss two trends in child mortality rates among Indigenous and non-Indigenous Australians. Consider possible reasons for these trends.

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EXTENSION QUESTION 2.2



SOURCE: ABS (2018)

FIGURE 2.5 Infant mortality rates (per 1000 live births) in Australia, 1917–2017

Consider the impact that the above trend could have on other health status indicators.

the maternal mortality ratio was 8.5 deaths per 100 000 live births in 2016. This has decreased in the past 10 years with 9.7 deaths per 100 000 live births reported in 2006. However, during this time there have been fluctuations with the lowest ratio recorded in 2008 – 4.1 deaths per 100 000 live births (AIHW, 2018). Within Australia some population groups are at a greater risk of maternal mortality than others. For example, Indigenous Australian women are more likely to die than non-Indigenous Australian women. Between 2012 and 2016 the age-standardised maternal mortality ratio was 31.6 per 100 000 live births for Indigenous women and 6.9 for non-Indigenous women. The reasons for this will be discussed later in the chapter.

Causes of mortality by age

According to the AIHW's *Australia's Health 2018* report the leading cause of death differs across age groups. For example, chronic conditions are the prominent cause of death among people aged 45 and over. However, for younger people (15–44 years) external causes such as accidents, suicide and poisoning are more prominent causes of death.

Morbidity

Chronic diseases, also referred to as non-communicable diseases, are the highest contributors to morbidity and burden of disease in Australia. Major examples of chronic diseases include cardiovascular disease, COPD, cancer, **diabetes mellitus**, asthma and **osteoarthritis** among others. The WHO has endorsed a global strategy to address approaches for the prevention and control of these chronic diseases, which to some extent are preventable but have reached epidemic proportions in Australia.

diabetes mellitus: A metabolic disease in which high blood glucose levels result from defective insulin secretion, insulin action or both.

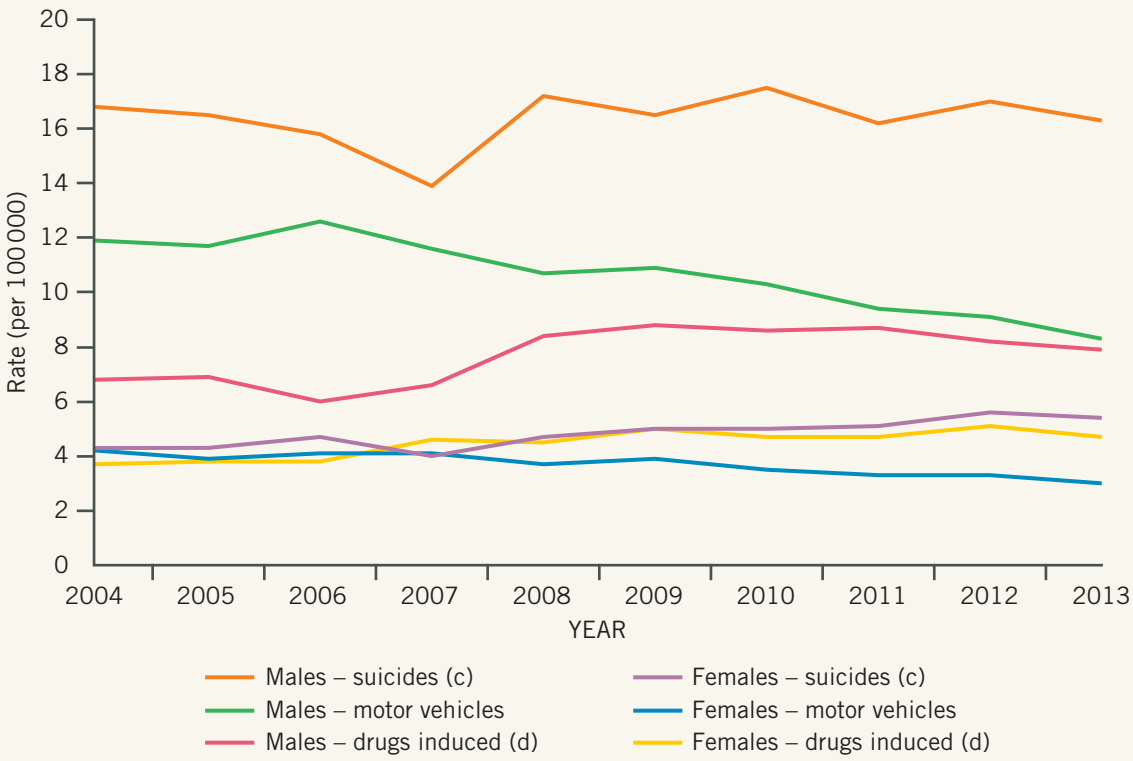
osteoarthritis: A group of diseases involving the degradation of joints and cartilage, causing stiffness and tenderness in the joints, as well as inflammation, pain and locking.

According to the AIHW'S *Australia's Health 2018* report, common self-reported chronic conditions in 2014–15 included: cardiovascular disease, mental health conditions and back pain and problems.

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AOS 1

ACTIVITY 2.2: DATA ANALYSIS



SOURCE: ABS (2016)

FIGURE 2.6 Death rates from suicide, motor vehicles and drugs, 2004–13

Age group	1st	2nd	3rd	4th	5th
Under 1	Perinatal and congenital conditions	Other ill-defined causes	SIDS	Spinal muscular atrophy	Accidental threats to breathing
1–14	Land transport accidents	Perinatal and congenital conditions	Accidental drowning and submersion	Brain cancer	Other ill-defined causes
15–24	Suicide	Land transport accidents	Accidental poisoning	Assault	Other ill-defined causes
25–44	Suicide	Accidental poisoning	Land transport accidents	Coronary heart disease	Other ill-defined causes
45–64	Coronary heart disease	Lung cancer	Suicide	Breast cancer	Colorectal cancer
65–74	Lung cancer	Coronary heart disease	COPD	Cerebrovascular disease	Colorectal cancer
75–84	Coronary heart disease	Dementia and Alzheimer's disease	Cerebrovascular disease	Lung cancer	COPD
85 and over	Coronary heart disease	Dementia and Alzheimer's disease	Cerebrovascular disease	COPD	Lung cancer

FIGURE 2.7 Leading underlying causes of death, by age group, 2014–16

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1 Using data, outline two trends evident in Figure 2.6.
2 Outline the difference in the deaths that were caused by suicide for males and females in 2013.
3 Using data from Figure 2.6, identify one similarity and one difference between males and females in relation to mortality.
4 Describe the changes in health status over time based on the data in Figure 2.6.
5 Referring to Figure 2.7, identify one similarity and one difference in the leading causes of death between age groups.
6 With reference to specific diseases and age groups, using data from Figure 2.7 identify one similarity and one difference in the leading underlying cause of death in 2014–16.
7 Identify three different conditions that are a leading cause of underlying death and explain possible reasons why this condition is a major contributor to death for that particular age group.

The latest National Health Survey reports that in 2017–18, 47.3 per cent of Australians had one or more chronic conditions. The prevalence of chronic conditions increased with age; 80.8 per cent of people aged 65 years and over had one or more chronic conditions. A total of 11.5 per cent of all Australians had two chronic conditions and 8.7 per cent had three or more. The most commonly reported chronic conditions were:

- mental health and behavioural problems (one in five Australians or 20.1 per cent)
- back problems (16.4 per cent)
- arthritis (15 per cent).

There were also differences between males and females: females aged 15 years plus were more likely than males to have one or more chronic conditions (56.5 per cent and 50.8 per cent respectively). However, for children aged 0–14 years, boys were more likely to have one or more chronic condition than girls (24.2 per cent and 15.9 per cent respectively).

EXTENSION QUESTION 2.3

Consider the possible reasons why adult females are reported to be more likely to have one or more chronic conditions compared to males.

Disability

In Australia, disability impacts significantly on the level of wellbeing experienced by the population. The WHO uses disability as a blanket term to describe impairments, activity limitations and participation restrictions. It specifically relates to how an individual's health condition affects the way they interact with their environment.

The Australian Network on Disability reports that one in five Australians has a disability – 18.6 per cent of females and 18 per cent of males. Furthermore, the likelihood of having a disability increases with age – 50.7 per cent of Australians 65 years or older have a disability compared with 12.5 per cent aged under 65 years.

Disability is something that affects most people at some point in their lives and is commonly considered to be a continuum from having no impairment or limitation to the complete loss of functioning or ability to complete a task. Disability is often associated with a high prevalence of multiple long-term health conditions, **comorbidity** or mental disorders and other physical conditions. In general, people with a disability experience significantly worse health outcomes than the general population.

comorbidity: When people who have a disease or condition also have one or more other diseases or conditions.

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AOS 1

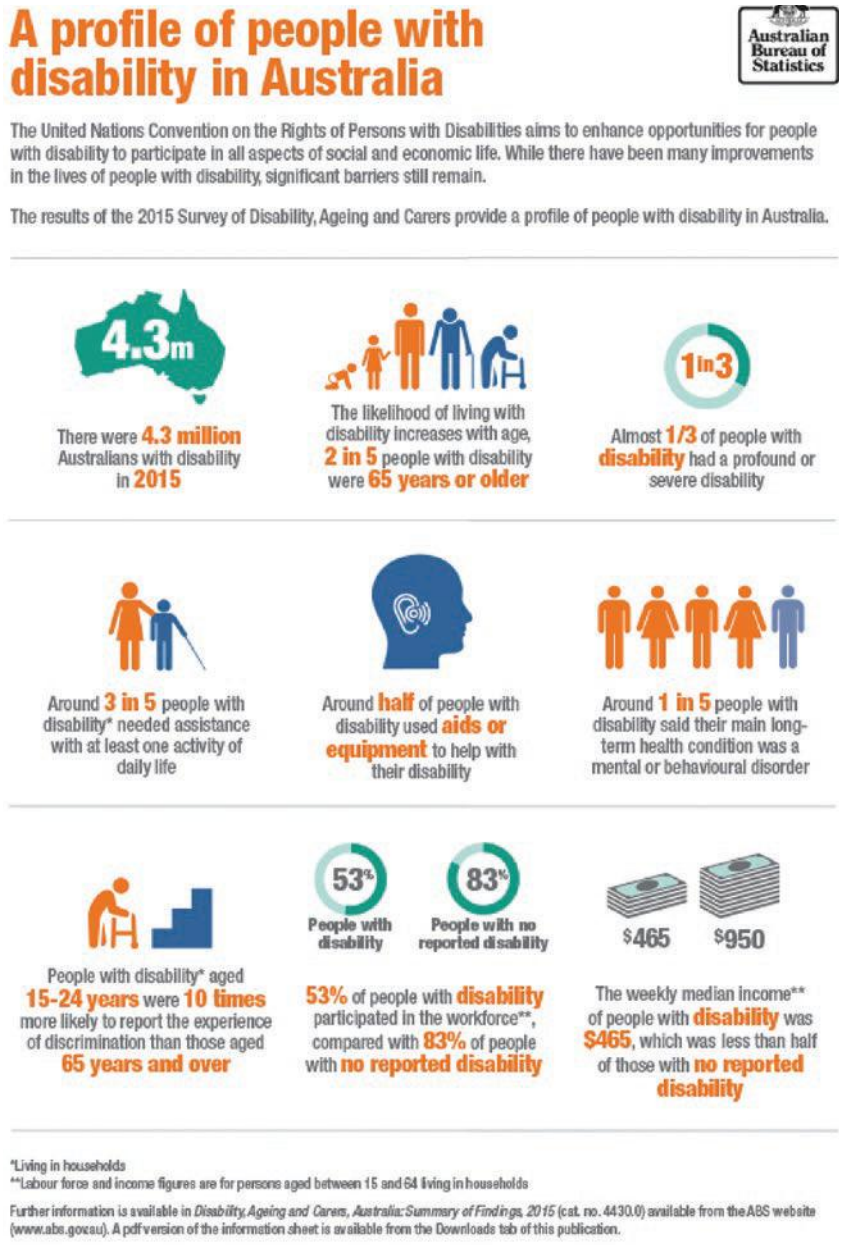


FIGURE 2.8 Disability in Australia, 2015

Burden of disease

The burden of disease and injury in Australia is measured primarily by using DALYs. The information measured using DALYs includes both fatal and non-fatal disease outcomes, as discussed in Chapter 1. There are two components of DALYs: the fatal component of premature mortality that is measured by the years of life lost (YLL) due to disease and injury, and the non-fatal health component measured by the years of 'healthy' life lost from poor health or disability due to disease (YLD). A main improvement in the accuracy of determining the health status of a population group through the use of DALY has been the prominence given to health problems that cause illness and disability, even if they are not necessarily fatal. For example, mental health conditions or musculoskeletal conditions are more likely to contribute to years lost to disability (YLD) compared to cancer and cardiovascular disease, which are more likely to cause death (YLL). DALY provides important information on the impact that these conditions have on Australians.

The total burden of disease and injury in Australia is estimated to be approximately 4.5 million DALYs. The overall disease burden increases with age, except for those over 85 years, where it is lower due to the smaller population.

Cancer, cardiovascular disease, mental and substance use disorders, musculoskeletal disorders and injuries account for the majority of the total burden of disease and injury in Australia. The configurations of disease group contribution for males and females are very similar; however, a major difference exists in relation to injuries, where males experience a much higher burden of disease than females.

The burden of disease distribution changes across the lifespan. Infant and congenital conditions are the main causes of burden in infancy, while mental and substance use disorders are the main causes in late childhood, adolescence and early and middle adulthood. Cancer and cardiovascular disease are the major causes of burden of disease in older Australians. Other trends evident in major causes of burden of disease include respiratory conditions in children, adolescents and young adults; injuries in the 15–44 age group, musculoskeletal conditions in the 25–74 age group and neurological conditions in older Australians (*Australia's Health 2016*, p. 54).

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While the disease burden is similar in males and females, some differences include asthma which is the main cause of burden in boys aged 5–14, followed by anxiety disorders, whereas in girls this order is reversed. For males aged 15–44, suicide and self-inflicted injury rates are major contributors to burden of disease but for females it continues to be anxiety disorders. Dementia is the leading cause of burden in both men and women aged 85 years and over.

ACTIVITY 2.3: BURDEN OF DISEASE – DATA ANALYSIS: HOSPITALISATION RATES AND CHANGES IN DISEASE BURDEN OVER TIME

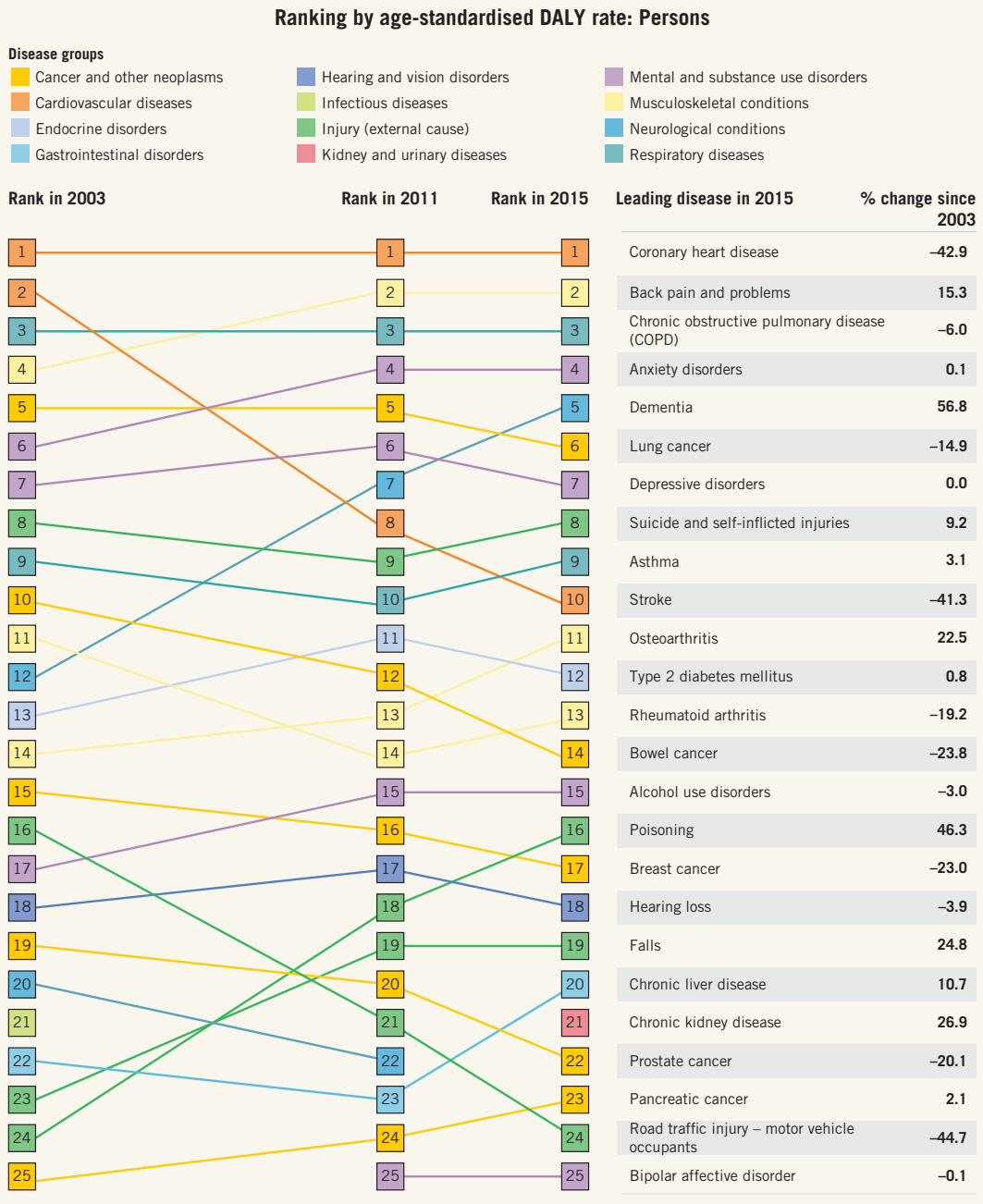


FIGURE 2.9 DALY of specific conditions changes over time

1 Explain how the use of DALYs to measure health status provides a more accurate measure of the burden of disease for a community.

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AOS 1

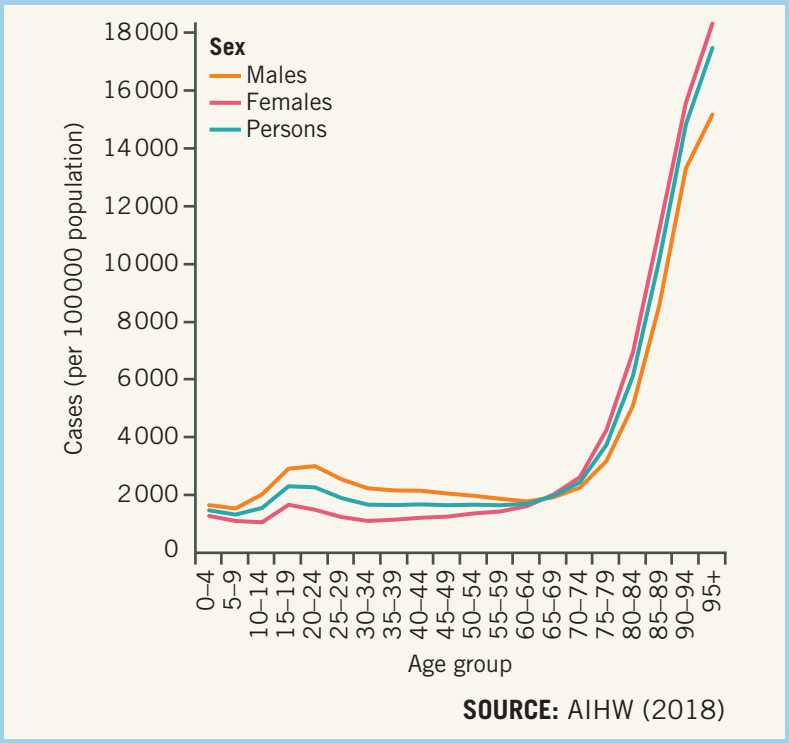


FIGURE 2.10 Hospitalisation for injury and poisoning by age and sex, 2015–16

2 Using information from Figure 2.10, outline the relationship that exists between age and hospitalisations for injuries and poisoning.

3 Outline one similarity and one difference between male and female hospitalisation rates due to injury and poisoning.

4 Explain reasons that may contribute to the difference identified in Question 3.

5 Provide examples of how the causes of hospitalisations due to injuries may change over the lifespan.

6 Provide possible reasons for the increased hospitalisation rates for females aged 85 years and over compared to males.

7 Provide examples of how these hospitalisations could impact on an individual's mental, emotional and social health and wellbeing.

8 Identify the leading cause of DALY for 2015 and explain possible reasons why the leading cause of DALY has not changed since 2003.

9 Identify three conditions that have increased the DALY rank since 2003 and explain possible reasons for these changes.

10 Identify three conditions that have decreased the DALY rank since 2003 and explain possible reasons for these changes.

ACTIVITY 2.4: RESEARCH AND INVESTIGATION ACTIVITY

Identify three areas of Australia's health status that you think need improvement. Conduct research into activities that the government is currently implementing to tackle these issues. Make suggestions about what else the government could do to create improvements in health status.

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DISEASES EXPLAINED

Atherosclerosis: A build-up of plaque in the arteries, which results in narrowing of the arteries.

Cancer: A group of several hundred diseases in which the body's cells become abnormal and begin to multiply out of control. If the abnormal cancer cells continue to multiply they begin to replace healthy cells and the affected organ stops functioning properly. There are many different types of cancer such as: lung cancer, melanoma, prostate cancer, skin cancer, colorectal cancer, prostate cancer, cervical cancer and breast cancer.

Cardiovascular disease: A term used for all diseases of the heart and blood vessels. There are a number of different types of cardiovascular disease including: coronary heart disease, heart attack, heart failure, stroke, peripheral vascular disease (blood vessels in arms, legs and feet) and congenital heart disease (malformations of the heart or blood vessels at birth).

Chronic respiratory disease: Chronic respiratory conditions affect people's airways and are characterised by symptoms such as wheezing, shortness of breath, chest tightness and cough. Conditions include asthma, chronic obstructive pulmonary disease (COPD) – which includes emphysema and chronic bronchitis – and a range of other conditions, such as allergic rhinitis (hayfever), chronic sinusitis, cystic fibrosis, bronchiectasis, occupational lung diseases and sleep apnoea.

Dementia: A syndrome associated with many different diseases relating to the impairment of brain function. The symptoms vary depending on the type of dementia and may include a decline in memory, cognitive skills, language and perception.

Diabetes mellitus: Refers to a group of different conditions where the body cannot maintain normal blood glucose levels as a result of defective insulin secretion, insulin action or both. Diabetes consists of several forms, including type 1, type 2 and gestational diabetes. High blood sugar levels can cause damage to organs, kidney failure and eye damage. Diabetes can also increase the risk of heart disease, poor circulation, nerve damage and premature death. Refer to Figure 2.11 for further information on the impacts of diabetes.

Injuries: Consist of physical damage to the body and can refer to either intentional harm, such as suicide, or unintentional harm, such as falls, poisoning, drowning, burns or transport-related injuries.

Musculoskeletal conditions: A group of conditions that affect the locomotor system – muscles, bones, joints and associated tissues such as tendons. Examples of common musculoskeletal conditions are: osteoporosis ('porous bones', a disorder where the bone density decreases and weakens) and arthritis (inflammation of the joints).

Obesity: Overweight and obesity refers to abnormal or excessive fat accumulation which presents health risks. It generally arises from a sustained energy imbalance when energy intake through eating and drinking exceeds energy expended through physical activity.

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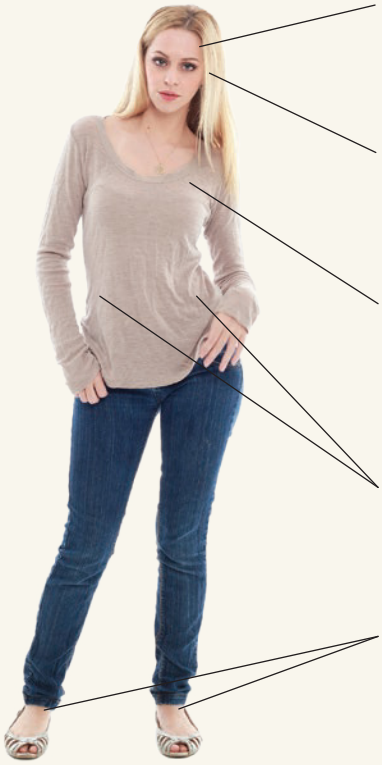
AOS 1

Diabetes
A chronic disease where blood glucose is too high, either because insulin is not produced or is insufficient.

Symptoms
Tiredness, increased thirst, frequent urination, blurred vision

Complications
Serious complications can result from elevated blood glucose, some of which are illustrated here. These are largely preventable, and can be delayed with early and effective treatment.

Effective treatment can reduce costly diabetes complications by approximately 50 per cent.



Stroke
Risk: Up to four times as likely
Effective treatment: Reduces strokes by more than a third

Blindness
Risk: Diabetes is a leading cause of blindness
Effective treatment: Reduces deterioration of vision by more than a third

Heart attack
Risk: Three times as likely and heart disease is up to four times as likely
Effective treatment: More than halves the risk of heart failure

Kidney failure
Risk: Three times as likely
Effective treatment: Reduces the risk of kidney failure by more than a third

Amputation
Risk: The leading cause of non-traumatic lower-limb amputations
Effective treatment: Reduces the number of amputations and foot ulcers

FIGURE 2.11 The impact of diabetes mellitus

2.2 BIOLOGICAL, SOCIOCULTURAL AND ENVIRONMENTAL FACTORS THAT CONTRIBUTE TO HEALTH STATUS

An individual's level of health status is complex and determined by a number of interacting factors. These influences can include access to healthcare services, where one lives, the quality of the environment, genetics, income level and education level. Some factors influencing health status are not modifiable, such as one's age, sex and genetic makeup. Modifiable health factors are those that allow individuals to have some influence over change. These include health-related behaviours such as dietary choices or smoking and alcohol intake. Biological factors such as raised blood pressure value and abnormal cholesterol level are partially modifiable because there are elements of behaviour that can impact on them, but there is also a genetic element that cannot be modified.

Overall, health status has come to be seen as the result of the interactions of a wide range of biological, sociocultural and environmental factors. These factors can improve or impair the level of health and wellbeing in a population or individual, which then results in changes to overall levels of health status. They help us to understand trends in health issues and provide an understanding of the reasons for differences in the levels of health status between different population groups. They also provide valuable information for health promotion. The factors that can impact on health and wellbeing may include:

- Biological factors
- Sociocultural factors
- Environmental factors.

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2.3 BIOLOGICAL FACTORS

Biological factors refer to factors relating to the body that impact on health and wellbeing and thus overall levels of health status, including genetics, body weight, blood pressure, cholesterol levels, blood glucose levels, age and birthweight.

The genetic makeup of an individual can determine many aspects of their lifelong health and wellbeing. They include direct genetic inheritance of conditions, genetic predisposition to disease and genetic inheritance of sex, which impacts on hormones. Biological factors such as body weight, blood cholesterol and blood pressure can also impact on an individual's health and wellbeing. However, these factors may be influenced by a range of other factors including environmental and sociocultural factors, such as exercise and dietary patterns. As a biological factor we consider the impact they have on an individual's health and wellbeing, rather than the impacts that these other factors had on leading to changes in the biological factors.

Genetics

Genetic inheritance plays a role in determining lifespan health and wellbeing and the likelihood of developing specific diseases. Genes can influence an individual's risk of getting some diseases, such as breast cancer, heart disease, asthma, diabetes and thyroid conditions. This is referred to as *predisposition to disease* but it does not mean that an individual will develop this condition. Other factors, such as lifestyle and environment, also play a role in developing these conditions, and there is an increased risk of disease development due to a combination of these factors.

Other related conditions are caused by the inheritance of DNA variants, referred to as mutations, which result in a change in one of the genes affecting the way the body works or develops. A condition caused by mutations in one or more genes is called a genetic disorder. Some, like muscular dystrophy, cystic fibrosis and sickle-cell disease, cause serious health problems for those who inherit them.

Body weight

biological factors: Factors relating to the body that impact on health and wellbeing and overall levels of health status.

overweight: A condition in which a person's weight is 10 to 20 per cent higher than 'normal', as defined by a body mass index (BMI) of 25 to 30.

obesity: A condition in which a person's weight is 20 per cent or more above 'normal' weight, or they have a BMI of 30 or more.

Body weight influences health and wellbeing and of particular concern to Australia's health status is the incidence of **overweight** and **obesity**. An individual who is overweight or obese is at increased risk of developing obesity/overweight-related conditions such as cardiovascular disease, some types of cancer, arthritis, type 2 diabetes mellitus and a range of other conditions that impact on health status. Body weight is influenced by genetics as well as body function in relation to metabolism and hormonal control. A biological influence on body weight is the inheritance of a certain body type. Body type relates to a combination of body shape and size. Body weight is a biological factor but it can be influenced by a range of lifestyle choices and other factors – environmental and sociocultural, which will be discussed later in the chapter.

A number of different tools are used to determine whether an individual's body weight is of concern related to their health and wellbeing. Body Mass Index (BMI) is a widely accepted approximate measurement of the total amount of fat of an individual. BMI is calculated by dividing your weight in kilograms by your height in metres, squared. This calculation provides a number that can be categorised as underweight, normal weight, class I obesity (overweight), class II obesity (obese) and class III obesity (extreme).

Waist circumference is another tool used to indicate an individual's level of fat, in particular whether the individual is carrying excess weight around their middle. This tool involves measuring an individual's waist and comparing this measurement to the recommendations for health being at risk, which are over 94 centimetres for men and over 80 centimetres for women (National Heart Foundation, 2018).

The impact of high body mass is discussed in further detail in Chapter 3.

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Blood cholesterol

Cholesterol is a waxy, fatty substance found in all cells of the body. Cholesterol is used by the body for the production of hormones, vitamin D and digestive enzymes. Because cholesterol is a fat-based chemical and the bloodstream consists mainly of water, in order for cholesterol to travel around the body it needs to be carried in small packages called lipoproteins. There are two types of lipoproteins in the body and it is important to have healthy levels of both. Low-density lipoprotein (LDL) cholesterol is referred to as 'bad' cholesterol because high LDL levels produce a build-up of cholesterol in your arteries. High-density lipoprotein (HDL) cholesterol is called 'good' cholesterol because it carries cholesterol from other parts of the body to the liver, which then removes it from the body. High blood cholesterol is a condition in which cholesterol is not cleared from the blood stream.

The condition of high blood cholesterol is considered a biological factor because it can lead to a number of complications for an individual's health and wellbeing. A consistently high level of LDL cholesterol in the bloodstream can cause a build-up of cholesterol, fats and other substances in the walls of arteries, referred to as plaque. A build-up of plaque in the arteries is referred to as atherosclerosis. Atherosclerosis can narrow the arteries and affect the flow of blood to the heart. This causes a decrease in the amount of oxygen-carrying blood, resulting in coronary heart disease.

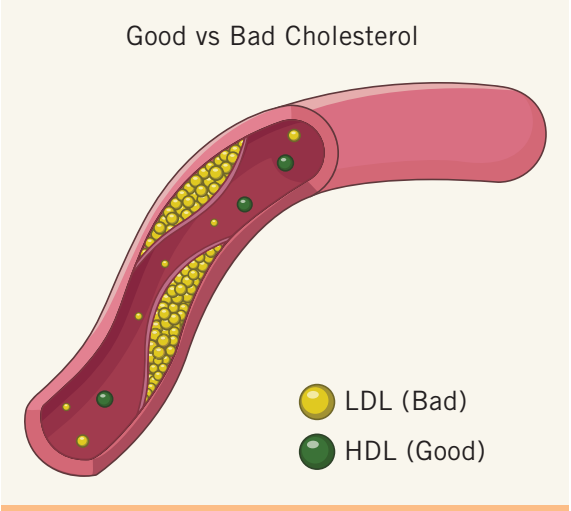


FIGURE 2.12 LDL and HDL cholesterol

In some cases, family inheritance of a genetic mutation results in an inability of the cells to absorb LDL cholesterol from the bloodstream. Thus for some individuals there is a genetic link and predisposition to high LDL blood cholesterol levels.

Blood pressure

The heart pumps blood around the body through the blood vessels. As blood circulates around the body it exerts pressure on the walls of the blood vessels. Blood pressure is the measurement of pressure of the blood in the artery. Your blood pressure is not constant – it rises and falls during the day and is influenced by a number of factors; for example, body position, exercise, sleep and emotional state. Fluctuations in blood pressure due to these factors are considered normal. However, persistently high blood pressure, known as hypertension, can lead to serious problems. Hypertension means that the heart is working too hard, increasing the risk of heart failure. It can also increase atherosclerosis, which can restrict blood flow to the heart and lead to a heart attack. The walls of the arteries in the brain can also be weakened, increasing the risk of a stroke. Hypertension can also result in other conditions, such as congestive heart failure, kidney disease and blindness. Blood pressure measurements indicate the pressure during two phases – contraction, known as systole, and relaxation, known as diastole. A blood pressure higher than 140/90mmHg is considered high. The causes of hypertension vary but may include narrowing of the arteries, a greater than normal volume of blood, or the heart beating faster or more forcefully than it should, and advancing age. It is also likely that genetics play a role in the development of hypertension, with family history shown to be a risk factor for hypertension. There are also a number of lifestyle choices that increase the

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FIGURE 2.13 A doctor measures blood pressure using a sphygmomanometer.



FIGURE 2.14 A low-birthweight baby

risk, including excessive alcohol use, tobacco use, too much sodium (salt) in the diet, and stress.

Blood glucose regulation

Impaired glucose regulation (IGR), also known as pre-diabetes, is the name given to two conditions: impaired glucose tolerance (IGT) and impaired fasting glucose (IFG). IGR refers to blood glucose levels that are above the normal range but are not high enough for the diagnosis of type 2 diabetes mellitus. IFG is where blood glucose levels are elevated in the fasting state (after complete digestion and absorption of food) but not high enough for the diagnosis of diabetes.

A large number of Australians have pre-diabetes, which significantly increases their risk of developing type 2 diabetes mellitus and cardiovascular disease if lifestyle changes are not implemented. These lifestyle changes can include change in diet, increased physical activity and overall weight loss.

Birthweight

Birthweight is the first weight of the newborn measured immediately after birth. Birthweight of less than 2500 g is considered low. Some low-birthweight babies are healthy, even though they are small, but some have serious health problems. There are two main reasons why a baby may be born with low birthweight: premature birth or foetal growth restriction. Premature birth is when a baby is born before 37 completed weeks of pregnancy. Foetal growth restriction is when the foetus doesn't gain an appropriate amount of weight before birth due to problems with the placenta, infections, the age of the mother – low birthweight is more prevalent for young mothers aged 15–17 and older mothers in their forties – or the mother's lifestyle choices, including smoking and alcohol use.

The following are some health problems that may be faced by low-birthweight babies:

- **Respiratory distress syndrome (RDS):** Babies with RDS don't have a protein called surfactant that keeps small air sacs in the lungs from collapsing.
- **Bleeding in the brain:** Severe bleeds can cause pressure on the brain that can result in fluid building up in the brain, causing brain damage.
- **Heart problems:** In the foetus, a large artery lets the baby's blood bypass the lungs. This artery closes after birth so that blood can travel to the baby's lungs. When the artery doesn't close properly, it can lead to heart failure.
- **Eye conditions:** Babies born before 32 weeks' gestation can have problems with the blood vessels in their eyes. This may require treatment to prevent vision loss.

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In terms of later life, studies have shown that low-birthweight babies may be more likely than babies born at a normal weight to have certain medical conditions, including high blood pressure, diabetes and heart disease.

Age

As a biological factor, ageing of the physical body can result in the deterioration of body systems due to various forms of cellular damage that occur over time. This damage can cause a reduction of both physical and mental function and make the individual more susceptible to diseases, including osteoarthritis, dementia, cardiovascular disease, depression and diabetes as well as hearing loss. A person of advanced age is also more likely to experience a number of conditions at the same time.

2.4 SOCIOCULTURAL FACTORS

sociocultural factors: Aspects of society and the social environment that impact on health and wellbeing and overall levels of health status.

Sociocultural factors refer to aspects of society and the social environment (social and cultural) that impact on health and wellbeing. As these factors are influenced by society they can often be outside of an individual's control; it is sometimes said that people are 'born into' their sociocultural environment. The sociocultural factors of health and wellbeing generally relate to influences involving contact with other members of the community, such as families, peers, significant adults, members of schools and workplaces, and community groups (for example, religious, sporting or musical). Elements of culture can also have a social influence on an individual's health status.

Early in life an individual's family makes up a majority of the sociocultural environment. Family structure and experiences within the family directly impact on an individual's health and wellbeing. These influences also contribute to the formation of values and beliefs and can therefore influence future behaviours, which can also impact health and wellbeing. Later in life exposure to the wider community (for example, at school) create a more complex sociocultural environment.



FIGURE 2.15 Social disadvantages experienced in childhood can limit children's opportunities for health throughout their entire lives.

Family, peers and the community, employment status, housing issues (such as homelessness and over-crowding) and access to health information are sociocultural factors that will be explored in this chapter. Other sociocultural factors include social networks, culture, media, income and social expectations.

Social networks – family

There is very strong evidence that social disadvantages experienced in childhood can limit opportunities for health throughout a child's entire life, particularly in adulthood.

The earliest years of an individual's life have a crucial impact on their path of health and wellbeing. Factors such as income, education, community resources and other social and economic factors can affect health at every stage of life, but the effects on young children are particularly dramatic. Not all parents have the same resources to assist with their child's healthy development. Limitations on parental education and income can either create or restrict their ability to provide opportunities to model healthy behaviours for their children to adopt.

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Social networks – peers and the community

Social support is about having someone to turn to when support is needed. Family members are often a form of social support, but an individual's peers and community can also create a support network. Support can be emotional (nurturing, encouraging), instrumental or physical (financial), or informational (advice).

In general, social networks are said to increase overall health outcomes and wellbeing, resulting in higher levels of self-esteem and improved mental health and wellbeing. Peer and community groups can also influence an individual's behaviour in either a positive or negative way, depending on the quality of the peer and community environment. For example, a person may be more likely to smoke if their friends do (negative impact), or to participate in regular exercise if their friends do (positive). High levels of social support are also thought to protect physical health and wellbeing by offering some protection from disease and early death.



FIGURE 2.16 Having support from friends is a sociocultural factor impacting health status.

Socioeconomic status

An individual's **socioeconomic status (SES)** is often associated with their income because SES is determined by the key elements of income, education level, employment status and occupational type. Physical and mental health and wellbeing are strongly associated with SES. People with a low SES, for example, may experience poorer health outcomes, have higher rates of disease and disability and lower life expectancy than those who have a high SES. An inability to improve socioeconomic status or a 'cycle of low SES' is often then created through an inability to earn an income because of poorer health outcomes.

socioeconomic status (SES): Sometimes referred to as social class; the key elements of income, education level, employment status and occupational type determine a person's socioeconomic status.

Socioeconomically disadvantaged groups are also more likely to experience poorer mental and social health and wellbeing, leading to health-damaging behaviours. It is also reported that those of low SES access the healthcare system for preventative purposes less frequently.

Level of education

Education provides significant health status benefits to individuals. Higher levels of education are sometimes associated with higher income and better employment prospects. They also allow the individual to participate in, and connect with, the wider community. In Australia, individuals with higher levels of education report fewer diseases and have better mental health and wellbeing than those with lower levels of education. As discussed in Chapter 1, education increases the level of an individual's health literacy, resulting in improved lifestyle decisions.

Employment status

Employment affects health status in many ways. In terms of sociocultural influence, the workplace can promote healthy activities and behaviours, a sense of identity, social status and purpose in life, as well as additional social support.

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Unemployed people are not able to benefit from these influences.

Employment also provides a source of income, which gives people the opportunity to pursue health-promoting behaviours and to live in circumstances that promote health and wellbeing. Those who are unable to work due to ill-health are susceptible to economic and social disadvantage, and have fewer resources and opportunities to improve health status. This may, in turn, result in a prolonged cycle of health issues.

Unemployment has a significant impact on both physical and mental health and wellbeing in the form of increased risk of premature death, chronic mental illnesses (such as stress and anxiety) and greater prevalence of disability.

Unemployed people are less likely to have strong support networks and long-term unemployment increases the risk of self-harm, suicide and attempted suicide. Children with parents who are unemployed also experience negative health outcomes and are more likely to have serious chronic diseases. Limited finances can also limit healthy lifestyle choices, increasing other behavioural risk factors such as tobacco, alcohol or drug use.

Overcrowding and homelessness

Housing is considered to be a basic human right and has an important influence on health outcomes. When looking at housing as a sociocultural factor, we consider overcrowding and homelessness. This is because these two factors are part of the social environment that can be detrimental to an individual's health status.

Overcrowding puts increased stress on health infrastructure, such as water supply and sewerage systems, and is closely linked to housing standards and conditions. Generally, overcrowding is considered to have its main impact on the health of children and can cause respiratory conditions, skin infections and meningitis.

Furthermore, overcrowding may contribute to an inadequately maintained power supply which can restrict the ability to undertake everyday living practices, such as washing, cooking, food storage, heating and lighting. It can also cause serious injury or death through electrical fires.

Another major social issue relating to housing is homelessness. The definition of homelessness is multifaceted, and there is no internationally agreed definition; however, it generally refers to a person not having access to a safe and adequate place to stay on a regular basis. Homelessness is linked to a range of health concerns, including mental health disorders.

In 2012 the Australian Bureau of Statistics developed a new definition of homelessness. When a person does not have suitable accommodation alternatives they are considered homeless if their current living arrangement:

is in a dwelling that is inadequate; or has no tenure, or if their initial tenure is short and not extendable; or does not allow them to have control of, and access to space for social relations.

SOURCE: ABS (2014)

FIGURE 2.17 Homelessness leaves people vulnerable to long-term unemployment, chronic ill-health and exclusion from community activities.



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Access to health information

Access to comprehensive and high-quality information in relation to health and healthcare is important to ensure that all groups in the population are equally able to achieve optimal health and wellbeing.

An inability to access health information and healthcare services can be detrimental to health status in a number of ways, including the misdiagnosis of disease, lack of understanding about how to prevent disease and increased likelihood of mortality from a disease due to lack of treatment and/or lack of knowledge of the signs and symptoms of the condition.

2.5 ENVIRONMENTAL FACTORS

The environment refers to the situations and surroundings that exert an influence on people's health and wellbeing. The environment can have a direct effect on the wellbeing of a person by exposing them to certain situations that can be detrimental or beneficial to their health. The environment refers to the surroundings in which individuals exist on a daily basis. These may include home, school, workplace, geographical location (whether a person lives in a city area or a rural area) and the wider community.

Environmental factors can affect the decisions that individuals make regarding their health and wellbeing, and environmental influences on health can be direct or indirect, simple or complex, and immediate or delayed. For some people, the physical environment may contain harmful or toxic substances that also impact on their health and development.

Air, water and sanitation quality

Many environmental influences are involuntary. For example, indoor air may contain constituents such as asbestos, moulds, radon gas, carbon monoxide and methane that affect health and wellbeing. A range of ailments related to living or working in closed buildings with poor air quality are recognised, including higher levels of respiratory diseases. Despite health promotion efforts and the steady decline in people who smoke in Australia, second-hand or passive smoking is still a major environmental hazard, particularly in homes. Compared with children who live in smoke-free homes, children who live in homes where tobacco smoke is present experience greater incidence of asthma, bronchitis and ear infections, and babies are at a higher risk of sudden infant death syndrome (SIDS).

Around the world, millions of people live in places that have unhealthy levels of ozone or other air pollutants. In some countries, there is often a higher prevalence of asthma in both adults and children compared with the national average in areas where ozone pollution is high. In low-income countries, hundreds of millions of people suffer from respiratory diseases caused by biological and chemical agents in the air, both indoors and outdoors.

In Australia, there are national initiatives to reduce the impact of road transport on environmental air quality in order to reduce pollution; however, it is still ranked by the population as a major environmental issue and impacts on cardiovascular and respiratory health due to the particulate matter and nitrogen dioxide it contains, which lead to inflammation of the airways.

environmental factors: The surroundings in which we live, work and play; the environment includes water and air, workplaces, roads, nature, schools, recreation settings and exposure to hazards.

Water quality in Australia is extremely high compared with other countries. Australia's waterways are of a high quality according to global standards and generally have a low count of faecal contamination and industrial pollution – common indicators of water quality. Drinking water, recycled water and wastewater are all subject to water quality guidelines in Australia. Overall the water quality in Australia has a positive influence on health status but there are some population groups (such as Indigenous Australians) who do not experience the same quality of water supply and this will be discussed later in the chapter.

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FIGURE 2.18 Pollution is still ranked by the population as a major environmental issue.

The National Health and Medical Research Council (NHMRC), in collaboration with the Natural Resource Management Ministerial Council (NRMMC), developed the Australian Drinking Water Guidelines (ADWG), giving clear directions to Australian communities and their water suppliers on the specifications of good quality drinking water. The NHMRC has also examined a wide range of chemicals for treating water in Australia. To be acceptable, a chemical must be non-toxic and have practical application – it must clarify dirty water or remove harmful organisms.

An excellent sanitation system and water-quality control measures, particularly in Australia's largest cities, also contribute to a high water quality ranking. In some countries in Europe and Asia, with a high population density, sewage outfalls and factory pollution have a huge national impact on the water quality.

Poor quality water can be a risk factor for disease. Unsanitary (contaminated) water contains a number of viruses and high levels of harmful bacteria that can be detrimental to health. Diseases associated with the consumption of poor quality water include gastroenteritis, diarrhoea, typhoid fever and hepatitis. Parasitic diseases associated with contaminated water include giardiasis, dysentery and diarrhoea. Consumption of unsafe drinking water can result in dehydration due to a loss of fluids when experiencing diarrhoea, and this can lead to loss of life.

Access to physical resources such as transport, recreation facilities and healthcare

Transport systems and infrastructure

Transport systems such as public transport enable people to access a range of services, recreational facilities and healthcare, thus improving the health status of a population.

In rural areas where transportation is limited to private car use or where walking or cycling are impractical, obesity is higher than in major cities. Also, road traffic injuries are higher due to poorer road conditions, the presence of wildlife and livestock as road hazards, and increased time spent in car travel.

The safety of road infrastructure for cyclists remains an issue. Cycling has numerous benefits in terms of improved fitness, and contributes to a reduction of air pollution and greenhouse gases. However, compared with motor vehicle occupants, there is a greater risk of injury requiring medical attention. Road infrastructure that is purpose-built with bicycle-specific facilities reduces crashes and injuries among cyclists. Street lighting, paved surfaces and low-angled grades are additional road infrastructure factors that appear to improve cyclist safety.

FIGURE 2.19 Road infrastructure is important for injury prevention.



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Recreational facilities

A lack of access to recreational facilities such as parks, walking and cycling tracks, and well-made sporting grounds is increasingly identified as a risk factor for chronic diseases, especially respiratory conditions.

Geographic location of resources such as healthcare

The geographic location of resources such as healthcare can contribute to health status. Where a person lives can determine their level of access to essential services. In remote areas of Australia, the healthcare facilities available tend to be basic with more specialised services requiring an individual to travel to regional centres or major cities. When screening technology is not available, this can result in a delay in detecting and diagnosing conditions such as cancers.

Workplace

The type of work and the tasks involved influence a worker's risk of physical injury and illness. A high percentage of occupational diseases and injuries are reported by people working as manual labourers. Physically demanding daily tasks and uncomfortable working positions can lead to physical strain and injury, increasing the risk of long-term absence from work, and causing stress for the employee as well as the employer. Jobs that require a worker to undertake repetitive movements (such as lifting, pushing or pulling heavy loads) put individuals at higher risk of musculoskeletal injuries and disorders, over-extension and repetitive strain injuries. Sedentary jobs can contribute to the risk of obesity and chronic diseases (such as heart disease) due to the absence of physical activity.

In addition, workplace conditions such as inadequate ventilation or temperature control can aggravate allergies or asthma, and cause respiratory conditions.



FIGURE 2.20 Sedentary jobs can negatively impact health status.

Climate change and natural disasters

It has been established that the Earth is warming and climatic conditions are changing. In Australia, many areas have experienced rainfall reductions for several decades and other areas across the country have experienced droughts and other natural disasters due to changing climate. Even though efforts are being made to reduce greenhouse gas emissions and ameliorate climate change, the trends in altered climate are expected to continue and will impact health status through their effects on the physical environment.

As the climate continues to get hotter, it will impact food production, resulting in a change in fresh food consumption due to higher costs, which could increase a range of diet-related diseases such as type 2 diabetes mellitus, cardiovascular disease and obesity. Mosquito breeding patterns are changing due to weather change, resulting in a rise in mosquito-borne diseases such as Ross River virus and Murray Valley encephalitis. Changes to exposure to ultraviolet (UV) radiation due to changing temperatures can increase the prevalence of skin cancer, including melanoma, and eye diseases.

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ACTIVITY 2.5: BIOLOGICAL, SOCIOCULTURAL AND ENVIRONMENTAL FACTORS

1 Classify each of the following examples of factors as environmental, biological or sociocultural. When you have finished classifying them, choose three factors (one from each category) and outline their impact on health status. Your discussion should include both positive and negative examples of the impact on health status:

- being employed full time
- having a local community centre in your area
- women having more protection against cardiovascular disease (until they reach menopause) due to their hormone production
- being underweight at birth
- living over 100 kilometres from a school
- education levels
- having recreational facilities in your area
- being able to afford a gym membership
- air pollution
- blood pressure
- contaminated water
- family support
- blood glucose regulation
- a road safety program
- not accessing the doctor because of personal beliefs
- living over 100 kilometres from a hospital
- occupation
- sex (male/female)
- health promotion campaigns
- religion
- social norms and expectations
- food security

2 Select one example of a sociocultural, biological or environmental factor from above and conduct some further research into it. Summarise its contribution to health and wellbeing, health status and burden of disease in Australia.

The changing climate increases the risks of natural disasters. When natural disasters occur, there can be multiple outcomes for health, some of which are quite direct and immediate, while others are unseen and long term in nature. Examples of natural disasters include floods, droughts, bushfires, severe storms and cyclones. Health outcomes for individuals can be:

- physical injuries and fatalities
- exposure to chemicals that cause respiratory distress, asthma episodes and allergic reactions
- increase in water-borne diseases leading to gastro-intestinal diseases, diarrhoea and vomiting
- increase in diseases spread by mosquitoes, including Ross River virus, Barmah Forest virus, dengue fever and Murray Valley encephalitis
- mental health stress conditions caused by homelessness, loss of income and assets, loss of transport systems and communication systems, and dislocation.



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2.6 CLASSIFYING FACTORS

While there are several factors that have been neatly classified in this chapter as being biological, sociocultural or environmental, it is important to understand that many of them could easily fit into more than one of these categories. For example, when looking at housing and the associated issues (such as overcrowding and homelessness), this is a clear example of housing as a sociocultural factor. Housing can, however, also be looked at from the perspective of the bricks and mortar – that is, the impact of the actual building and its ability to provide shelter and physical resources such as electricity. In this way, housing is very much an environmental factor.

Likewise, when looking at access to education as a sociocultural factor, it includes issues such as what is being taught, the provision of public or government-funded education or the people involved in education; however, education can also be an environmental factor when we look at the location and physical access to schools or the actual buildings and grounds of the school. Access to healthcare is another factor that may be classified as sociocultural or environmental, depending on the situation. Examples such as access to health information, health-promotion messages, support services, health strategies such as immunisation programs or government funding, and policies associated with healthcare are all examples of healthcare being a sociocultural factor. Examples such as the location of health services or the physical resources of hospitals or medical clinics are clearly examples of healthcare being an environmental factor.

DISCUSS

Discuss how a factor from one category could impact on a factor from another category. Discuss for a number of different factors.

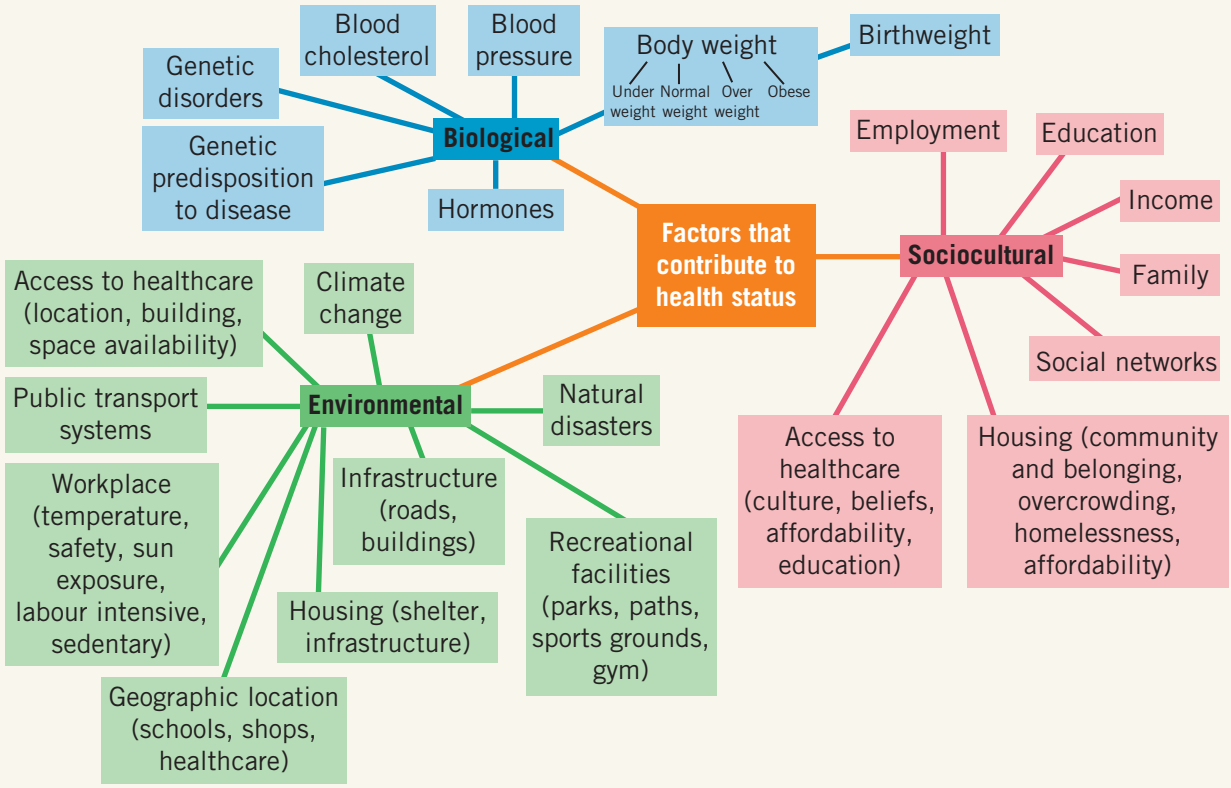


FIGURE 2.21 Factors that influence health status can fit into different categories and have an impact on each other.

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2.7 HEALTH STATUS OF AUSTRALIA'S POPULATION GROUPS

Although mortality and disease burden rates among Australians are generally decreasing, these decreases are not equally distributed throughout the entire population. The mortality rates of the Aboriginal and Torres Strait Islander population, for example, continue to be significantly higher than for the rest of the population. Also of great concern are the continuing inequalities for Australians living in rural or remote areas, and the higher mortality rates for those with a lower socioeconomic status (SES). Imbalances in health status between females and males are also evident in the incidence and prevalence of some diseases and injuries as well as life expectancy.

The sociocultural, environmental and biological factors previously discussed interact with each other and create a unique situation for each individual that influences their health status. When considering population groups and the impact that these factors can have on a group of people as a whole, we look at the interactions of these factors, as well as behavioural factors (which will be discussed in Chapter 3) that are evident in the population group. We then consider the impact that these factors have on population groups and consider opportunities for improvement; for example, through health promotion. In the following sections we will look at the current health status of males compared to females, Indigenous compared to non-Indigenous Australians, high socioeconomic status compared to low socioeconomic status and those living within Australia's major cities compared to those outside of Australia's major cities, and the sociocultural, environmental and biological factors that contribute to these differences.

2.8 MALES AND FEMALES

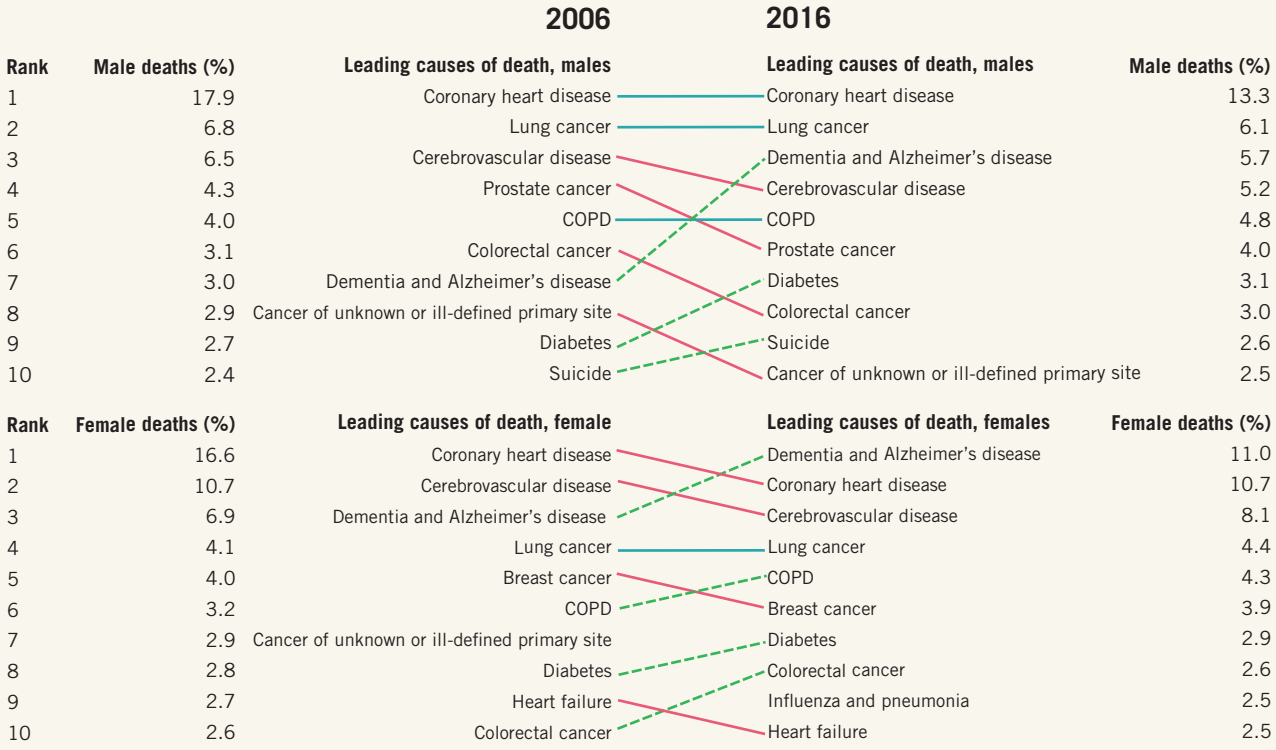
The combination of a person's biological sex and the influence of gender on their cultural, economic and social lives will put individuals at risk of developing some health problems while protecting them from others. An individual's sex can lead to health differences due to the physical differences in reproductive systems, as well as hormone production and release. Gender refers to the values, norms and expectations that society attributes to being a man or a woman. Both sex and gender have an impact on the health status of males and females.

Health status of males and females

One of the most evident differences in the health status of males and females is the difference in life expectancy. Currently, Australian females are expected to live approximately four years longer than Australian males. World bank data reports that life expectancy in 2017 was 84.7 years for females and 80.4 years for males.

There is also a difference in relation to mortality rates, with males continuing to have a higher age-standardised death rate than females. In 2017 the male age-standardised death rate was approximately 6 deaths per 1000 population compared to female age-standardised death rate which was approximately 4.5 deaths per 1000 standard population. There are some similarities, but also notable differences, between the rankings for certain specific causes of mortality between males and females. In Figure 2.22 a number of differences in the leading causes of death between males and females in 2016 can be identified. For example in 2016, the leading cause of death for males was coronary heart disease but for females it was dementia and Alzheimer's disease with coronary heart disease contributing to the second greatest cause of death for females. In addition, suicide is a prominent cause of death for Australian males, while suicide falls outside the leading 10 causes for females. Lung cancer remains the second leading cause of death for males contributing to 6.1 per cent of deaths. For females, lung cancer remains as the fourth leading cause of death contributing 4.4 per cent of total deaths.

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Rank	Male deaths (%)	Leading causes of death, males	Leading causes of death, males	Male deaths (%)
1	17.9	Coronary heart disease	Coronary heart disease	13.3
2	6.8	Lung cancer	Lung cancer	6.1
3	6.5	Cerebrovascular disease	Dementia and Alzheimer's disease	5.7
4	4.3	Prostate cancer	Cerebrovascular disease	5.2
5	4.0	COPD	COPD	4.8
6	3.1	Colorectal cancer	Prostate cancer	4.0
7	3.0	Dementia and Alzheimer's disease	Diabetes	3.1
8	2.9	Cancer of unknown or ill-defined primary site	Colorectal cancer	3.0
9	2.7	Diabetes	Suicide	2.6
10	2.4	Suicide	Cancer of unknown or ill-defined primary site	2.5

Rank	Female deaths (%)	Leading causes of death, female	Leading causes of death, females	Female deaths (%)
1	16.6	Coronary heart disease	Dementia and Alzheimer's disease	11.0
2	10.7	Cerebrovascular disease	Coronary heart disease	10.7
3	6.9	Dementia and Alzheimer's disease	Cerebrovascular disease	8.1
4	4.1	Lung cancer	Lung cancer	4.4
5	4.0	Breast cancer	COPD	4.3
6	3.2	COPD	Breast cancer	3.9
7	2.9	Cancer of unknown or ill-defined primary site	Diabetes	2.9
8	2.8	Diabetes	Colorectal cancer	2.6
9	2.7	Heart failure	Influenza and pneumonia	2.5
10	2.6	Colorectal cancer	Heart failure	2.5

Notes:

1. Rankings are based on the number of deaths; a decline in rank does not necessarily mean a decline in the number of deaths.
2. Data for 2016 are based on the preliminary version of cause of death data and are subject to further revision by the Australian Bureau of Statistics.
3. Coloured lines link the leading causes of death in 2006 with those in 2016: a blue line means that the ranking of the cause of death remained the same in 2016 as in 2006; a green line, that the ranking of the cause of death rose compared with that in 2006; and a red line, that the ranking of the cause of death in 2016 decreased compared with that in 2006.

SOURCE: AIHW (2018)

FIGURE 2.22 Leading causes of death by sex, 2006 and 2016

Although injuries were not a top 10 leading cause of death for males or females in 2016, they must also be considered because injuries contribute significantly to burden of disease in Australia and males are more impacted by them than females. According to the AIHW, for males and females combined, injury was recorded as a cause of more than 12 600 deaths in 2014–15, contributing 8.1 percent of total deaths. The injury death rates were highest in the 65-plus age group for both males and females, attributable to high falls risks in older age. For every age group, injury death rates for males were higher than for females, in particular at the ages 25–44. These differences can be attributed to gender differences and social influences of males, as well as the physical environment that males in this age group may be exposed to. The types of injuries leading to death also differ between males and females, with suicide contributing the greatest proportion of injury deaths for males compared to falls contributing the greatest proportion of injury deaths for females. Further, males are more likely to be hospitalised with injury accounting for 55 per cent of all hospital presentations for injury in 2014–15.

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The under-5 mortality rate for males is consistently slightly higher than that for females. In 2017 the under-5 mortality rate for males was 3.8 deaths per 1000 live births, while for females it was 3.2 deaths per 1000 live births. The difference is largely biological, with males being more vulnerable to infection in the early years of life.

Factors contributing to the variations in health status of males and females

Biological factors

Body weight

According to the ABS, since 2014–15 the proportion of adults who are overweight or obese has increased from 63.4 per cent to 67 per cent. In 2017–18, a higher proportion of males compared to females aged 18 years were overweight or obese. The differences between the proportion of overweight males was greatest with 42 per cent of males falling into the overweight category (based on body mass index, BMI) compared to 29.6 per cent of females.

The gap in obesity was smaller, but males still had a higher proportion of obesity compared to females – 32.5 per cent and 30.2 per cent respectively. Being overweight or obese increases the risks of developing a number of conditions such as cardiovascular disease, type 2 diabetes mellitus, some types of cancer and some types of arthritis. Due to these increased risks there are differences in the prevalence of conditions for males compared to females. The accumulation of excess body fat is also a significant factor contributing to differences in health status between males and females. Research suggests that after puberty (and before menopause) males and females accumulate body fat differently. There are varied results in regards to the areas that body fat is accumulated but it has often been reported that females are more likely to accumulate body fat in the bottom and legs, whereas males are more likely to accumulate it in the trunk (abdomen). Abdominal fat is a significant risk factor for cardiovascular disease and type 2 diabetes mellitus because it indicates that a higher proportion of fat is surrounding the major organs, detrimentally affecting their ability to function effectively and increasing risks of disease.

Other than BMI, waist circumference is an indicator of an individual's body weight. For males, a waist measurement of 94 centimetres or more and for women, a waist measurement of 80 centimetres or more indicates that a person is at an increased risk of disease. According to the ABS, in 2017–18 the average waist measurement for adult males was 98 centimetres and for females, 87.9, indicating that both males and females are at an increased risk.

Hormone release

Hormones are chemical substances produced by the body. Hormones send messages to different parts of the body to cause change or to affect tissues. There are differences in the release of hormones between males and females, which is due to the physiological differences between the sexes. There has been much research into the impact that different hormones have on the differences in health status between males and females. For example, some research suggests that the hormone oestrogen, which is released in females from puberty until menopause, can play a protective role against cardiovascular disease. The level of testosterone in males is also thought to be a possible risk factor for cardiovascular disease.

Oestrogen production also plays a role in the development of osteoporosis. For pre-menopausal women, oestrogen is a protection against developing osteoporosis. However, once a woman reaches menopause and stops producing oestrogen, the risk of developing osteoporosis increases. On average, women lose up to 10 per cent of their bone density in the first five years of menopause. It is reported that in 2014–15 on average females were four times more likely to have osteoporosis than males (AIHW, 2018). Research suggests that

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high levels of testosterone can have an impact on the brain and result in greater risk-taking behaviours. Males produce greater amounts of testosterone than females, particularly during puberty, which can result in increased risk-taking behaviour and therefore increased risk of accidents and injuries.

Sociocultural factors

Employment status

Unemployment tends to have a greater impact on the mental and spiritual health and wellbeing of males compared to females. This is partly due to the fact that females are more likely to be the primary caregiver than males and therefore may experience a greater sense of purpose, whereas males may feel there is a stigma attached to being unemployed. This can increase the stress associated with unemployment and therefore decrease levels of mental health and wellbeing, increasing the risk of developing a mental illness.

Income

Females tend to have a lower income than males. The Australian Government workplace gender equality agency reports that, in February 2019 the full-time gender pay gap was 14.1 per cent, with women's full time average weekly income being $1455.80 compared with males' $1696.60. The gender pay gap is influenced by a range of factors such as bias in hiring and pay decisions, different industries, women having a greater proportion of unpaid caring and domestic work, less flexibility for childcare and other responsibilities in senior roles. Also, the greater amount of time women spend out of the workforce caring for children may reduce opportunities for promotion.

Social expectations

Due in part to social expectations and attitudes that men should be more 'macho', there are some differences in relation to use of healthcare services between Australian males and females. On average, males are less likely to seek medical treatment and, in particular, are less likely to undergo screening for diseases such as cancer. Males are also less likely than females to absorb health-promotion messages and implement health-promotion activities.

Environmental factors

Workplace

Men are more likely than women to be employed in high-risk jobs, particularly labour-intensive outdoor jobs, where they are exposed to a number of different hazards that may impact their health status. Examples of potential hazards include noise and vibration from machinery, hazards in the external environment such as UV exposure and pollution, lack of ergonomic equipment and a need for heavy lifting, and chemical hazards such as solvents, resins and gases. The effect that an occupation may have on a worker's health can be cumulative or immediate. Some examples include asthma, hearing and vision conditions, muscle and back pain causing disability, and mental illness. Most of these conditions are more prevalent among males than females. Men also have higher rates of injuries associated with the workplace than women.

ACTIVITY 2.6: RESEARCH TASK – INFOGRAPHIC

Infographics have become a popular way for health-related organisations to provide information to the public so that they are interesting and visually stimulating.

Using a free online tool for infographic creation, create an infographic on the health status and factors (biological, sociocultural and environmental) influencing the health of males and females. Be sure to make your infographic informative and interesting. If you are not familiar with infographics, conduct a quick internet search for examples by looking for 'Infographics on the health of Australians'.

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ACTIVITY 2.7: BREAKING DOWN MASCULINITY

1 Create a list of adjectives that you think are normally associated with male sports stars.
2 Discuss the impact that the 'macho' sports star image could have on athletes' health and wellbeing and overall health status.
3 Watch the NowThis News video *Kevin Love is raising mental health awareness and breaking down masculinity*. Discuss the impact that awareness campaigns like these could have on improving the health status of male athletes.
4 Watch the YouTube video *Sh*t Mates Don't Say*. Describe how this campaign could improve health status of Australian males.
5 Identify the types of factors that are being targeted in these campaigns.

TABLE 2.2 Summary of the factors that contribute to variations in health status between males and females

DIFFERENCES IN HEALTH STATUS	BIOLOGICAL FACTORS	SOCIOCULTURAL FACTORS	ENVIRONMENTAL FACTORS
Males have: - life expectancy around 4 years less than females - higher death rates for all age groups - higher rates of mortality from lung cancer and COPD - higher rates of injury than females - higher rates of deaths due to suicide, road trauma and violence - higher rates of morbidity from cardiovascular disease and many types of cancer - higher rates of diabetes - lower rates of osteoporosis - lower rates of mental disorders - lower rates of dementia, including Alzheimer's disease	Males experience: - higher rates of overweight and slightly higher rates of obesity - higher rates of trunk/abdominal fat - genetic predisposition to conditions such as cardiovascular disease and prostate cancer - higher rates of hypertension - higher levels of testosterone, increasing risks of some conditions Females experience: - genetic predisposition to breast cancer - higher levels of oestrogen which plays a protective role against cardiovascular disease, until menopause	Males are more likely to: - have a higher SES (especially in single parent households) - experience stress related to unemployment Females are more likely to: - access health information and support services	Males are more likely to: - be exposed to unsafe work environments - be exposed to hazardous substances in the workplace - work outdoors, increasing sun exposure



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2.9 ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLES

In June 2016 there were approximately 787 000 Australians who identified as being Aboriginal and/or Torres Strait Islander (3 per cent of the total population). Aboriginal and Torres Strait Islander peoples suffer a greater level of ill-health than other Australians, and are more likely to experience disability and reduced quality of life due to ill-health. In the Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS, 2013) conducted by the ABS, Aboriginal and Torres Strait Islander peoples were almost twice as likely as other Australians to report their health as fair or poor. In 2012–13, only 39.3 per cent of Aboriginal and Torres Strait Islander peoples aged 15 years and over rated their health as excellent or very good, while 6.9 per cent rated their health as poor.

Health status of Aboriginal and Torres Strait Islander peoples

Aboriginal and Torres Strait Islander peoples (Indigenous Australians) have a poorer level of health status than non-Indigenous Australians. There is still a significant gap between Indigenous and non-Indigenous life expectancy. Australian Indigenous Health info net (2019) reports that Indigenous Australians born 2015–17 had a life expectancy of around 8–9 years less than non-Indigenous Australians. Mortality rates of Indigenous Australians are higher than non-Indigenous Australians, with under-5 and infant mortality rates of particular concern. In 2017 the age-standardised death rate for Indigenous Australians was 1.8 times the rate of non-Indigenous Australians, while infant mortality rates were twice as high. The leading causes of death were coronary heart disease, diabetes mellitus, chronic lower respiratory diseases, and lung and related cancers. Indigenous Australians were also more likely to die before the age of 65 compared with non-Indigenous Australians. It is also reported that compared with non-Indigenous Australians, Indigenous Australians were 1.7 times as likely to have a disability or restrictive long-term health condition.

The Aboriginal and Torres Strait Islander population has a higher level of burden of disease for a range of diseases and injuries than the rest of the population. One of the most recent sources of specific burden of disease information for Aboriginal and Torres Strait Islander peoples is the Australian Aboriginal

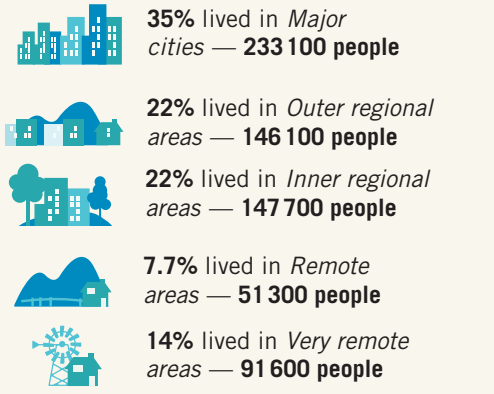


FIGURE 2.23 Proportion of Indigenous Australians living in different areas in 2011

TABLE 2.3 Life expectancy at birth, by Indigenous status, 2005–07 to 2015–17

	INDIGENOUS		NON-INDIGENOUS		GAP (YEARS)	
	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES
Life expectancy at birth estimates						
2005–07	67.5	73.1	78.9	82.6	11.4	9.6
2010–12	69.1	73.7	79.7	83.1	10.6	9.5
2015–17	71.6	75.6	80.2	83.4	8.6	7.8

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and Torres Strait Islander Health Survey (AATSIHS, 2013). According to the survey:

- Thirteen per cent of Aboriginal and Torres Strait Islander peoples reported having a long-term heart or related condition, making these conditions 1.2 times more common than for other Australians.
- The age-standardised death rate for cancer for Aboriginal and Torres Strait Islander peoples was 1.3 times higher than for other Australians.
- The level of respiratory disease was 1.2 times higher for Aboriginal and Torres Strait Islander peoples than for other Australians. In 2013, the death rate for respiratory disease for Indigenous Australians was twice that of other Australians.
- The hospitalisation rate for ear/hearing problems for Aboriginal and Torres Strait Islander children aged 4–14 years was 1.6 times higher than the rate for other Australian children.
- Infectious disease rates are higher. In 2014, Aboriginal and Torres Strait Islander peoples had higher rates of gonorrhoea, syphilis and chlamydia than other Australians. The rates of human immunodeficiency virus (HIV) diagnosis were 1.3 times higher for Aboriginal and Torres Strait Islander peoples than for other Australians. The rate for tuberculosis was

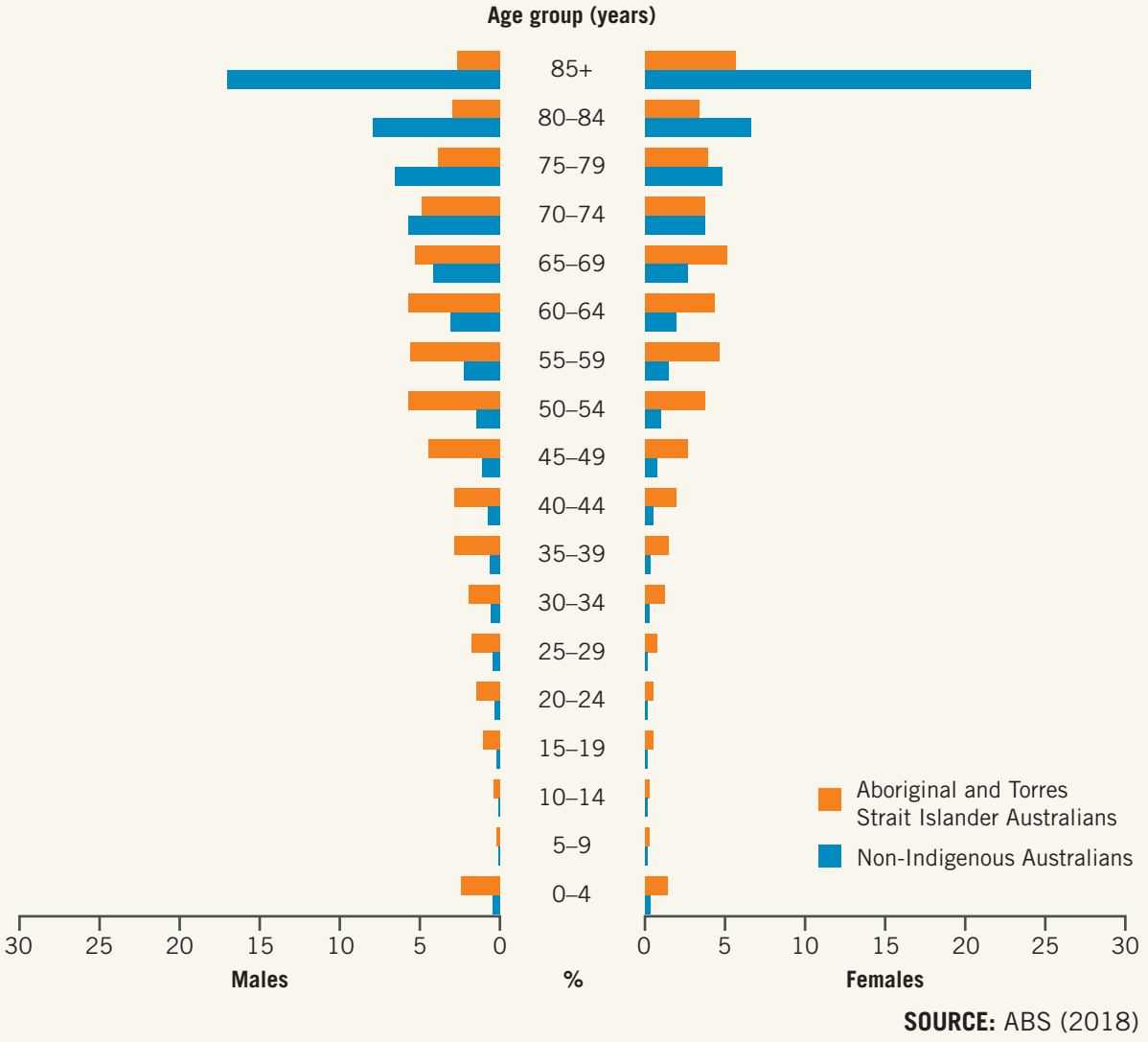


FIGURE 2.24 Age and sex distribution of Aboriginal and Torres Strait Islander and non-Indigenous deaths, 2018

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11.3 times higher for Aboriginal and Torres Strait Islander peoples than for other Australians.

Further: In 2014 the rate of end stage renal disease (kidney failure) was 6.6 times higher and the death rate from kidney disease was 2.6 times higher for Indigenous Australians than for non-Indigenous people.

Factors contributing to the variations in the health status of Aboriginal and Torres Strait Islander populations

Biological factors

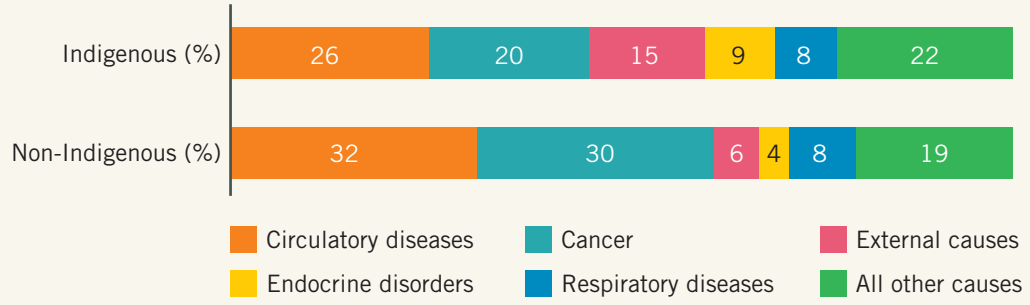
Body weight

According to the AIHW's *Australia's Health 2018* report, there are differences in body mass index (BMI) categories between Indigenous and non-Indigenous Australians. These differences are present from childhood through to adulthood. Among Indigenous girls aged 2–14 years, 7.9 per cent were underweight compared to 3.9 per cent of non-Indigenous girls. They were also more likely to be obese, 9.8 per cent and 6.1 per cent respectively. Young Indigenous males of the same age also had increased levels of underweight and obesity compared with non-Indigenous Australians. Indigenous Australian adults are also more likely to be obese compared with non-Indigenous adults. Approximately 45 per cent of Indigenous females aged 15 and over were obese compared to 25 per cent of non-Indigenous Australians. For males of the same age range, 35 per cent of Indigenous Australians were obese compared with 25 per cent non-Indigenous.

As previously discussed, obesity is a risk factor for a number of conditions. Hence, in Indigenous populations the prevalence of obesity-related conditions is greater compared with non-Indigenous Australians. The AIHW reports that Indigenous Australians are four times as likely to have type 2 diabetes mellitus and are at greater risk of complications such as kidney failure and hypertension.

Metabolic syndrome/syndrome X

Metabolic syndrome (also referred to as 'syndrome X') is not a disease but a collection of risk factors that often occur together. These include hypertension, impaired fasting glucose or diabetes, excess body fat around the waist and abnormal cholesterol levels. An individual with two or more of these risk factors is said to have metabolic syndrome, which increases risk of cardiovascular disease and type 2 diabetes mellitus. A considerable amount of research has gone into metabolic syndrome proposing a reason for its prevalence among Indigenous Australians. According to the 'thrifty gene hypothesis', people who were hunter-gatherers for an extended period of time have a genetic predisposition to diabetes mellitus. Hunter-gatherers have a 'thrifty' gene that stores excess glucose for use at a later time, thus conserving



Notes:
1. Data are for NSW, Qld, WA, SA and NT.
2. Proportions may not sum to 100%, due to rounding.

SOURCE: AIHW (2018)

FIGURE 2.25 Causes of death, by Aboriginal and Torres Strait Islander status

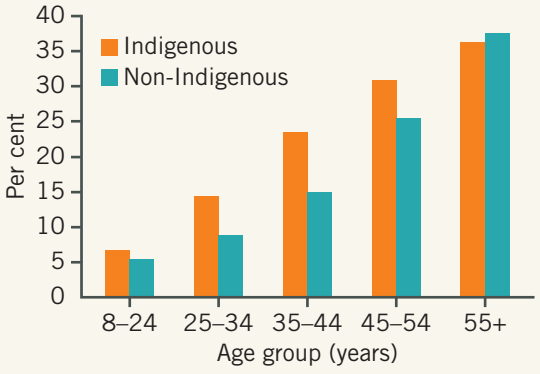
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a person's energy. Ever since European colonisation of Australia, Aboriginal and Torres Strait Islander peoples have become exposed to a Western lifestyle that includes processed foods that are high in sugar and this could be affecting the 'thrifty' gene – excess glucose is being stored when it is not needed. In turn, this increases blood glucose levels and leads to insulin resistance. It also increases the risk of obesity and syndrome X.

Blood pressure

According to the AIHW's 2017 *Aboriginal and Torres Strait Islander Health Performance Framework* report, for people aged 18 years and over, the age-standardised total prevalence of high blood pressure was 33.1 per cent for Indigenous Australians and 28.9 per cent for non-Indigenous Australians in 2012–13.

Aboriginal and Torres Strait Islander males were more likely than Aboriginal and Torres Strait Islander females to have high blood pressure, and Aboriginal and Torres Strait Islander adults were significantly more likely than other Australian adults to have high blood pressure. High blood pressure is a risk factor for cardiovascular disease, a chronic disease of major concern among Aboriginal and Torres Strait Islander populations.



SOURCE: AIHW (2015)

FIGURE 2.26 High blood pressure (measured) among people aged 18 and over, by age and Aboriginal and Torres Strait Islander status

DISCUSS

Discuss reasons for the higher percentage of high blood pressure in non-Indigenous Australians compared to Indigenous Australians in the 55+ age group.

Blood glucose regulation

Not only are Indigenous Australians more likely to suffer from type 2 diabetes mellitus, they are also more likely to experience high blood sugar levels compared with non-Indigenous Australians. High sugar levels that are not considered high enough to be diagnosed with diabetes indicate impaired glucose regulation and impaired glucose regulation is greater among Indigenous Australians, increasing the risk of developing type 2 diabetes mellitus and associated complications.

Birthweight

According to the *Overview of Aboriginal and Torres Strait Islander Health Status Report 2018*, the prevalence of low-birthweight babies of Aboriginal and Torres Strait Islander mothers is nearly twice as high as babies of non-Indigenous Australians. It is reported that around 12 per cent of babies born to Aboriginal and Torres Strait Islander mothers were low birthweight, compared with 6.3 per cent of babies of non-Indigenous mothers. As previously discussed, low-birthweight babies have an increased risk of developing a number of conditions in childhood and adulthood. Thus the prevalence of low-birthweight babies in Indigenous populations may contribute to the increased rates of a number of conditions experienced by Indigenous Australians.

Sociocultural factors

Socioeconomic status

The lower income of Aboriginal and Torres Strait Islander peoples impacts their access to quality food, housing and healthcare, affecting their health status. Generally, ill-health is more prevalent among lower income earners. The impact of a low weekly income can include inability to purchase essential items.

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In 2013, 39 per cent of Aboriginal and Torres Strait Islander peoples reported that they had days without money for basic living expenses in the previous 12 months, and approximately one in four had faced inadequate food supplies in the previous 12 months due to affordability. Of those, 41 per cent reported that they went without food (AATSIHS, 2013). Lower incomes among Aboriginal and Torres Strait Islander peoples can also impact on the accessibility of healthcare that is not covered by Medicare (for example, dental care).

Level of education

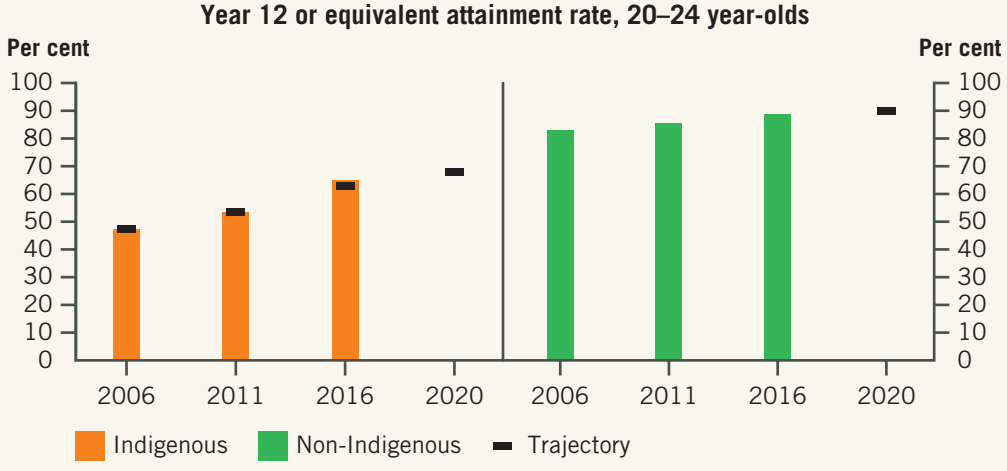
Completion of Year 12 is increasing among Indigenous students but it is still lower than non-Indigenous populations. School attendance rates in Indigenous populations are still a major concern. A lower level of education reduces opportunities for employment and decent income. Literacy skills are greatly impacted by education so Indigenous Australians who have low levels of education have reduced literacy skills compared to non-Indigenous Australians, as indicated by NAPLAN data. This can result in an inability to understand health promotion messages and increase the risk of developing a range of conditions.

Employment status

Aboriginal and Torres Strait Islander peoples have relatively low levels of employment and relatively high levels of unemployment compared to non-Indigenous Australians. The AIHW reported that in 2014–15, approximately 48 per cent of Indigenous 15–64 year olds were employed compared with approximately 72 per cent of non-Indigenous Australians. On the other hand, approximately 12 per cent of Indigenous Australians were unemployed compared with approximately 4 per cent of non-Indigenous Australians.

There are also obvious occupational status inequalities between Aboriginal and Torres Strait Islander peoples and other Australians. Aboriginal and Torres Strait Islander peoples are inclined to participate in low-skilled labour work, increasing risks of a number of health conditions and injury.

The implications of unemployment extend beyond the obvious financial concerns. Unemployment can contribute to a range of psychological outcomes, including poor mental health and wellbeing in the form of anxiety, loss of identity, poor self-esteem and social isolation as well as mental disorders. Substance abuse is more prevalent among the unemployed than those engaged in permanent employment.



SOURCE: ABS Census of Population and Housing (2006, 2011 and 2016)

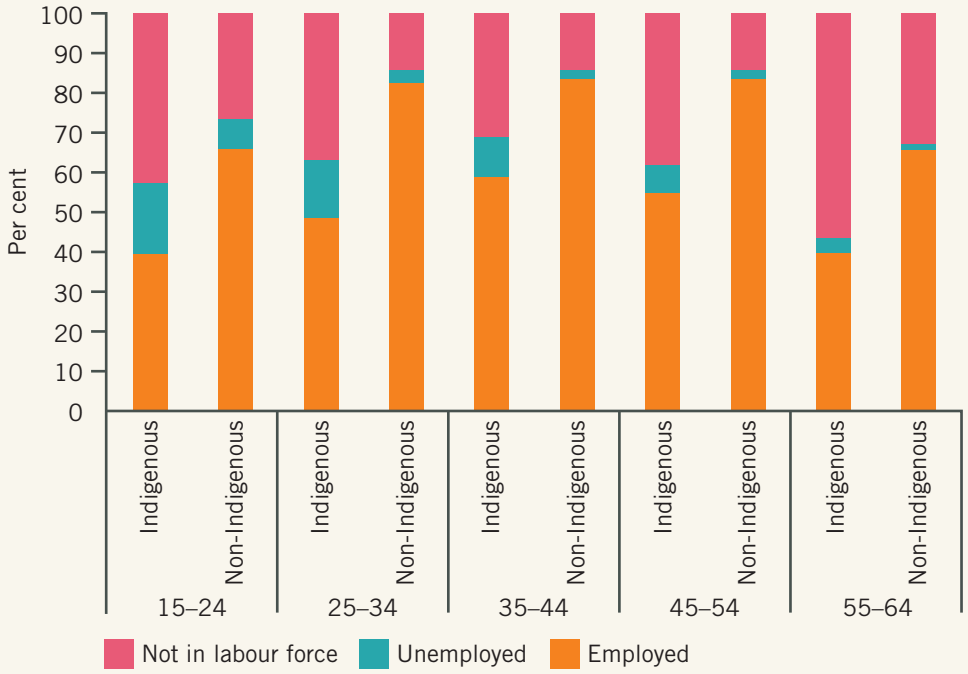
FIGURE 2.27 Year 12 or equivalent attainment rate, Indigenous and non-Indigenous Australians, 20–24 year olds

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EXTENSION QUESTION 2.4

Consider the reasons for the differences between Indigenous and non-Indigenous Year 12 (or equivalent) attainment rates and explain possible changes that have occurred between 2006 and 2016 that led to an improvement in Year 12 attainment rates for Indigenous students.



SOURCE: ABS (2015)

FIGURE 2.28 Labour force participation, by Aboriginal and Torres Strait Islander status

Social networks – family

A larger proportion of Aboriginal and Torres Strait Islander households are one-parent families with dependent children when compared with other Australian households (21 per cent compared with 6 per cent). Aboriginal and Torres Strait Islander households are also more than three times as likely to be composed of two or more families. It is reported that in 2017, 6 per cent of Indigenous households had two or more families compared with 2 per cent of non-Indigenous households. In some cases, there are several dependent children living in one household.

The *Aboriginal and Torres Strait Islander Health Performance Framework Report 2017*, indicates that hospitalisation due to violence is significantly higher in Indigenous communities compared with non-Indigenous. In 2014–15 family violence related hospitalisation rates for Indigenous females were 32 times the rate for non-Indigenous females. While for Indigenous males the rate was 23 times higher than non-Indigenous males. This indicates that the family environment may have a greater negative influence on the health status of Indigenous Australians compared to non-Indigenous Australians.

Social networks – peers and community

As previously discussed, the impact that peers and the community have on an individual's level of health and wellbeing is significant.

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FIGURE 2.29 Homelessness is a major issue for Indigenous Australians

When considering community connectedness it could be said that Indigenous Australians have a strong sense of belonging. In 2014–15, 62 per cent of Indigenous Australians identified with a clan, tribal or language group, providing what seems to be a supportive network to Indigenous Australians. However, research also indicates that at times of crisis Aboriginal and Torres Strait Islander peoples have been unable to access social support when compared with non-Indigenous Australians.

Overcrowding and homelessness

According to the AIHW, in the 2016 census, 18 per cent of Indigenous Australians lived in homes that required one or more additional bedrooms and were more than three times as likely as other households to be deemed overcrowded. Overcrowding can lead to the spread of some infectious diseases due to increased amount of stress on physical infrastructure, including cooking facilities, laundry facilities and sewerage systems. Overcrowded housing is also associated with higher rates of smoking and hazardous drinking and has been linked with poor mental health and wellbeing.

During the 2016 census, 23 000 Indigenous people were homeless, equivalent to one in 28 Indigenous Australians. This rate was 10 times higher than for non-Indigenous Australians. This rate has declined since 2006, mainly due to a decrease in the number of people living in severely crowded dwellings. Being homeless increases risks of a number of physical conditions because of exposure to the elements and also impacts negatively on mental health and wellbeing.

TABLE 2.4 Rates of homelessness per 10 000 population, Indigenous and non-Indigenous Australians, Census night 2006, 2011 and 2016

	2006	2011	2016
	Rate	Rate	Rate
Indigenous	570.6	487.4	361.0
Non-Indigenous	31.4	34.2	37.8
Not stated	57.0	72.3	86.6
Total	**45.2**	**47.6**	**49.8**

SOURCE: ABS (2018)

Social expectations

Aboriginal and Torres Strait Islander peoples are less likely to access healthcare than other Australians. The nature and extent of need for health and welfare services among Aboriginal and Torres Strait Islander peoples differ from those of other Australians for a range of reasons, including a substantially higher prevalence of certain diseases, and social, economic and environmental issues. Barriers to accessing healthcare and health information can include cultural beliefs in relation to accessing Western medicine.

Environmental factors

Air, water and sanitation quality

Indigenous Australians are more likely to experience poor quality housing. This is in part due to the increased rates of overcrowding, causing strain on the physical integrity of the home. As a result, Indigenous Australians experience higher levels of unsafe drinking water and non-functioning sanitation systems, increasing the prevalence of infectious diseases such as influenza and pneumonia, meningitis, skin infections and infestations such as scabies, and intestinal infections and parasites.

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FIGURE 2.30 Exposure to environmental tobacco smoke increases risk of a number of health conditions.



FIGURE 2.31 Many factors contribute to the level of health status of Indigenous children.

Due to the high rates of tobacco use, passive smoking exposure for children is high for Aboriginal and Torres Strait Islander populations. In 2018–19 the smoking rate for Indigenous people aged 15 and over was 2.7 times higher than non-Indigenous people (41 per cent compared with 15 per cent). According to the ABS, in 2014–15 the proportion of Indigenous Australian children aged 0–14 who were living in a household with at least one daily smoker was 56.7 per cent compared with 21 per cent of non-Indigenous children in the same age range. For Indigenous children aged 15 and over this increases to 60.3 per cent. The data also suggests that Indigenous children are more likely to live with someone who smokes indoors compared to non-Indigenous children.

Exposure to second-hand tobacco smoke can affect people throughout all stages of their life. Exposure to tobacco smoke also increases the risk of SIDS in infants. Children who are exposed to smoke have increased risk of respiratory diseases such as asthma and ear infections. Their risk of developing chronic conditions as adults also increases; for example, lung cancer and ischaemic heart disease.

Access to physical resources

Approximately 66 per cent of Aboriginal and Torres Strait Islander peoples live in either regional or remote Australia, and consequently are exposed to environmental risk factors specific to road quality. These include greater distances travelled (with more potential for a road crash), higher speed limits, poor road condition and limited availability of road services. There is a reduced police presence and enforcement of speed limits, a higher risk of collision with wildlife and livestock, and less monitoring of alcohol consumption and seatbelt usage in rural areas. This can contribute to more vehicle collisions, injuries and deaths. Furthermore, due to a significant percentage of Aboriginal and Torres Strait Islander peoples living in regional or remote areas, this can limit the access to resources such as healthcare facilities and treatment options for Indigenous Australians. Data from 2015 report that Medicare claims by Indigenous Australians for GPs were 10 per cent higher. However, for all other services (including specialists and diagnostics) Indigenous Australians' claims were 43 per cent lower. This suggests that the lower levels of availability of specialist services in regional and remote areas may limit access for Indigenous Australians.

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CASE STUDY: INDIGENOUS HEALTH

Aboriginal elder calls on Townsville's Indigenous people to take control of health after shocking data on life expectancy

Domanii Cameron

An Aboriginal elder says Townsville's Indigenous residents must take control of their health to arrest their plummeting life expectancy. At 77, nurse Diana Ross has beaten the region's Indigenous life expectancy by almost three decades. The State Government's Chief Health Officer's Report last year revealed half of all Indigenous people who died in Townsville were aged under 52 which is 27 years below the age for non-Indigenous deaths in the city and lowest in the state.

The Townsville Aboriginal and Islander Health Service nurse lost her grandfather, father and cousin to lung cancer, while her brother died of heart disease. Her mother died of renal failure.

'What I'm seeing is a lot of younger people needing help. If you look at the cycle, health is an issue but there's a genetic factor as well,' she said. Ms Ross said that, from her experience, to close the gap on life expectancy and Indigenous health, the cycle of care had to be addressed. 'We used to go exercising, hunting and fishing, these things were helping us lose weight,' she said. 'We're not doing things like this any more.'

Ms Ross said colonisation had caused problems. 'Our Aboriginal people think subconsciously they're not equal and that does play havoc,' she said. 'But there are a lot of beautiful people. I'm constantly telling people that they have to get an education and qualifications. You have to have some aim in your life.'

Ms Ross said she saw health issues in children, including kidney and heart problems. 'There are quite a few people on dialysis at a young age,' she said. 'Life is not meant to be easy and you can't change where you came from. But the only way they can break the cycle is through good education, qualifications and not caring about race.'

Northern Australia Primary Health Ltd chairman and Townsville GP Kevin Arlett said Indigenous life expectancy was a big problem. 'There's a whole range of factors, certainly in Townsville we have a lot of problems with Indigenous people smoking but there's also a poor social standing,' he said. 'If you look at a number of Indigenous families, you can have three generations who have never worked and have lived on social security for that time.'

Dr Arlett said closing the gap on Indigenous health and around life expectancy needed a multi-pronged approach. Dr Arlett acknowledged there was less tolerance for alcohol and sugar among Indigenous people. 'Some of that is perhaps because of the physical makeup compared to white people,' he said. 'Some Indigenous people can't cope with the Western diet so much.'

GP Mark Nuttall, a former senior medical officer at the Joyce Palmer Health Service on Palm Island, said there were multiple reasons why there was a lower life expectancy for Indigenous people. 'A focus on education will also have a significant impact, meaning a focus on school completion and access to further university or TAFE study but also education in general about healthy foods, exercise, etc.'

SOURCE: Townsville Bulletin, 9 February 2017

1 Based on your knowledge, describe the differences between the health status of Aboriginal and Torres Strait Islander peoples and other Australians. In your answer, include life expectancy and mortality indicators.



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2 Outline the main issues identified in the article that impact negatively on Aboriginal and Torres Strait Islander health status.
3 Explain why these issues are particularly prevalent among Aboriginal and Torres Strait Islander populations.
4 Describe how these issues could be minimised so that Aboriginal and Torres Strait Islander health status is more closely aligned with the health status of other Australians.
5 Choose one of the factors identified in the article influencing health status and provide a summary of the possible ways in which this factor impacts the physical, social and mental health and wellbeing of Aboriginal and Torres Strait Islander peoples.
6 Identify other biological and sociocultural factors that may be contributing to the overall poorer health status of Aboriginal and Torres Strait Islander peoples.

TABLE 2.5 Summary of the factors contributing to the variations in the health status of Aboriginal and Torres Strait Islander populations

HEALTH STATUS	BIOLOGICAL FACTORS	SOCIOCULTURAL FACTORS	ENVIRONMENTAL FACTORS
Compared with other Australians, Aboriginal and Torres Strait Islander peoples have: - lower life expectancy of approximately 10 years - poorer self-assessed health status - higher rates of physical disability - higher death rates from cancer - higher morbidity rates from cardiovascular disease - higher rates of chronic kidney disease - higher mortality rates and burden of disease from diabetes - higher rates of infectious diseases such as STIs, ear and eye infections - higher rates of infant mortality - higher injury death and hospitalisation rates - higher levels of psychological distress - higher rates of dental decay and gum disease	Compared with other Australians, Aboriginal and Torres Strait Islander peoples have a higher prevalence of: - overweight and obesity - insulin resistance and impaired glucose regulation - hypertension - low-birthweight babies - high blood cholesterol levels	Compared with other Australians, Aboriginal and Torres Strait Islander peoples are more likely to experience: - higher rates of unemployment - lower incomes - lower retention rates for education - higher rates of social exclusion - lower rates of home ownership - more negative issues relating to housing, including overcrowding and homelessness - poverty - cultural barriers to accessing healthcare	Compared with other Australians, Aboriginal and Torres Strait Islander peoples are more likely to be exposed to: - poor air quality (e.g. due to exposure to environmental tobacco smoke) - lower quality roads if living in remote areas - poor quality or limited recreational facilities - lack of access to running water and sanitation systems if in a remote area - reduced access to infrastructure and physical resources such as healthcare services due to living in rural or remote areas compared with other Australians

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2.10 HIGH- AND LOW-SOCIOECONOMIC STATUS

In simple terms, socioeconomic status (SES) refers to an individual or group's status or 'place' in society. The placement can be determined using various socioeconomic measures such as education, occupation, income, wealth and housing. The socioeconomic characteristics that may influence health include: education, income, wealth, occupation, marital and family status, labour force participation, housing, ethnic origin and characteristics of the area of residence. The SES of Australian individuals and groups is measured through income and reported according to specified criteria, then ranked into five equal parts referred to as **quintiles**.

Health status of high- and low-socioeconomic status populations

People with high-SES are generally more likely to report that their health is excellent. People with low-SES are more likely to report that their health is poor or fair. *The National Health Survey: First Results 2017–18* reports that 64.9 per cent of people living in areas of least disadvantage (fifth quintile) rated their health as being excellent or very good compared to 45.1 per cent of people living in the most disadvantaged areas (first quintile). In general, people with low-SES are at greater risk of poor health, have higher rates of disease, disability and death, and live shorter lives than those with high-SES.

Life expectancy differences exist between high- and low-SES populations. Those experiencing low-SES could expect to live 2.6 years less than those experiencing high-SES.

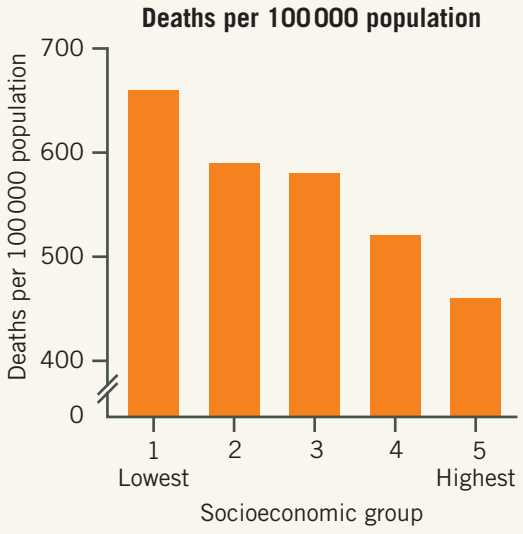
Mortality rates for low-SES populations are overall higher than those for high-SES populations, and the higher rates of infant mortality for this population group are of particular concern.

quintile: A group derived by ranking the population according to specified criteria related to socioeconomic status and dividing it into five equal parts.

Among the long-term health conditions covered in the most recent National Health Survey (NHS), people from lower socioeconomic groups most frequently reported having diabetes, cardiovascular disease, chronic kidney disease, arthritis, mental health problems and respiratory diseases (including asthma). The prevalence of these chronic diseases was substantially higher among adults in the low-SES population.



FIGURE 2.32 People with a low socioeconomic status background are more likely to report their health as fair/poor.

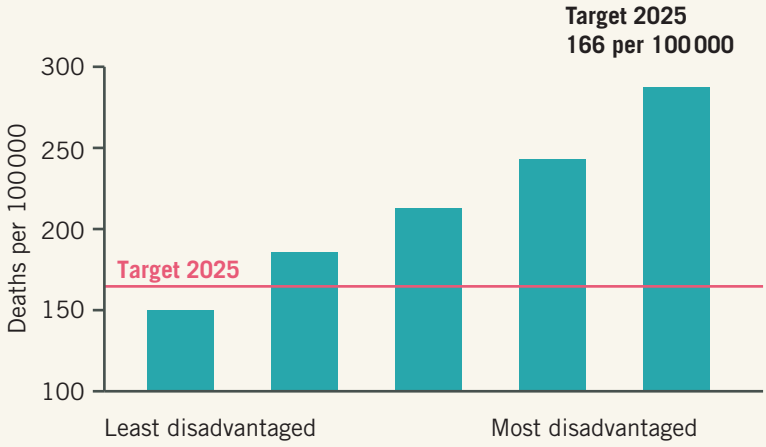


SOURCE: National Mortality Database; Table S5.1.3

FIGURE 2.33 Mortality in Australia by socioeconomic group, 2015

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SOURCE: Australia's health tracker by socioeconomic status report

FIGURE 2.34 Early deaths from major chronic conditions, by socioeconomic status, 2017

There is a link between a person's occupation and mortality in Australia. People employed in manual occupations tend to have higher mortality rates for most causes of death than those employed in clerical or managerial/professional occupations.

For those in the lowest socioeconomic groups, reduced access to income can affect a child's nutrition, access to medical care, environmental safety, the quality and stability of their care, and the provision of appropriate housing, heating and clothing. Children who are from an economically disadvantaged family may endure exclusion from activities accessible to other children. This exclusion can lead to a sense of isolation and may impact on both social and mental health and wellbeing, potentially leading to a range of mental health conditions.



FIGURE 2.35 Individuals employed in manual occupations have an increased risk of workplace injury.

Factors contributing to the variations in health status of high- and low-socioeconomic status populations

Biological factors

Body weight

Being obese poses major health risks by increasing the risk of chronic diseases such as diabetes mellitus, cardiovascular disease and some cancers. The *National Health Survey 2017–18* reports that around 70 per cent of Australians living in areas of most disadvantage were overweight or obese compared with 63 per cent in least disadvantaged areas. Underweight individuals are more likely to be of low-SES, often due to the link between low income and food insecurity.

Blood pressure

The National Heart Foundation of Australia reports that in 2017, the lower the household income, the greater the likelihood exists of people having high blood pressure (with household income of less than $55 000 being

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39 per cent compared to 27.4 per cent if more than $120 000). High blood pressure was 1.2 times as high in the low-SES population compared with the high-SES population in 2014–15 (AIHW, 2016). Hypertension increases risk of a number of serious conditions including stroke and heart failure.

Sociocultural factors

Socioeconomic status

The reduced income experienced by those of low-SES has a negative impact on a number of factors that are vital for optimal health, including housing standards, educational attainment, access to health information and services, and health risk-prevention. Having a low income can also increase the psychological distress experienced by those of low-SES, where a lack of financial security can impact on decision-making processes and create a sense of having a lack of control over one's life. High-SES groups are more likely to have reduced levels of psychological distress due to their financial security.

The relationship between income and health works both ways. The increase in ill-health experienced by low-SES groups has a detrimental effect on their income. For example, people experiencing chronic conditions are less able to earn income and other family members may need to stop working in order to provide care for them. This reduces overall household income and decreases access to a number of necessary resources for health.

Level of education

Low-SES populations have lower levels of educational qualifications. Education is a key factor in improving the health status of low-SES populations. Higher levels of education improve employment prospects, thus improving future income, standard of housing and access to healthcare. Higher levels of education have been associated with a reduced likelihood of engaging in health-risk behaviours, particularly smoking. In addition, improved health literacy is associated with education. Health literacy is defined as the ability to obtain, interpret and understand basic health information and services in ways that enhance health. While most adults do read, those with a low level of education may have difficulty understanding the content and applying information to their own specific situation. People with low levels of health literacy also often find it difficult to navigate the healthcare system.

Employment status

Participation in employment has important consequences for living standards and social and emotional health and wellbeing, including self-esteem, opportunities for self-development and participation in the community.



SOURCE: Lamb et al. (2015)

FIGURE 2.36 Proportion of students meeting educational milestones by socioeconomic category

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Unemployment rates are higher for low-SES populations living in the most disadvantaged areas of Australia compared with those of high SES. For both males and females, people who were unemployed were significantly more likely to report fair or poor health than those employed in mainstream jobs.

Social networks – family

Family can influence a range of factors that have an impact on health status. For example, early educational experiences within the family can impact future academic progress. Students who do not attain the national literacy and numeracy benchmark standards are less likely to enter higher education. This leads to lower employment prospects and the encompassing health issues related to unemployment.

Mission Australia's *Concepts of Community* report (2017) indicates that from their earliest years, young people from disadvantaged groups can be left behind, mostly due to a lack of opportunity and resources. It reported, for example, that young people from low-SES areas were least likely to participate in a range of activities, including sport as a participant or spectator, volunteering and arts/musical/cultural activities when compared with higher SES areas.

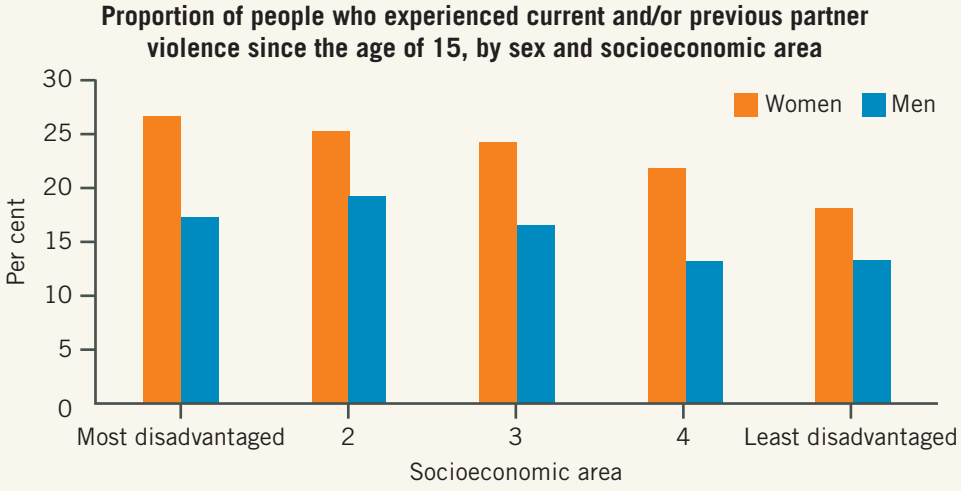
Finally those from a low-SES family may be more likely to experience partner violence. With reference to Figure 2.37 it is evident that as socioeconomic status decreases the proportion of people experiencing partner assault increases. This increases risks of injury as well as mental health problems.

Access to health information

People living in low-SES areas consult doctors more often, but dentists less often, than those with a high SES. Regular screening for illness prevention is also less likely among the low-SES population. Low-SES groups are less likely to use preventative health measures (for example, getting advice about ways to stop smoking) compared with high-SES groups, and inability to access information may be a contributing factor to this.

There are many reasons why low-SES groups are less likely to access health information and therefore use preventative health information. These can include:

- level of educational attainment can impact on literacy levels, and therefore understanding of health messages
- less exposure to health information provided in formal education



Note: 'Partner violence' includes physical and/or sexual violence from a current or previous cohabiting partner and does not include emotional abuse.

SOURCE: AIHW (2019)

FIGURE 2.37 Proportion of people who experienced current and/or previous partner violence by socioeconomic area, 2016

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- less access to resources that provide the information such as media and technology – for example, internet access
- inability to participate in community activities that would expose them to health information due to chronic illness.

Environmental factors

Air quality

There is strong evidence that passive smoking caused by environmental tobacco smoke increases risks of diseases across the lifespan. Including respiratory conditions and lung cancer. The greatest source of exposure to environmental tobacco smoke for children is the family home.

One of the major risk factors for SIDS, as well as risk of ear infections and asthma, is passive smoking around a newborn child. The Cancer Council Victoria reports that in 2016, 20 per cent of people from the lowest socioeconomic group were current smokers compared to 9 per cent in the highest socioeconomic group (people over 14 years old). This increases exposure to secondhand smoke particularly in the home.

Access to physical resources

Low-income households have more difficulty finding and maintaining affordable housing with fully functioning facilities such as cooking facilities, plumbing and an ongoing gas/electricity supply. A functional plumbing system

ACTIVITY 2.8: SOCIOECONOMIC STATUS AND HEALTH

Rate ratio (compared with Q5)

1.0 1.5 2.0 3.0 4.0

no difference times higher than Q5

Socioeconomic group

	Q5 (highest)	Q4	Q3	Q2	Q1 (lowest)
1	Coronary heart disease	Coronary heart disease	Coronary heart disease	Coronary heart disease	Coronary heart disease
2	Lung cancer	Lung cancer	Lung cancer	Lung cancer	Lung cancer
3	Breast cancer	Suicide	Suicide	Suicide	COPD
4	Suicide	Colorectal cancer	Colorectal cancer	COPD	Suicide
5	Colorectal cancer	Breast cancer	Breast cancer	Colorectal cancer	Cerebrovascular disease

Notes:
1. Q1–Q5 refer to area-based quintiles classifed according to Socio-Economic Indexes for Areas 2011 (ABS 2011), specifcally the Index of Relative Socio-Economic Disadvantage (IRSD).
2. 'COPD' refers to chronic obstructive pulmonary disease.
3. Colours represent the rate ratio of the age-standardised premature mortality rate for each socioeconomic group compared with the age-standardised premature mortality rate for the highest socioeconomic group.

SOURCE: AIHW National Mortality Database (2016); Table S3.2.5

FIGURE 2.38 Top five leading causes of premature death, by socioeconomic group

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1 Explain the term 'quintile'.
2 Suggest what 'Q5' and 'Q1' refer to.
3 Outline the similarities and the differences in causes of premature death between Q5 and Q1.
4 Suggest reasons for the differences.
5 Choose three risk factors for health for the Q1 group and identify their impact on this group's health status.

prevents drinking water being contaminated and ensures sewage is appropriately removed from the property. This reduces the risks of infectious diseases. A power supply ensures that food is safely stored (refrigeration), prepared and cooked appropriately, and provides access to internet, radio and television, which enables enhanced knowledge. Low-SES groups experience inadequate housing conditions more than high-SES groups.

TABLE 2.6 Summary of the factors that contribute to variations in health status between low- and high-socioeconomic groups

HEALTH STATUS	BIOLOGICAL FACTORS	SOCIOCULTURAL FACTORS	ENVIRONMENTAL FACTORS
Compared with high-SES groups, low-SES groups experience: - lower life expectancy - higher death rates - more avoidable deaths from causes such as injuries - higher infant mortality rates - higher rates of diabetes - higher rates of coronary heart disease - higher rates of psychological distress and mental health conditions such as depression - higher rates of morbidity from respiratory diseases - higher prevalence of and mortality rates from lung cancer	Compared with high-SES groups, low-SES groups experience: - higher rates of obesity - higher rates of high blood pressure - higher rates of glucose intolerance - higher rates of low-birthweight babies	Compared with high-SES groups, low-SES groups are more likely to have: - lower levels of educational attainment, affecting employment options - higher levels of unemployment - less likelihood of accessing preventative health services	Compared with high-SES groups, low-SES groups are more likely to experience: - greater rates of exposure to tobacco smoke in the home - exposure to high risks in the work environment - poor access to infrastructure and physical resources

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2.11 AUSTRALIANS LIVING WITHIN AND OUTSIDE MAJOR CITIES

Australia is geographically diverse, resulting in many people living large distances from major cities. Australians not living in major cities are most often referred to as living in regional (sometimes referred to as rural) and remote areas. Defining regional and remote areas is challenging because of the diversity of these areas. **Regional and remote populations** are those living outside Australia's major cities and metropolitan (urban) areas.

The Australian Standard Geographical Classification (ASGC) system is used to determine these areas and categorises them based on their level of remoteness as inner regional, outer regional, remote or very remote. Examples of major cities include Melbourne and Geelong. Regional cities such as Bendigo, Ballarat and Mildura are not considered to be major. Figure 2.40 on the next page shows the percentage of people living in each area in 2016.

For those living outside major cities, their environment comprises a range of settings, including large regional centres, coastal settlements, small inland towns, farms and the outback.

A characteristic of remote populations is the high number of Aboriginal and Torres Strait Islander peoples who live in these regions. Although Aboriginal

regional and remote populations: People who live in areas situated outside any city or metropolitan (urban) area that has a population greater than 100 000 people.

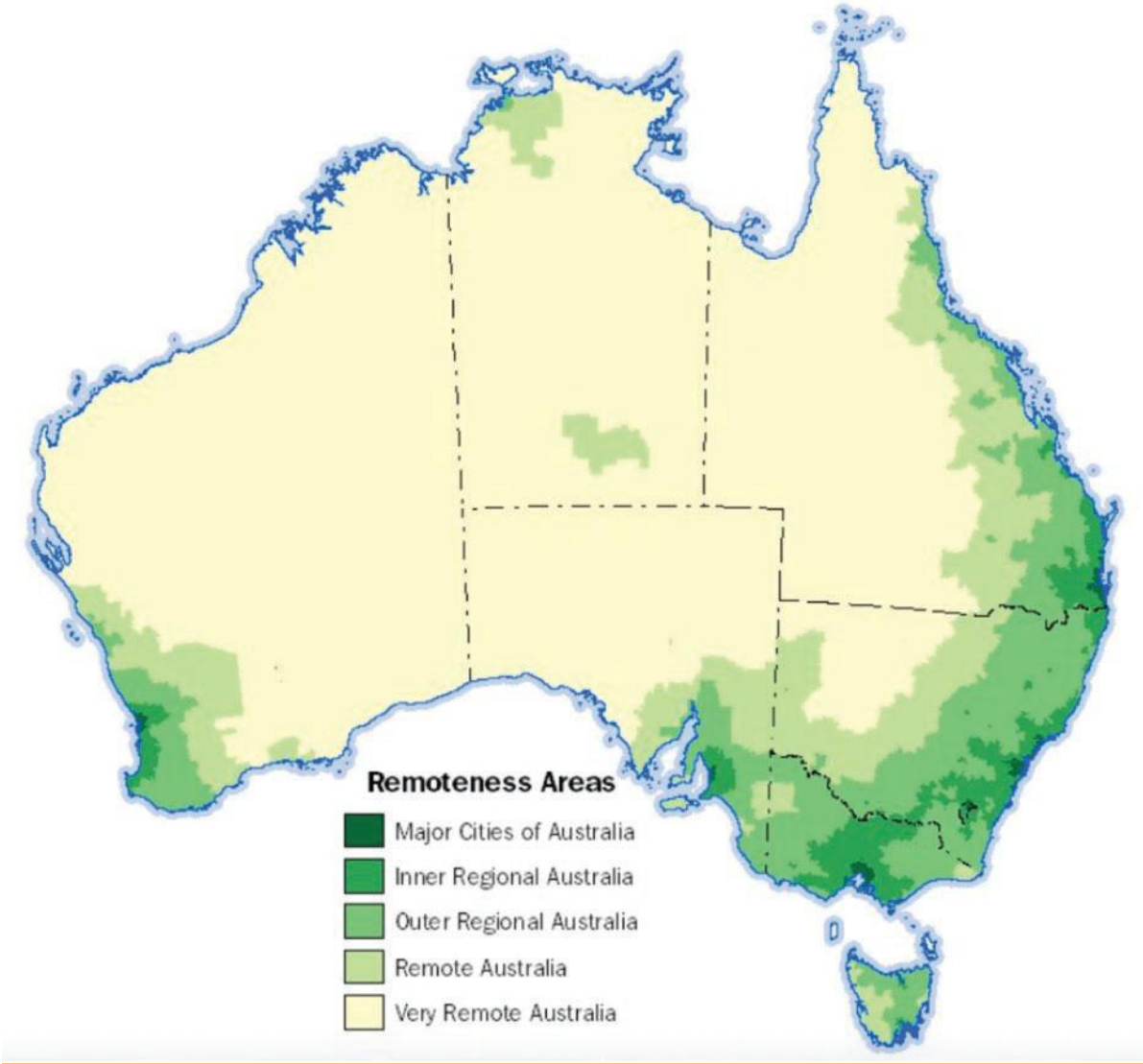


FIGURE 2.39 Classification of the remoteness of the areas of Australia

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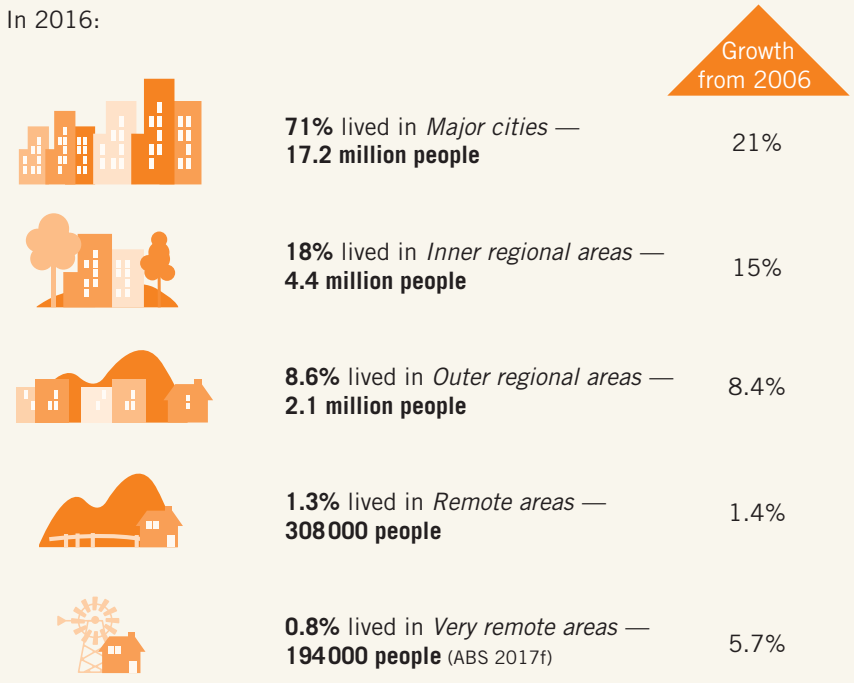


FIGURE 2.40 Proportions of Australians living in each geographical area, 2016

and Torres Strait Islander peoples comprise 2.4 per cent of the total Australian population, they make up 24 per cent of the population in remote areas, including 45 per cent in very remote areas (AIHW, 2016).

Health status of Australians living within and outside major cities

Despite the variation in characteristics of regional and remote areas across Australia, people residing in these areas share the common characteristic that they often live long distances from major cities. In some circumstances, this can impact on a person's ability to access healthcare services and fresh food. Harsher environmental conditions and social isolation also create other challenges for individuals.

Generally, people living outside major cities experience poorer health outcomes, as indicated by health status measures such as life expectancy and mortality rates. Compared with major cities, the life expectancy in regional areas is one to two years lower, and for remote areas it is up to seven years lower.

The AIHW's *Australia's health 2018* report identifies several health status inequalities for those living in regional and remote areas:

- higher mortality rates and lower life expectancy
- higher road injury and fatality rates
- higher reported rates of high blood pressure, diabetes and obesity
- higher death rates from chronic disease such as coronary heart disease
- higher prevalence of mental health problems
- poorer dental health
- higher incidence of poor antenatal and postnatal health
- a higher incidence of babies born with low birthweight to mothers in very remote areas.

Higher injury rates for populations living outside major cities when compared with those who live in major cities can often be associated with agricultural production. The number of deaths associated with this industry is higher

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than for other industries (such as construction, manufacturing and transport). The mining industry also poses a health risk for regional and remote populations in relation to injury.

Mortality rates for people living outside major cities were almost 1.4 times as high as those in major cities in 2015 (age standardised). Data also indicates that potentially avoidable death rates increase as remoteness increases. Very remote areas record approximately 260 deaths per 100 000, compared with major cities recording approximately 100 per 100 000 deaths in 2015. Burden of disease was also shown to increase as remoteness increased (AIHW, 2018). When specific conditions are considered there are noted differences between major cities and outside of major cities. According to the AIHW's *Cancer in Australia 2019* report the age-standardised death rate for all cancers combined increased slightly as remoteness increased – 157.3 deaths per 100 000 in major cities and 195.2 deaths per 100 000 in very remote populations in 2012–16. Preventable cancers such as those associated with tobacco use, and those detectable through screening (for example, cervical cancer), were among the cancers with significantly higher incidence rates in rural and remote areas.

Populations living outside major cities are also more likely to be diagnosed with a communicable disease. Rates of notification for infectious diseases tend to be higher outside major cities; for example, salmonella, Ross River virus, pertussis and sexually transmitted infections are more likely to be notified in regional and remote areas compared with major cities. Children living outside major cities suffer from more decayed, missing and filled teeth than those living within major cities.

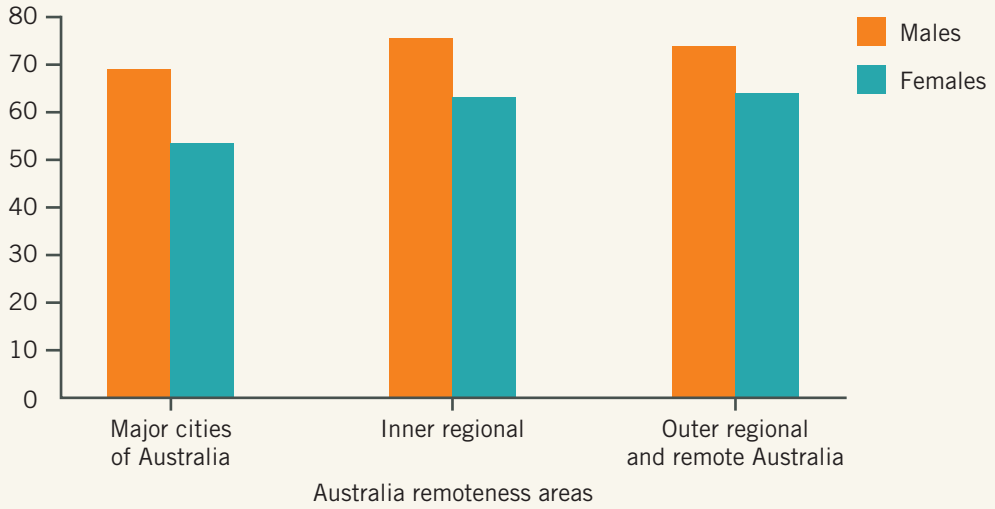
Despite poorer health outcomes for some, the Household, Income and Labour Dynamics in Australia (HILDA) survey found that people living outside major cities often experience greater life satisfaction than those living within major cities (AIHW, 2018).

Factors contributing to the variations in health status of Australians living within and outside major cities

Biological factors

Body weight

As seen in Figure 2.41 the proportion of overweight and obesity increases as remoteness increases, putting those in more remote areas at risk of many chronic diseases.



SOURCE: ABS (2015)

FIGURE 2.41 Persons 18 years and over – proportion overweight or obese by remoteness area

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Birthweight

Australians living outside major cities have a higher percentage of low-birthweight babies compared with major cities. In 2015, babies born to mothers in remote or very remote areas were more likely to be low birthweight compared with major cities – 8.6 per cent and 6.4 per cent respectively.

As previously discussed, low-birthweight babies have an increased risk of a number of conditions. Thus, this biological factor contributes to health status differences between areas outside of Australia's major cities and major cities. When considering the reasons for the larger proportion of low-birthweight babies in very remote and remote areas we could include behaviours such as increased tobacco smoking during pregnancy, geographic location restricting access to health care and higher rates of young (teenage) and older (35+) mothers.

When discussing the impact of biological factors on health status of different population groups, remember that you should not provide the reasons for the differences; these reasons should be discussed as other factors (such as environmental).

Blood cholesterol

Australians residing outside major cities are more likely to have high total cholesterol than those living in major cities.

TABLE 2.7 Percentage of high cholesterol by remoteness

AREA	PERCENTAGE (%)
Major cities	31.0
Inner regional	38.1
Outer regional and remote	36.7

SOURCE: Heart Foundation (2016)

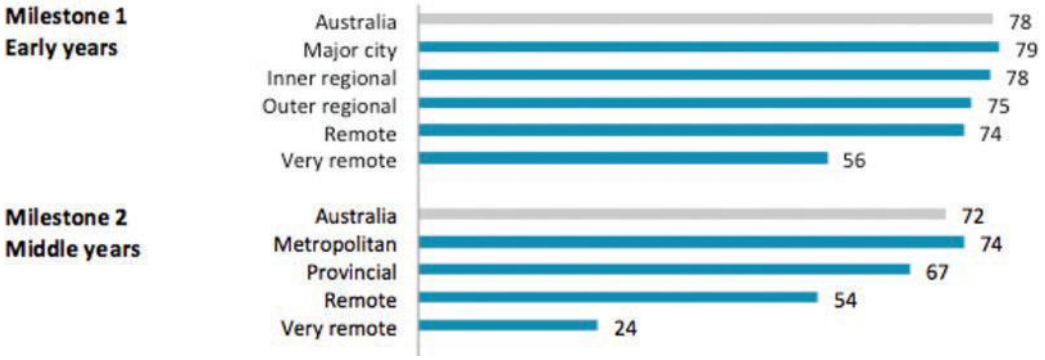
Sociocultural factors

Income

People who live outside major cities generally have lower household incomes and those in remote/very remote localities have the lowest incomes of all Australians. People living outside major cities of Australia are more likely to require a social security payment due to unemployment or disability. The overall lower income prominent in regional and remote areas compared with those living within major cities results in an increase in other risk factors, such as food insecurity and poor-quality housing.

Level of education

In 2017, Year 12 certification rates were highest in major cities of Australia – 80 per cent compared with remote and very remote areas at 60 per cent. Also, children in remote areas are less likely to achieve educational milestones, as seen in Figure 2.42.



SOURCE: Lamb et al. (2015)

FIGURE 2.42 Proportion of children meeting educational milestones by location

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Employment status

In most Australian states, more people living outside major cities experience unemployment than those in major cities. In many regional areas, people have fewer opportunities for employment – particularly in skilled professional employment – and are more likely to be out of work longer than their major city counterparts, particularly young people under 25 years of age, contributing to a consistently low income. Job insecurity can contribute to poorer mental health. This, in turn, can lead to stress and the adoption of risky coping behaviours such as tobacco use, alcohol use and lack of exercise, resulting in higher rates of chronic conditions such as cardiovascular disease, type 2 diabetes mellitus, COPD and some cancers.

Environmental factors

Climate change and natural disasters

Australia's regional areas and remote environment, and the health of people living outside major cities, can be influenced dramatically by climatic conditions such as drought, natural disasters and the availability of natural resources. While natural disasters have always occurred, climate change is exacerbating their force and frequency. These conditions can affect population employment, infrastructure, the availability of food and the provision of services. The livelihoods of people outside major cities are more exposed to the potential damage from climate change than those of people living in cities as evident in the 2019–20 bushfire crisis. Infrastructure damage can also result from flood, bushfire and rising sea levels.

Environmental disasters, such as bushfire, increase the incidence of injury and death due to burns and smoke inhalation. Mental illness also increases due to the stress of experiencing the disastrous outcomes of climate change and suicide rates among rural farmers are uncharacteristically high. These areas also experience lower access to health services as a result of the reduced economic viability of towns in rural and remote areas. Finally, increased food prices and reduced access to healthy food choices as a result of reduced agricultural production and increased global demand occur due to climate change.

FIGURE 2.43 Climate change is impacting on the lives of people living in regional and remote areas. Farmers of both food crops and livestock, in particular, are affected by periods of intense drought or bushfire.



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Access to physical resources

A combination of poor-quality roads, a lack of road signage and even road rules in some very remote areas, as well as the need to drive long distances regularly in regional and remote areas contribute to the higher rate of injuries from road trauma compared with major cities. Travelling over long distances on country roads can be more dangerous because of factors such as higher speeds, poor road quality, fatigue from longer driving times and animals on the road. The rate of dying due to a land transport accident is more than four times as high for those living outside major cities as it is for those living within them.

Smaller populations living in regional and remote areas experience limitations in available health services and healthcare workers. Access to health services is influenced by the lower levels of access to specialists and major hospitals in regional and remote areas, as well as longer travelling distances to seek help. Health workers in regional and remote areas also tend to work longer hours than those in major cities. This can put additional strain on them and result in difficulties retaining staff in the longer term.

People living in remote and very remote areas have reduced access to breast and bowel cancer screening and selected hospital procedures, as well as higher rates of potentially avoidable hospitalisations. People living in remote areas of Australia may need to travel long distances or relocate to receive specialised treatment.

Those living outside major cities, particularly in remote areas, can have limited access to some recreational facilities such as parks and sporting ovals. Play outside of appropriate facilities can lead to an increase in injury rates.

ACTIVITY 2.9: HEALTH AND RISK FACTORS FOR PEOPLE LIVING WITHIN AND OUTSIDE MAJOR CITIES

1 Describe how regional and remote areas are classified and what the general characteristics of these populations are.
2 Compare and contrast the health status of people living in major cities and those living outside major cities. Explain how different factors could be improved to reduce the inequalities in health status that exist.
3 Injury rates are higher among populations living outside major cities. In pairs, brainstorm the types of injuries that can occur and the risk factors associated with each of them.
4 Outline the possible impact of issues relating to limited access to healthcare services for populations living outside major cities.

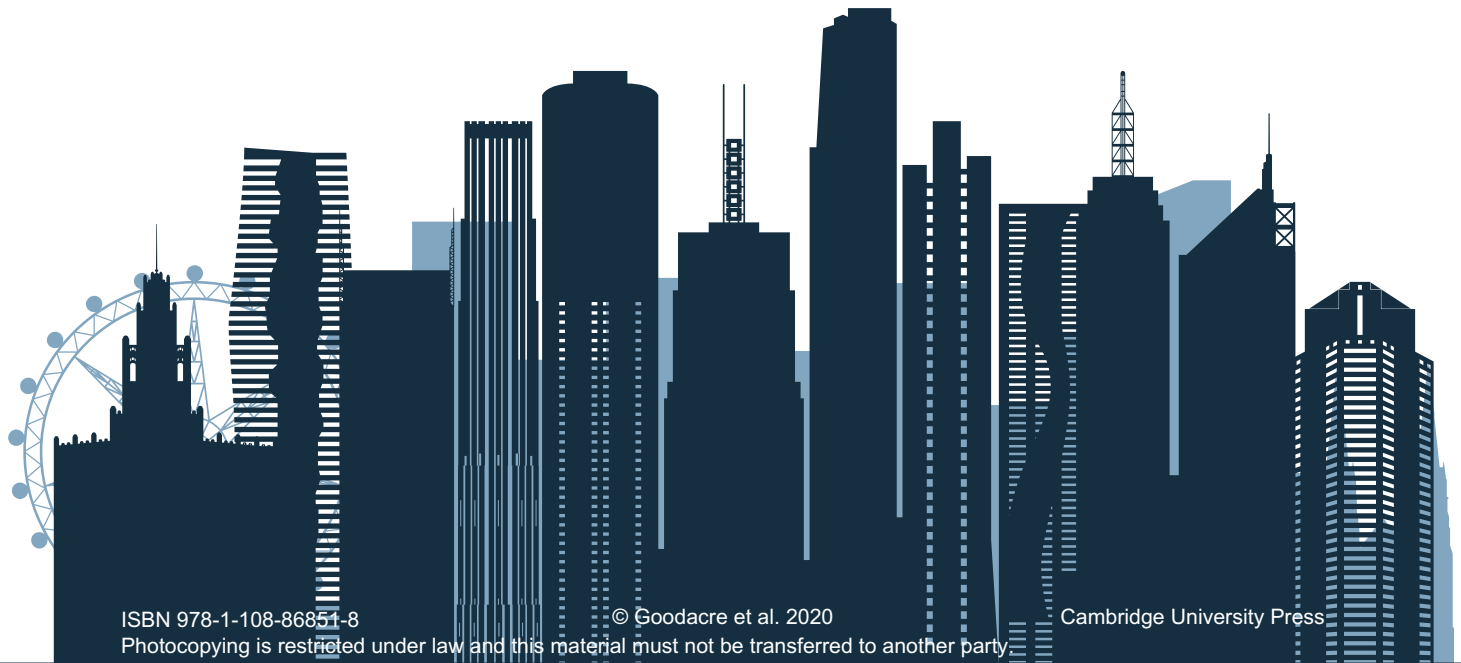
FIGURE 2.44 Working in a hazardous environment increases the risk of injuries.



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TABLE 2.8 Summary of factors contributing to the variations in health status of Australians living within and outside major cities

HEALTH STATUS DIFFERENCES	BIOLOGICAL FACTORS	SOCIOCULTURAL FACTORS	ENVIRONMENTAL FACTORS
Compared with those living within major cities, those living outside major cities have: - lower life expectancy - higher road injury and fatality rates - higher rates of other injuries - higher reported rates of high blood pressure, diabetes and obesity - higher death rates from chronic disease such as coronary heart disease - higher prevalence of mental health problems - poorer dental health - higher incidence of poor antenatal and postnatal health - higher incidence of babies born with low birthweight to mothers in very remote areas - higher infant mortality rates in very remote areas	Compared with those living within major cities, those living outside major cities have: - higher rates of overweight and obesity - higher rates of insulin resistance and impaired glucose regulation - higher rates of high blood pressure - higher rates of low-birthweight babies - higher rates of high blood cholesterol levels	Compared with those living within major cities, those living outside major cities experience: - difficulty accessing a range of healthcare facilities and services - difficulty obtaining social support from the wider community - higher rates of unemployment - lower incomes - lower levels of educational attainment	Compared with those living within major cities, those living outside major cities have: - harsh environmental conditions; e.g. extreme sun exposure - reduced access and reduced quality in recreational facilities - less access to fluoridated water - more dangerous work environments



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CHAPTER SUMMARY

- Australia is essentially a healthy country with more than half the population considering themselves to be in very good or excellent health.
- Health status inequalities exist between population groups including: Indigenous compared with non-Indigenous, males compared to females, high-SES compared to low-SES and those living outside of Australia's major cities compared to those living with in major cities.
- Although mortality and disease burden rates among Australians are generally decreasing, these decreases are not equally distributed throughout the entire population.
- Biological factors are factors relating to the body that impact on health and wellbeing and overall levels of health status.
  - These include: genetics, body weight, blood cholesterol, blood pressure, blood glucose regulation, birthweight, age, hormones.
- Sociocultural factors are aspects of society and the social environment that impact on health and wellbeing and overall levels of health status.
  - These include: social networks including family and peers, socioeconomic status, level of education, employment status, housing issues including overcrowding and homelessness, and access to health information. Other factors may include culture, media, income and social expectations.
- Environmental factors are the surroundings in which we live, work and play, that impact health and wellbeing and overall levels of health status.
  - These include: air, water and sanitation quality; access to physical resources such as transport, recreation facilities or healthcare; workplace; climate change and natural disasters. Other factors can include geographic location and exposure to hazards.
- In general, males experience poorer health status than females.
  - Factors influencing the health of males include higher levels of high-risk employment and poor health service use, particularly preventative health services.
- Aboriginal and Torres Strait Islander peoples generally have poorer health status than non-Indigenous Australians.
  - Factors influencing the health of Aboriginal and Torres Strait Islander peoples include: low-SES, level of education, access to resources, overcrowding and homelessness, low-birthweight babies and high blood pressure.
- Those from low-SES backgrounds generally have poorer health status than those from higher socioeconomic status backgrounds.
  - Factors influencing the health of those from lower socioeconomic status include: education levels, unemployment, access to health services (both preventative and treatment), occupational exposures and quality of housing.
- People who live outside major cities generally have poorer health status than those in major cities.
  - Factors influencing the health of those outside of Australia's major cities include: education levels, lower household incomes, higher rates of unemployment and fewer employment opportunities in skilled or professional labour, exposure to hazardous environments.

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KEY QUESTIONS

SUMMARY QUESTIONS

1 Describe the changes that occur in relation to self-assessed health status as an individual moves through the lifespan.

2 Explain the difference in the life expectancy and the health-adjusted life expectancy for Australians.

3 Define chronic disease. Provide four examples of chronic diseases that contribute to the disease burden in Australia.

4 Identify the three categories of the factors influencing health outcomes. Explain and provide an example for each of the factors.

5 Describe the link between chronic disease and each of the factors influencing health outcomes. Use specific examples of each type of factor.

6 Identify and explain two examples from the biological, sociocultural and environmental factors that contribute to inequalities in health status among Australians living in and outside major cities.

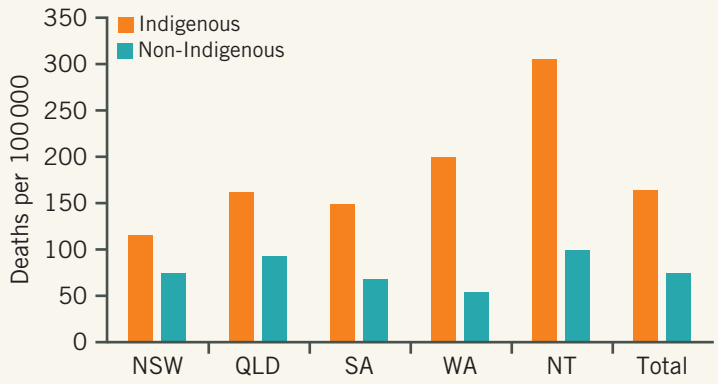
7 Identify and explain two examples from the biological, sociocultural and environmental factors that contribute to inequalities in health status among Indigenous and non-Indigenous Australians.

8 Identify and explain two examples from the biological, sociocultural and environmental factors that contribute to inequalities in health status between high- and low-SES.

9 Identify and explain two examples from the biological, sociocultural and environmental factors that contribute to inequalities in health status between males and females.

EXTENDED RESPONSE QUESTION

SOURCE 1



SOURCE: Closing the gap report (2019)

FIGURE 2.45 Child mortality rates for Indigenous and non-Indigenous Australians, 2013–17

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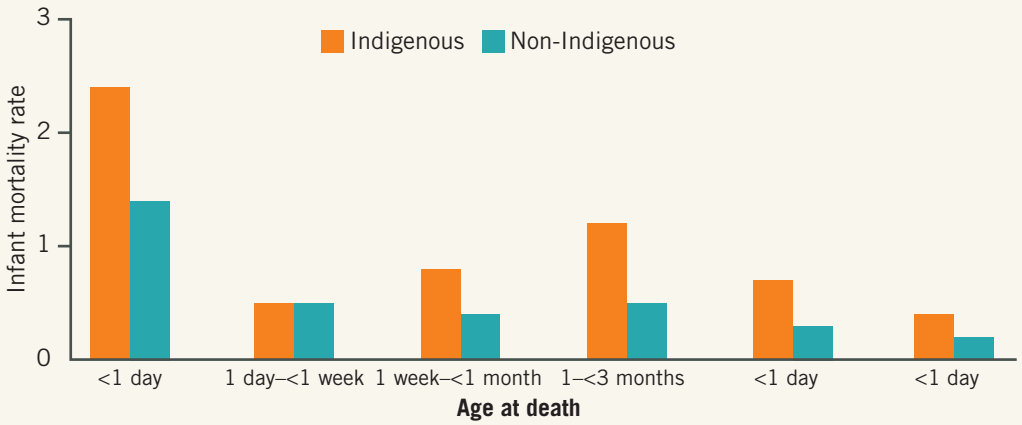
SOURCE 2

TABLE 2.9 Life expectancy of Indigenous and non-Indigenous Australian males and females, 2005–07 and 2010–12

INDIGENOUS STATUS	MALES 2005–07	MALES 2010–12	FEMALES 2005–07	FEMALES 2010–12
Indigenous	67.5	69.1	73.1	73.7
Non-Indigenous	78.9	79.7	82.6	83.1
Difference	11.4	10.6	9.6	9.5

SOURCE: ABS (2013)

SOURCE 3



Note: Deaths registered in 2012 and earlier are based on the final version of cause of death data; deaths registered in 2013 are based on revised data; deaths registered in 2014 and 2015 are based on preliminary cause of death data. Revised and preliminary data are subject to further revision by the Australian Bureau of Statistics.

SOURCE: National Mortality Database

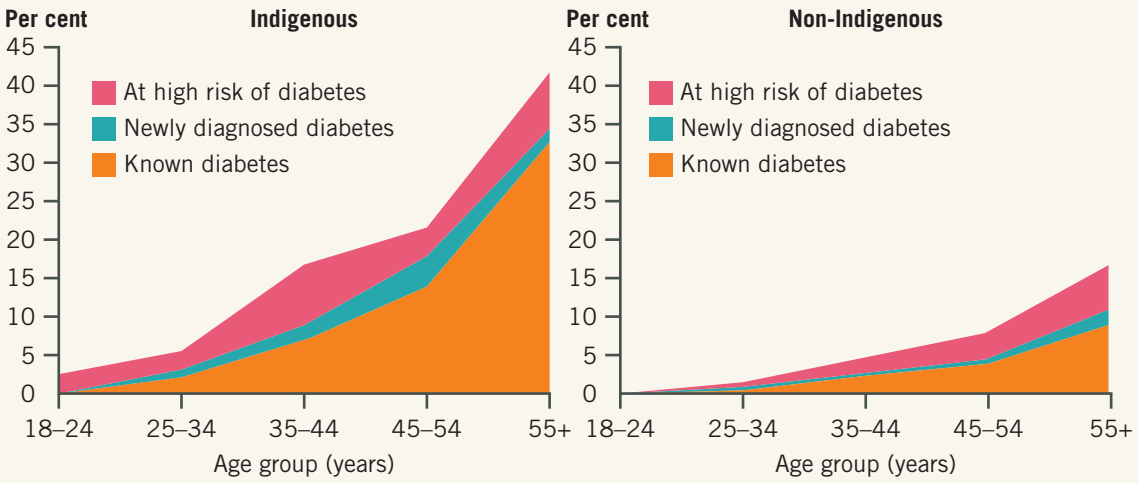
FIGURE 2.46 Infant mortality rates of Indigenous and non-Indigenous Australians

QUESTION

Compare the health status of Indigenous and non-Indigenous Australians and outline advantages at a national level of addressing a range of biological, sociocultural and environmental factors to improve the health status of Indigenous Australians. (10 marks)

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EXAMINATION PREPARATION QUESTIONS



SOURCE: ABS (2014b)

FIGURE 2.47 Prevalence rates of diabetes, by Indigenous status

A Using the data in Figure 2.47, outline two differences in the prevalence rates of diabetes between Aboriginal and Torres Strait Islander peoples and other Australians. (2 marks)

B Identify one biological and one environmental factor, and describe how they could contribute to the difference in health status identified in Question A. (4 marks)

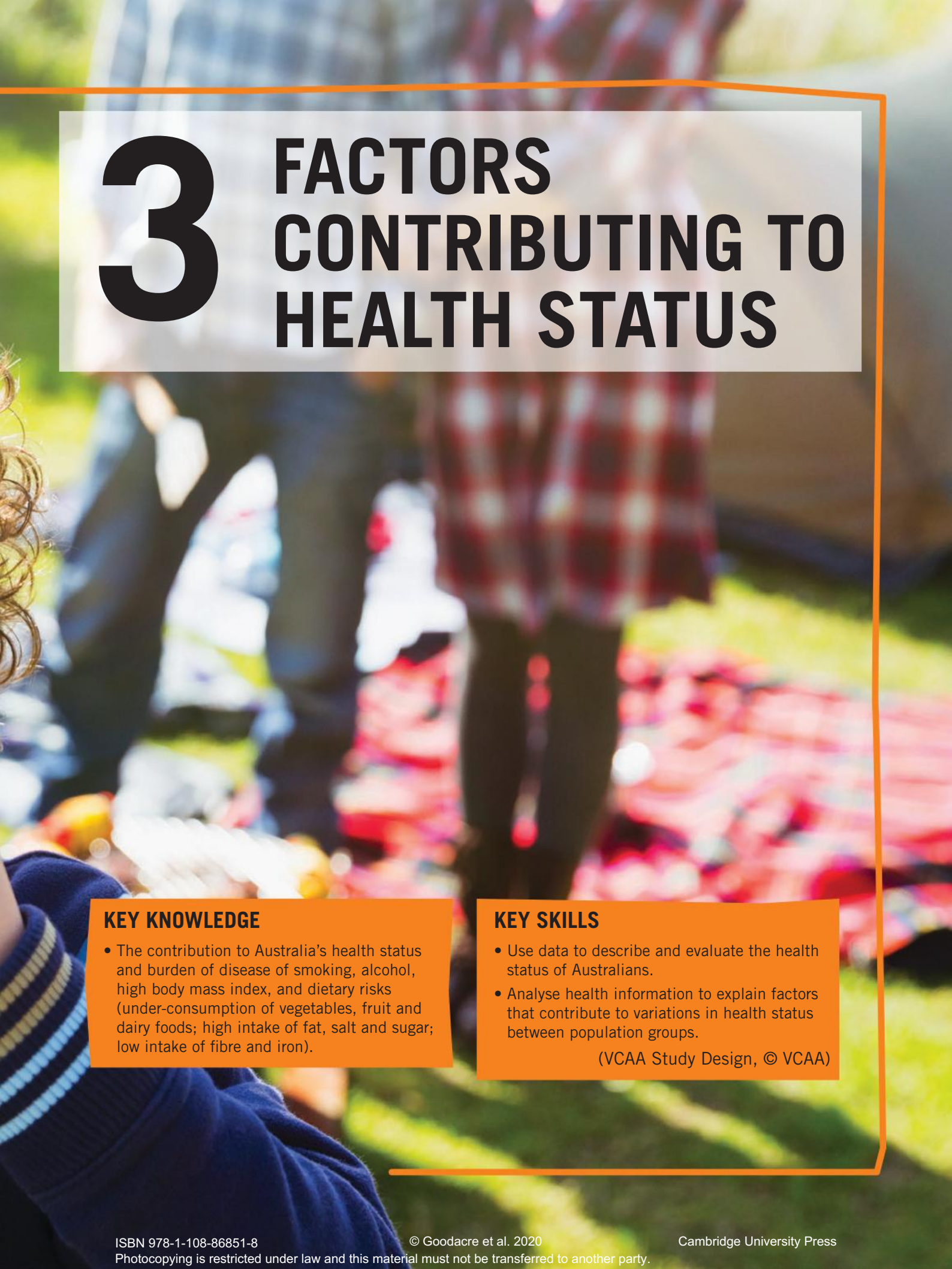
C Indigenous Australians are more likely to be of low socioeconomic status than other Australians. Identify one other factor and, using an example, outline the relationship between socioeconomic status, the selected factor and the prevalence of diabetes in Indigenous populations. (4 marks)

D Other than diabetes, discuss one variation in health status between Indigenous Australians and other Australians that could result from the relationship outlined in Question C. (2 marks)

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3 FACTORS CONTRIBUTING TO HEALTH STATUS

KEY KNOWLEDGE

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

KEY SKILLS

- Use data to describe and evaluate the health status of Australians.
- Analyse health information to explain factors that contribute to variations in health status between population groups.

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AOS 1

INTRODUCTION

Despite the overall improvement in health of the Australian population during the past decade, there are still many factors that influence health outcomes. Disease burden in Australia as a result of lifestyle choice is often preventable due to modifiable risk factors. In order for improvements in health status to be achieved, Australians need to be educated, and be willing and able to make changes by adopting healthy choices in relation to these modifiable risk factors.

The first part of this chapter focuses on the contribution of choices made by individuals in relation to smoking and alcohol and the impact of high body mass index on health status and burden of disease. The second part of this chapter focuses on the contribution of dietary risk factors (under-consumption of vegetables, fruit and dairy foods), high intake of fat, salt and sugar and low intake of fibre and iron to Australia's health outcomes.

What you need to know

- An understanding of each of the lifestyle choices (factors) and the diseases attributed to each factor:
  - smoking
  - alcohol
  - high body mass index
  - under-consumption of vegetables, fruit and dairy foods
  - high intake of fat, salt and sugar
  - low intake of fibre and iron
- How each lifestyle choice (factor) can contribute to health status and burden of disease in Australia
- Health status indicators
- What burden of disease relates to (DALY, YLD, YLL)

What you need to be able to do

- Name and explain each of the lifestyle choices (factors):
  - smoking
  - alcohol
  - high body mass index (BMI)
  - under-consumption of vegetables, fruit and dairy foods
  - high intake of fat, salt and sugar
  - low intake of fibre and iron.
- Explain how each lifestyle choice (factor) impacts the body and increases the risk of particular diseases (or injury particularly in the case of alcohol).
  - You don't need to explain each disease in detail but you do need to make reference to the disease when linking the risk factors to health status or burden of disease.
- Describe how each lifestyle choice (factor) can contribute to health status (with reference to a health status indicator) and burden of disease (DALY, YLD, YLL) in Australia.
- Interpret data to explain levels of health status and burden of disease.
- Analyse the impact of each risk factor and related health concern to explain the variations in health status between population groups.

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According to the latest Australian Burden of Disease study, 38 per cent of the burden of disease could have been prevented by reducing the exposure to modifiable risk factors. The risk factors examined that contribute to the most burden were tobacco use (9.3 per cent), overweight and obesity (8.4 per cent), dietary risks (7.3 per cent), high blood pressure (5.8 per cent) and high blood plasma glucose (including diabetes) (4.7 per cent).

SOURCE: AIHW (2015) Australian Burden of Disease Study

3.1 SMOKING

Tobacco smoking

Tobacco smoking is the practice of inhaling tobacco smoke into the mouth, and then releasing it. Passive smoking is involuntary inhaling of smoke from other people's tobacco products.

Despite a decline in daily smoking rates to the lowest they have ever been, smoking remains one of the leading causes of preventable illness, disability and premature death. Tobacco smoking is the number one modifiable risk factor for many chronic conditions in Australia.

Tobacco smoke contains more than 7000 chemicals, many of which are known to be harmful substances, including tar, nicotine, carbon monoxide, benzene, formaldehyde and hydrogen cyanide. Every time tobacco smoke is inhaled, these chemicals go into the lungs, move throughout the blood stream and are absorbed by the body, adversely affecting all organs and body systems. Many of these chemicals are known carcinogens (cancer-causing) and tobacco smoke itself is carcinogenic.

Smoking may be detrimental to physical fitness because it reduces the ability of the blood to carry oxygen and increases heart rate and basal metabolic rate. This counteracts the benefits of physical activity by impacting on cardiovascular fitness. Tobacco use causes reduced blood circulation by narrowing and hardening blood vessels.

Tobacco use primarily increases the risk of cardiovascular disease, some cancers, particularly lung and oesophageal cancer, COPD and respiratory diseases. It is also a risk factor for complications during pregnancy as well as being associated with low-birthweight babies and a range of other conditions identified in Figure 3.2. Smoking harms nearly every organ in the body, including the heart, blood vessels, lungs, eyes, mouth, reproductive organs, bones, bladder and digestive organs. Of major concern, however, is the way smoking affects the heart and blood vessels, and how it causes the development of cancerous cells throughout the body.

Smoking translates to preventable premature death, hospitalisations and living with illness every day, resulting in reduced health status and increased burden of disease every year.

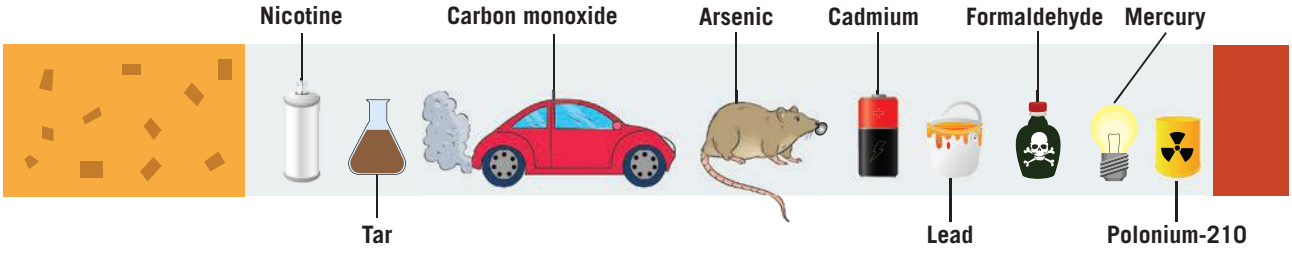


FIGURE 3.1 Poisonous chemicals in cigarettes

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FIGURE 3.2 Many diseases and conditions are associated with smoking.

Tobacco smoking and cardiovascular disease

Tobacco smoking is a leading cause of cardiovascular disease (CVD) morbidity and mortality. Smoking increases the risk of developing cardiovascular diseases (including coronary heart disease, stroke, and blood vessel disease) by damaging the lining of the arteries, leading to a build-up of plaque (atheroma), which narrows the artery and reduces blood supply. Because nicotine and carbon monoxide in tobacco smoke reduces the amount of oxygen in the blood, the heart has to pump harder to supply the body with the oxygen it needs. The nicotine in cigarettes also stimulates the body to produce adrenaline, which makes the heart beat faster and raises blood pressure.

The chemicals in tobacco smoke can cause damage and thickening of the blood vessel walls restricting blood flow and increasing the stickiness of blood platelets. This increases the risk of blood clots forming leading to a range of conditions, including stroke and heart attack. Smoking also reduces the elasticity of the blood

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vessels and their ability to expand and contract as the heart is pumping blood. This increases the risk of the blood vessels rupturing, leading to angina, heart attack and stroke. Compared to those who have never smoked, smokers have double the risk of stroke, heart failure and heart attack and the risk of premature death from these diseases is tripled.

Tobacco smoking and cancer

Tobacco smoking is associated with a wide range of cancers. It causes significant damage to the cells in nearly every organ in the body, including to key genes that protect against cancer. Benzene, polonium-210, benzopyrene and nitrosamines are only a few of the chemicals present in cigarettes but have all been shown to cause DNA damage. It is the DNA in all cells that controls how the cell works and replicates. Therefore, if DNA is damaged, cell multiplication and replication can go wrong, increasing the risk of abnormal and uncontrollable cell growth and the development of cancerous tumours.

By itself, the damage to genes can cause normal cells such as lung cells to turn cancerous but the process is also heightened by the inflammatory effect of tobacco smoke. Inflammation is part of the immune system's response to disease or tissue damage. The good aspect of inflammation is that it causes an increased number of white blood cells, hormones and other substances to appear in the affected area in order to attack the invaders (for example, bacteria) and repair damaged cells. This is how the body rebuilds damaged tissues and how wounds are healed. However, the inflammation can also be a driver for developing cancer.

Chemicals in tobacco smoke reduce the efficient functioning of the body's system to remove toxins, so smokers are less able to effectively remove toxic chemicals than those with healthy lungs and blood. As a result of a build-up of harmful toxins, damage to the body's cells can occur, increasing the risk of cancer. In particular, it is the lungs' 'cleaning system' that is damaged, leading to the build-up of harmful toxic substances, which results in lung irritation and damage to the cells.

According to the AIHW *Burden of Disease Study*, 'tobacco use was responsible for over 75 per cent of the disease burden due to lung cancer, 72 per cent of the burden due to COPD and over 52 per cent of the burden from oesophageal cancer' (AIHW, 2015).

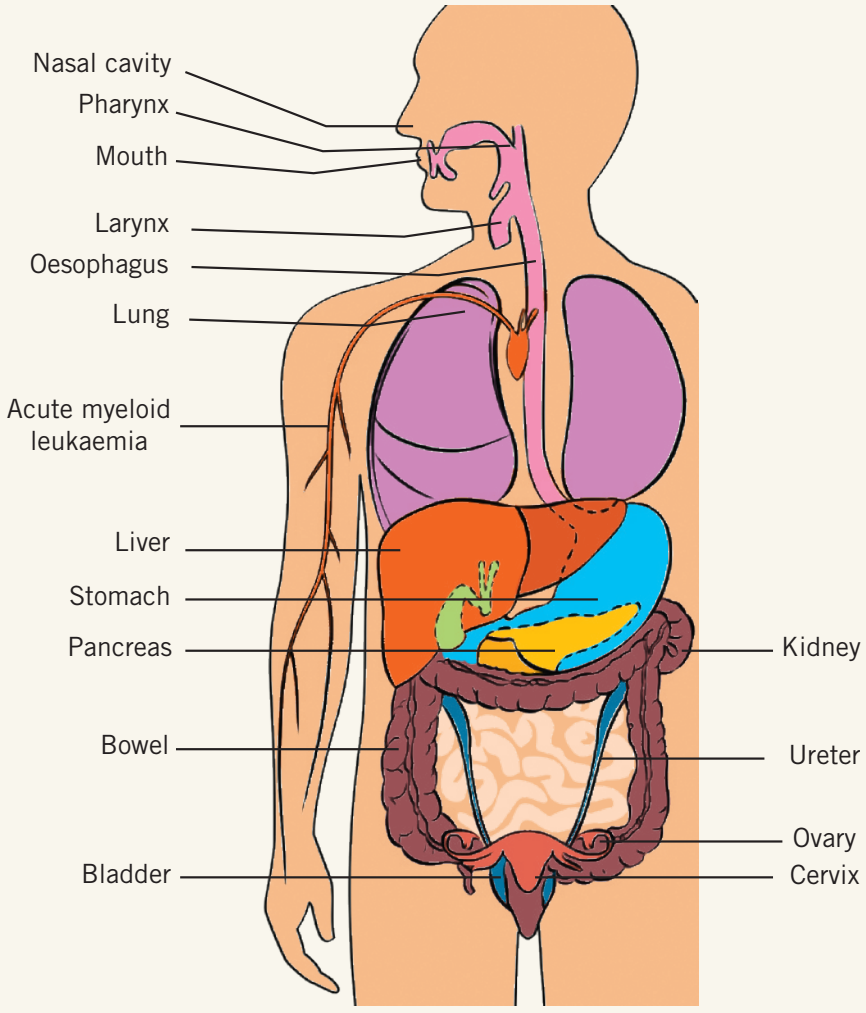


FIGURE 3.3 Cancers associated with smoking

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Tobacco smoking and other health concerns

Smoking also causes respiratory problems, which can include increased coughing, phlegm, wheezing, chest colds, shortness of breath and asthma. This is due to tobacco smoke causing irritation, swelling and narrowing of the airways of the lungs and excess mucus in the lung passages. This can cause permanent damage to the air sacs of the lungs and therefore permanent respiratory conditions such as COPD.

Passive smoking can also lead to health problems, and long periods of exposure can cause many of the same health problems as active smoking. There is significant evidence suggesting non-smokers breathing in second-hand smoke can develop coronary heart disease as a result of damage to the arteries and blood vessels. For children who are exposed to passive smoking on a regular basis, it can cause respiratory infections, ear infections, slower lung growth, decreased lung function, asthma, pneumonia and bronchitis. Smoking during pregnancy can cause miscarriages, low birthweight and other complications, such as increased risk of infection, impaired foetal development, premature births and stillborn births. This is because the harmful toxins and chemicals cross the placenta and into the blood stream of the foetus, negatively impacting the development of the child. Smoke in the home (environmental smoke) has been associated with an increased risk of Sudden Infant Death Syndrome (SIDS) in newborn babies.

Current smokers have significantly higher risk of peripheral vascular disease compared to those who have not been smokers. Smoking can damage blood vessels in peripheral areas of the body such as those of the legs, arms, hands and feet. This can reduce the diameter of the blood vessels leading to a reduced blood supply to the extremities, resulting in blood clots, gangrene and amputation.

Smokers with type 2 diabetes mellitus have greater difficulty maintaining stable blood glucose levels due to nicotine reducing the effectiveness of insulin and are therefore at greater risk of complications associated with type 2 diabetes mellitus such as kidney disease and coronary heart disease.

DISCUSS



There has been a decline in the number of mothers smoking during pregnancy in recent years.

Discuss the importance of this decline for the health outcomes of unborn babies and their mothers.

Tobacco smoking variations between population groups

Although tobacco use is declining, it is still a factor that continues to be of great concern among various population groups. Recent data from Cancer Council Victoria (2019), indicated daily smoking declined among males (down from 15.9 to 12.2 per cent) and females (from 11.3 to 9.4 per cent) between 2015 and 2018,

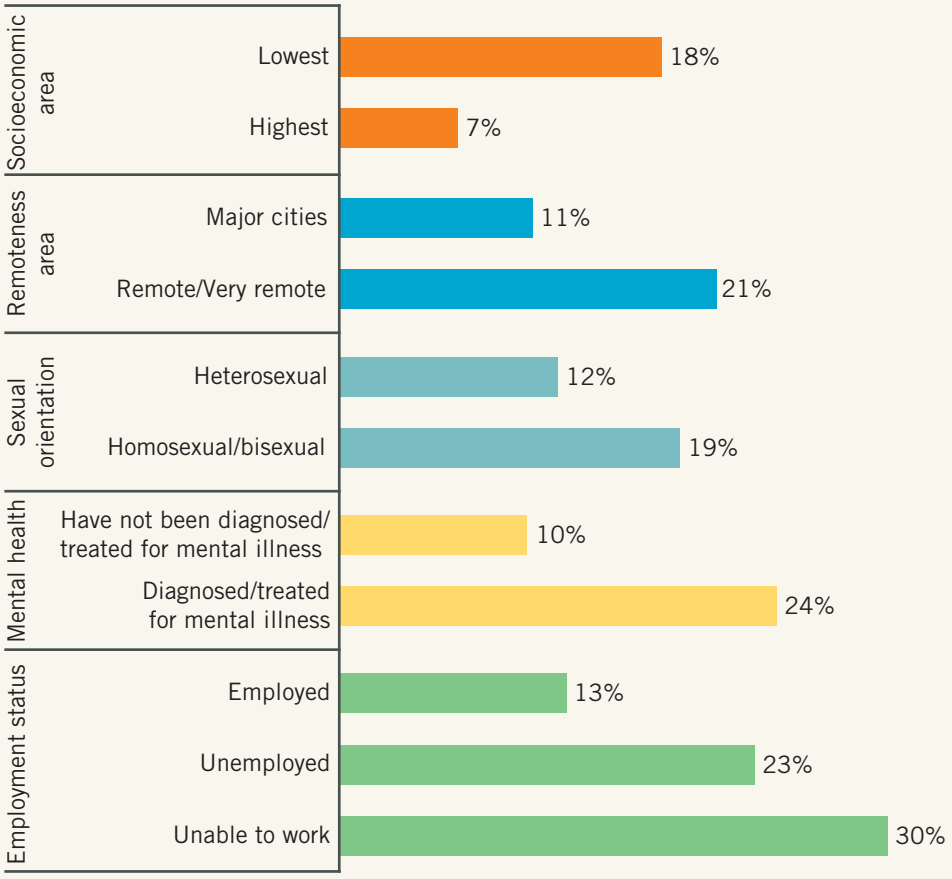
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showing that more males than females are daily smokers. For both sexes, the age group with the highest number of smokers is 30–49 years.

Compared with people in major cities, those living in regional and remote areas are more likely to smoke tobacco (1.8 times more likely). This is a contributing factor to higher rates of some cancers, cardiovascular disease and respiratory diseases.

Those with the lowest socioeconomic status (SES) are also far more likely to smoke daily compared to people with the highest socioeconomic status. According to recent Cancer Council Victoria data (2019), among Victorian adults residing in the most disadvantaged (low SES) areas, daily smoking reduced from 16.8 per cent in 2015 to 13 per cent in 2018. Daily smoking prevalence remained consistently lower and also declined, from 11.8 to 9.6 per cent, among adults living in mid to high SES areas.

A recent Australian study published in BMC Medicine (July 2019) found that compared to those who never smoked, current smokers were, on average, younger, less likely to be urban residents, of lower income and education level, and less likely to hold private health insurance; they were more likely to report consuming ≥ 15 alcoholic drinks/week and to have a body mass index < 20 kg/m^2.



SOURCE: AIHW, Australia's Health (2018)

FIGURE 3.4 Proportion of people who are daily smokers, by selected demographic characteristics, 2016

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FIGURE 3.5 The Aboriginal Quitline logo was developed in consultation with Aboriginal community groups.

Smoking during pregnancy is also more common in the low-SES group bringing an increased risk of pregnancy complications. Chemicals in tobacco, such as nicotine and carbon monoxide, reduce the oxygen supply to the unborn baby, due to passing through the placenta. These complications may continue after childbirth – especially if the parents smoke.

Although smoking rates among Aboriginal and Torres Strait Islander peoples have also declined, these members of the population are still 2.7 times as likely as other Australians to smoke tobacco (AIHW, 2018). Higher rates of smoking have been reported for Aboriginal and Torres Strait Islander mothers, and smoking during pregnancy is more than three times more common in this group than among other pregnant Australian women. As a consequence of high rates of smoking, Quit messages have been specifically designed to be relevant and targeted to the Aboriginal community along with the Aboriginal Quitline.

Smoking of illicit drugs

In 2015, 2.7 per cent of the disease burden in Australia was due to illicit drug use and contributed to 13 diseases and injuries including infections, liver cancer, chronic liver disease and mental and substance use disorders. Illicit drug use includes burden from opioids, amphetamines, cocaine and cannabis and other illicit drug use, as well as unsafe injecting practices (AIHW, 2015).

Smoking of illicit drugs is also a health risk factor. Cannabis is an illicit drug that is typically smoked. It is obtained from the leaves, stems, flowers and seeds of the Cannabis sativa plant. This plant has an active psychotropic ingredient that can cause a range of effects, including typically making the user feel relaxed, which affects coordination, reduces attention span and causes short-term memory loss. Cannabis is the most widely used illicit drug in Australia (AIHW, 2019). Cannabis-related psychosis (similar to schizophrenia), suicide, road-traffic accidents and dependence were estimated to account for 0.2 per cent of the total disease burden in Australia. The consequences of smoking illicit drugs can be varied and numerous, including drug-related psychosis, suicide, road trauma, mental health issues and respiratory illnesses increasing both fatal (YLL) and non-fatal (YLD) burden of disease.

The intoxicating effects of smoking cannabis can occur within seconds to minutes of using the drug, and can last for three hours, with larger doses causing more severe effects such as memory impairment.

Cannabis use can cause confusion, excitement and anxiety. Users may also have hallucinations that can detrimentally affect mental health. Chronic cannabis use can cause respiratory illnesses such as asthma, lung cancer and chronic bronchitis.

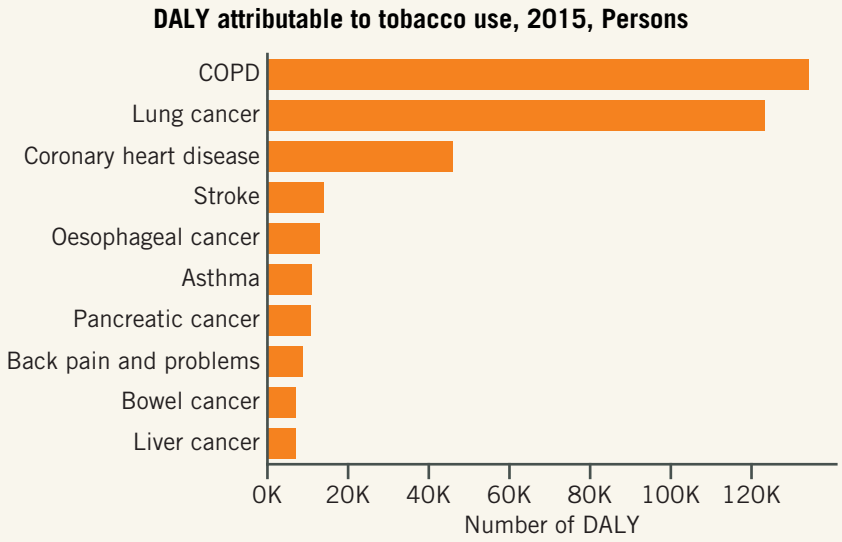


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Harms from illicit drugs affect all Australian communities, families and individuals, either directly or indirectly. These harms are numerous and include health impacts such as injury, poisoning and mental illness; social impacts such as violence, crime and trauma; and economic impacts such as related costs of health care and law enforcement.

SOURCE: AIHW, Australia's Health (2018), p. 208

ACTIVITY 3.1: DATA ANALYSIS



SOURCE: AIHW, Burden of Disease Report (2018) (interactive data)

FIGURE 3.6 Top 10 diseases linked to tobacco use

Tobacco use is considered to be one of the most detrimental influences on the health of the Australian population.

1 With reference to the above data, discuss the contribution of tobacco smoking to burden of disease in Australia in 2015.
2 Describe how tobacco smoking can contribute to cardiovascular disease and cancer.
3 Discuss the effects of passive smoking on health outcomes.
4 Choose a population group that has high rates of smoking and outline a sociocultural, biological and environmental factor that contributes to the increased rates.
5 Identify organisations that are currently working to decrease the incidence of tobacco use in Australia. Describe the elements of the strategies they are using to change this behaviour.

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TABLE 3.1 Summary of the contribution to Australia's health status and burden of disease of smoking

HOW THE BODY IS IMPACTED	CONTRIBUTION TO HEALTH STATUS AND BURDEN OF DISEASE
Damages the lining of the arteries, causes a build-up of plaque (atheroma), which narrows and hardens arteries reducing blood supply	Can contribute to higher rates of cardiovascular disease, including coronary heart disease and blood clots leading stroke and reducing life expectancy
Nicotine and carbon monoxide decrease the amount of oxygen in the blood so the heart has to pump harder to supply the body with the oxygen it needs	Increases the risk of hypertension and can contribute to the fatal burden of disease (YLL) of a range of cardiovascular conditions such as heart attack
Chemicals in tobacco smoke affect the blood platelets, increasing the risk of blood clots	Increases the fatal (YLL) and non-fatal (YLD) burden of disease associated with cardiovascular disease such as stroke
Reduces the elasticity of the blood vessels and their ability to expand and contract as the heart is pumping blood, which increases the risk of the blood vessels rupturing	
Can cause damage to the DNA in cells, leading to abnormal cell growth and multiplication	Can contribute to higher rates of mortality due to cancer including of the lung and mouth
Reduces the efficient functioning of the body's 'cleaning' system, leading to a build-up of toxins	
Causes irritation, swelling and narrowing of the airways of the lungs and excess mucus in the lung passages	Increases respiratory conditions such asthma and lung disease, including COPD, increasing morbidity
Passive smoking damages the arteries and blood vessels	Can contribute to higher rates of cardiovascular disease and peripheral vascular disease, increasing premature mortality
Tobacco smoke, harmful toxins and chemicals cross the placenta into the blood stream of the foetus, negatively impacting the development of the baby	Smoking in pregnancy can cause miscarriage, stillbirth, low birth weight and increased risk of infection and SIDS leading to higher rates of infant and under-5 mortality
Smoking illicit drugs such as cannabis can lead to cannabis-related psychosis, suicide and road traffic accidents	Increases premature mortality



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3.2 ALCOHOL

Alcohol, also known as ethanol, is the ingredient in drinks that leads to intoxication. Alcohol is a depressant drug – it slows down the messages travelling between the brain and the body and therefore impairs judgements and decisions made when under the influence of alcohol. Alcohol-related risk is defined as follows:

- lifetime risk for alcohol consumption of more than two standard drinks per day
- single occasion risk for alcohol consumption of more than four standard drinks at a single occasion.

The consumption of alcohol in Australia is widely accepted as being a social and cultural aspect of many activities and celebrations. However, excessive regular alcohol consumption is a major cause of chronic long-term ill-health, and can have a harmful impact on families, bystanders and the broader community. Misuse of alcohol in the form of binge drinking can also lead to a range of health concerns with both short- and long-term consequences.

Alcohol-related harm

The effects of alcohol vary from individual to individual. Alcohol-related harm in individuals arises from the quantity of alcohol consumed and also from a complex interaction between sex, body size and weight, age, experience of drinking, genetics, nutrition, individual metabolism and social factors. According to the Responsible Service of Alcohol course:

> While most Australians drink alcohol, generally for enjoyment, relaxation and sociability, and do so at levels that cause few adverse effects, a substantial proportion of drinkers consume alcohol at a level that is considered to increase their risk of alcohol-related disease, illness or injury.

The effects of alcohol on the body can be immediate, and intoxication is the most common cause of alcohol-related problems. Alcohol affects the function of the brain and slows down thought process, reaction time and judgement. It impairs the decision-making process, leading to injuries and premature deaths, including suffocation due to inhibition of normal breathing.

Alcohol and injuries

Excessive intake of alcohol not only affects an individual's health, but also affects the people around them. According to the *National Drug Strategy Household Survey* in 2016, 2.8 per cent of recent drinkers had been injured while under the influence of alcohol and required medical attention and 1.3 per cent required admission to hospital for their injuries.

Alcohol is responsible for:

- 30 per cent of road accidents
- 44 per cent of fire injuries
- 34 per cent of falls and drownings
- 16 per cent of child abuse cases
- 12 per cent of suicides
- 10 per cent of industrial accidents.

EXTENSION QUESTION 3.1

Describe the impact of alcohol-related road trauma on burden of disease.

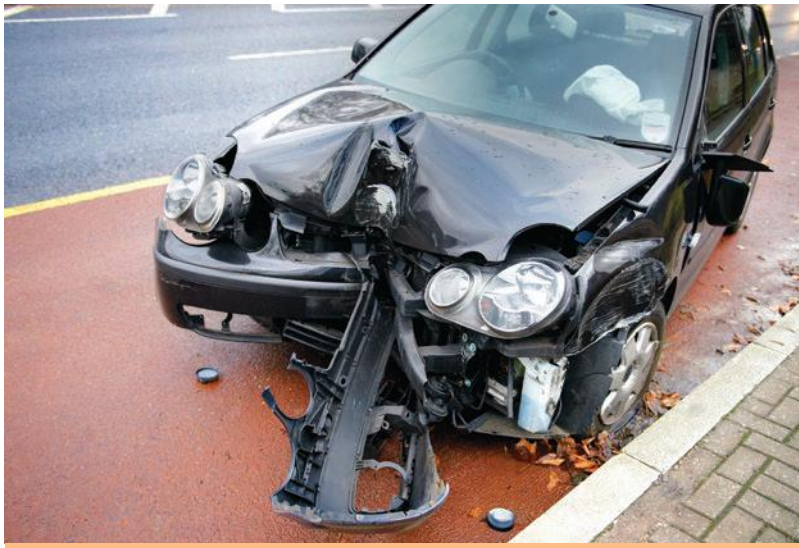


FIGURE 3.7 Thirty per cent of road accidents can be attributed to alcohol.

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AOS 1

Alcohol and obesity

Alcohol adds additional kilojoules to the normal diet increasing energy intake. If excess kilojoules are not used as energy, then the kilojoules will be stored as body fat (adipose tissue), increasing the risk of a person becoming overweight and/or obese.

Alcohol and cardiovascular disease

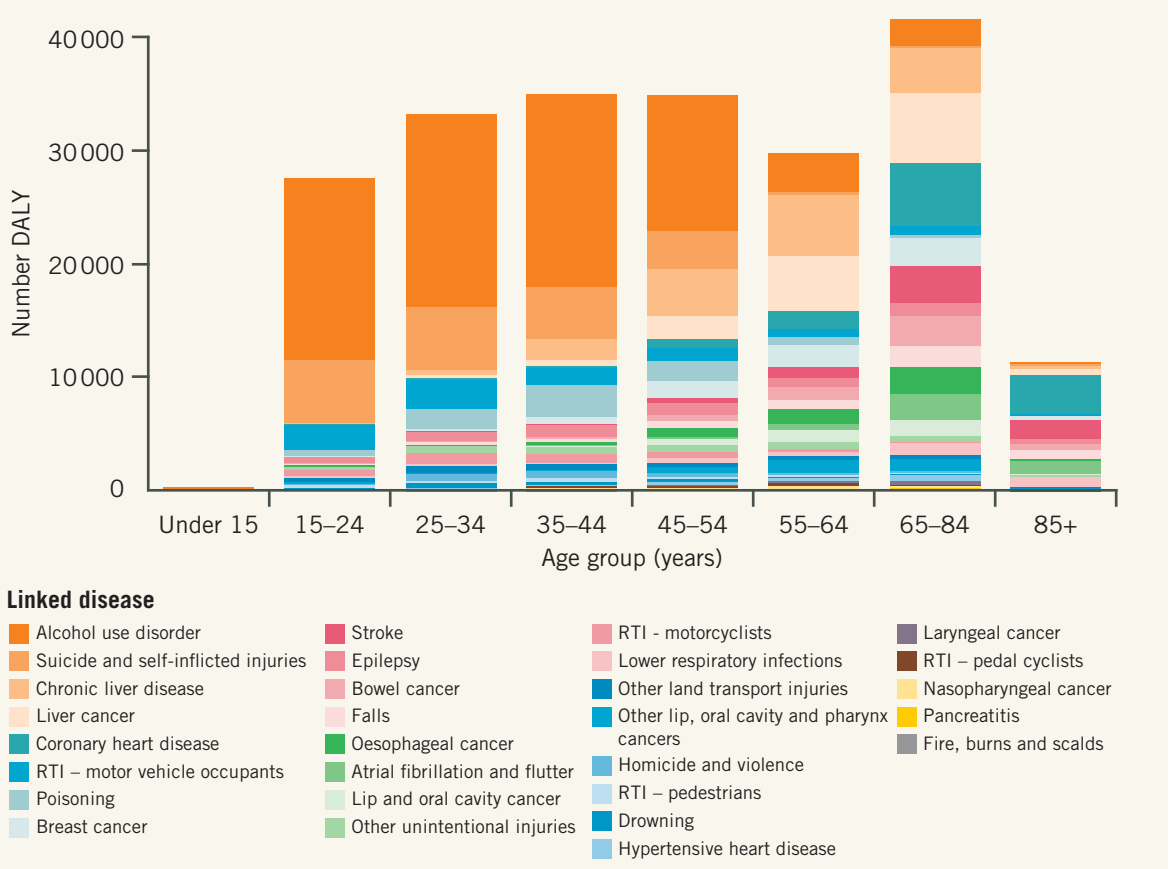
Long-term use of excessive amounts of alcohol can cause high blood pressure, some types of cardiac failure, stroke and other circulatory problems, increasing the risk of cardiovascular disease. Obesity due to alcohol consumption is also a risk factor for cardiovascular disease.

Alcohol and cancer

Alcohol is carcinogenic (a substance causing cancer). Alcohol causes cancer by damaging the genetic material and functioning of cells, which results in abnormal cell growth that can invade or spread to other parts of the body. Alcohol is related to cancers of the mouth, pharynx, larynx, oesophagus (head and neck), liver, breast, colon and rectum.

Alcohol and pregnancy

Alcohol use during pregnancy is linked to premature birth and low birthweight. Alcohol can also interfere with the normal growth and development of the foetus, causing a range of birth defects, including Foetal Alcohol Spectrum Disorder (FASD). This is because alcohol in the mother's bloodstream crosses the placenta and enters the baby's blood stream. The specific developmental effects on the foetus will depend on the stage of development occurring when alcohol is consumed.



SOURCE: AIHW, Australian Burden of Disease Study (2015): Interactive data on risk factor burden

FIGURE 3.8 Burden of disease attributable to alcohol consumption for both males and females in 2015

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ACTIVITY 3.2: ALCOHOL-RELATED HARM

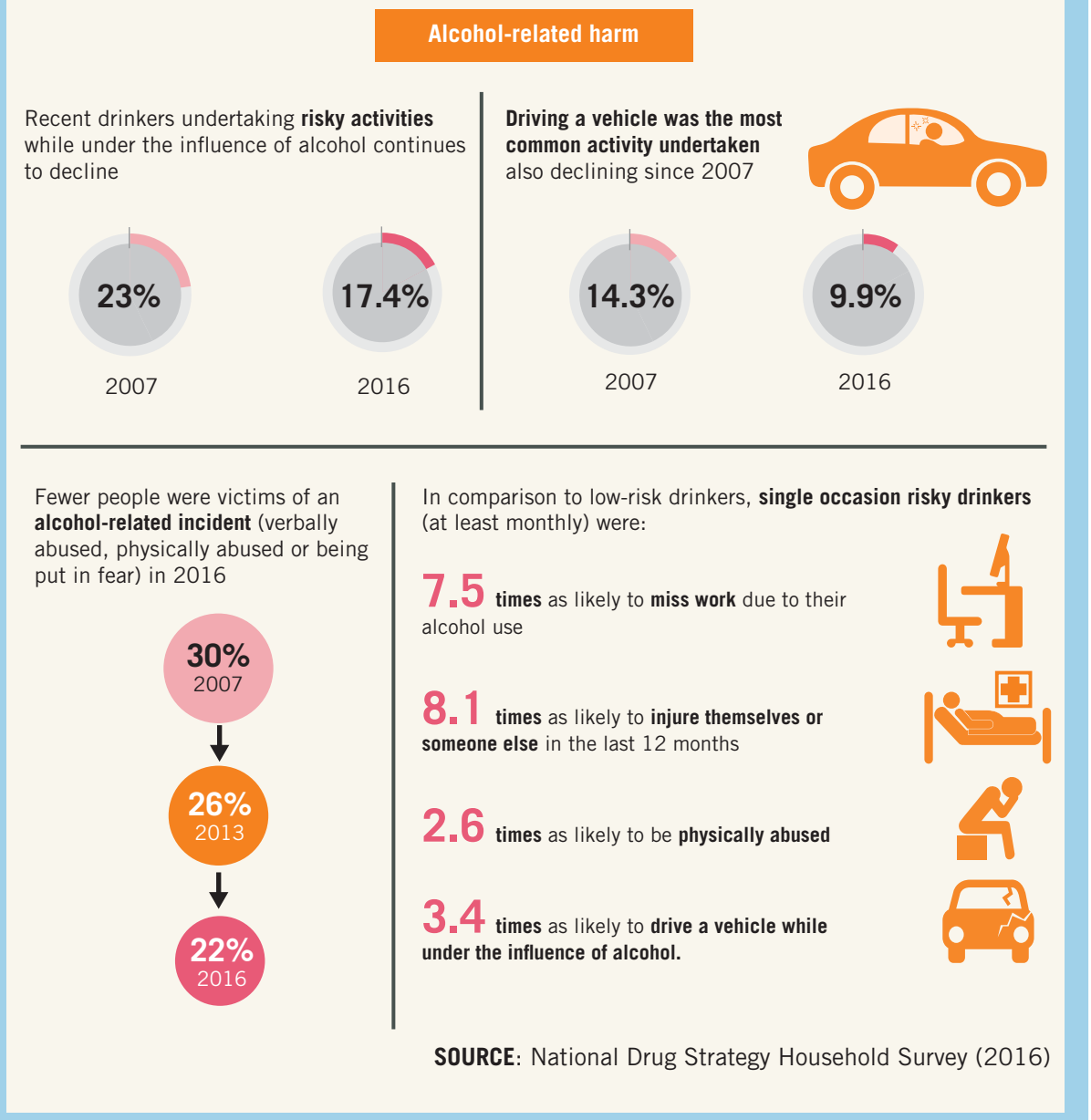


FIGURE 3.9 National Drug Strategy Household Survey 2016: Alcohol-related harm

1 Using the alcohol-related harm infographic above, select two statistics and discuss the impact each would have on the health status of Australians.
2 Using Figure 3.8, outline how excessive alcohol consumption impacts burden of disease in Australia.
3 Explain how alcohol consumption can contribute to obesity.
4 Discuss how excessive alcohol consumption affects people other than the individuals consuming alcohol.

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AOS 1

Alcohol and other health status concerns

Short-term health effects of alcohol can include loss of balance, nausea, stress due to strain on relationships, risk-taking behaviour and violence resulting in injuries.

Longer term health concerns from excessive alcohol use include:

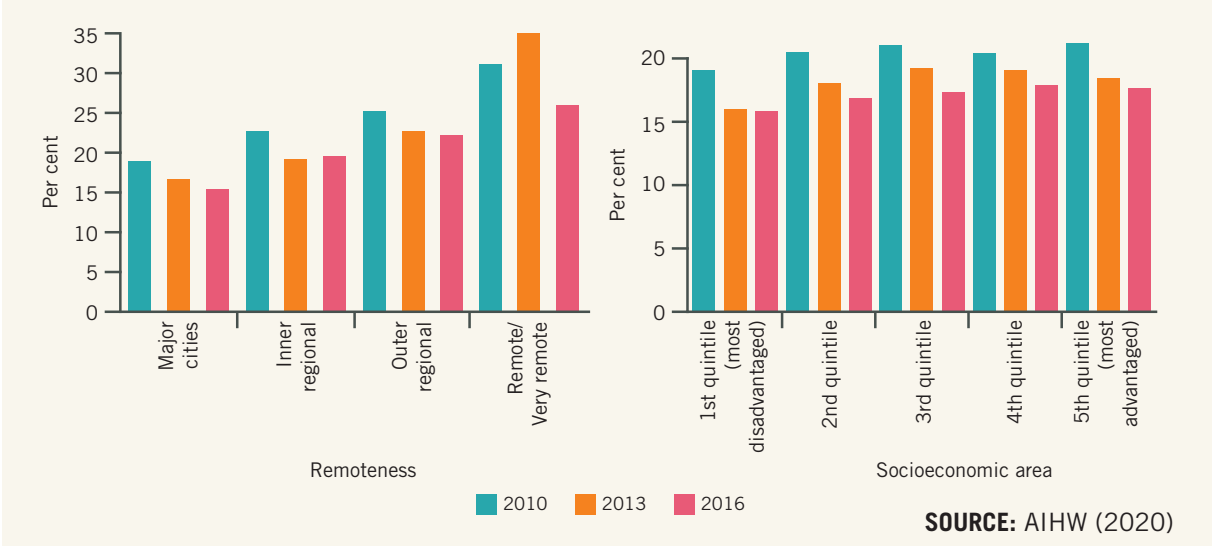
- Liver disease. Alcohol is filtered through the liver. Therefore long-term and/or excessive consumption of alcohol can damage and scar the liver tissue, reducing its efficient functioning and ability to remove toxins. Over time, this can lead to liver disease and is a common cause of cirrhosis of the liver.
- Mental health conditions. There is growing evidence that high amounts of alcohol increases the risk of mental health conditions such as depression and anxiety. Possible reasons for this are: alcohol is a depressant and so depresses the central nervous system and can alter the chemicals in the brain, specifically decreasing levels of serotonin which has a function of regulating moods, therefore resulting in fluctuating moods increasing the risk of mental health issues.

EXTENSION QUESTION 3.2

Explain how alcohol consumption can impact health status in Australia.



FIGURE 3.10 Alcohol consumption can cause damage of the liver leading to fatty liver, alcoholic cirrhosis and cancer.



SOURCE: AIHW (2020)

FIGURE 3.11 Exceeded lifetime risk by remoteness and socioeconomic area, people aged 14 and older, 2010–16

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Alcohol consumption: variations between population groups

Alcohol consumption at levels that risk alcohol-related harm varies within different population groups within Australia.

According to the *Australia's Health 2018* report:

- 'The lower the socioeconomic area, the higher the rate of burden attributable to alcohol use. The lowest socioeconomic area experienced rates of burden attributable to alcohol use that were 1.9 times those of the highest socioeconomic area' (AIHW, 2018).
- 'There is also a clear pattern of increasing attributable burden with increasing remoteness, with very remote areas experiencing 2.4 times the rate of burden attributable to alcohol use as Major cities' (AIHW, 2018).

Those living outside of major cities are also more likely to drink alcohol in quantities that place them at risk of harm from an alcohol-related disease or injury over a lifetime or at risk of alcohol-related injury arising from a single drinking occasion (*National Drug Strategy Household Survey*, 2016).

Males are also more likely to experience greater burden of disease due to alcohol consumption compared to females, particularly due to alcohol use disorders, suicide and self-inflicted injuries. Aboriginal and Torres Strait Islander peoples have higher rates of risky alcohol consumption (single-occasion risk) compared to non-Indigenous Australians.

TABLE 3.2 Summary of the contribution to Australia's health status and burden of disease of alcohol

HOW THE BODY IS IMPACTED	CONTRIBUTION TO HEALTH STATUS AND BURDEN OF DISEASE
Affects the function of the brain and slows down thought process, reaction time, judgement, and impairs the decision-making process	Can increase the risk of death from road accidents, contributing to burden of disease attributable to years of life lost due to premature death (YLL) Can increase the risk of falls, injuries and drowning, decreasing life expectancy
Provides additional kilojoules and an increase in energy intake which, if not used by the body, is stored as fat (adipose tissue) increasing the risk of becoming overweight or obese	Increases the risk of hypertension and can contribute to the burden of disease (increase in DALYs) of a range of cardiovascular conditions, stroke, type 2 diabetes mellitus Can increase the risk of cardiovascular disease and decreased life expectancy
Increases blood pressure	
Damages the genetic material and functioning of cells	Can contribute to higher rates of cancer including liver, breast, colorectal, larynx, oesophagus, increasing mortality
Depresses the central nervous system and can also alter the chemicals in the brain	Can increase the risk of mental health conditions such as depression and anxiety, increasing morbidity
Leads to damage and scarring of the liver tissue	Can contribute to liver disease, increasing burden of disease atrributed to YLD
Alcohol in the mother's bloodstream crosses the placenta and enters the baby's blood stream	Can cause Foetal Alcohol Spectrum Disorder (FASD), increasing morbidity



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AOS 1

3.3 HIGH BODY MASS INDEX

High body mass index (BMI), or overweight and obesity, is of particular concern in Australia. Overweight and obesity can be defined as the presence of an excessive amount of body fat accumulation. Both the incidence and prevalence of high body mass has been increasing over recent years and is now a major public health issue in Australia for adults and children alike. In 2017–18, two in three Australians aged 18 and over and one in four children aged 2–17 years were overweight or obese (AIHW, *Overweight and Obesity Web Report*, 2019).

Obesity and overweight (high BMI) is a leading cause of non-fatal burden of disease and contributed to over 9 per cent of burden of disease in 2015.

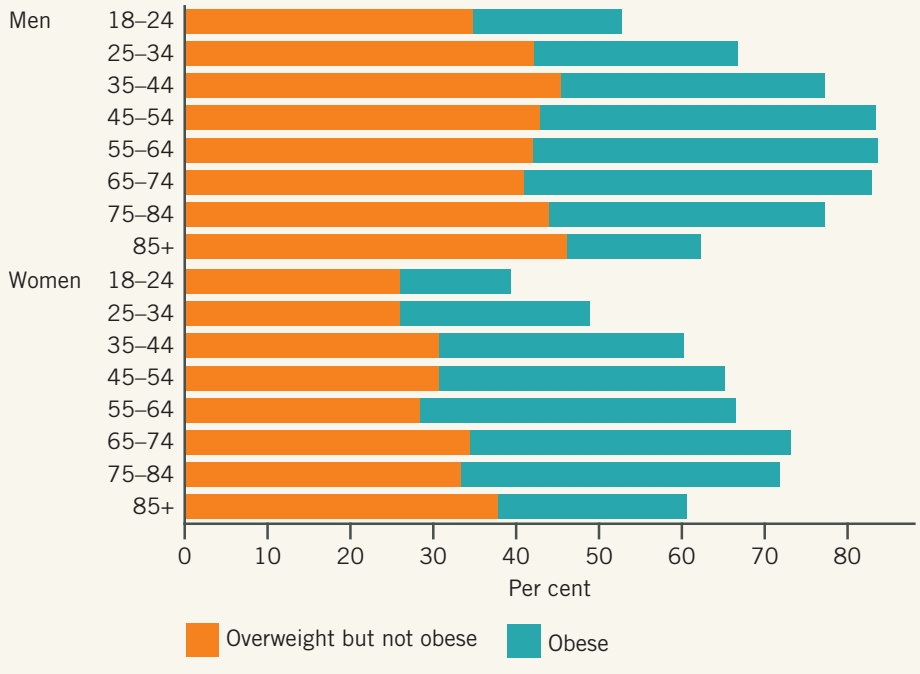
In scientific terms, obesity occurs when a person consumes more kilojoules than are used by the body for energy. What causes this energy imbalance between kilojoule input and kilojoule output differs from one person to another. A BMI between 25 to less than 30 is considered overweight but not obese, while a BMI of 30 or more is considered obese.

The following equation can be used to determine BMI:

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}}$$

Body weight can be influenced by genetics as well as body functions relating to metabolism and hormonal control. One genetic-based biological influence on body weight is the inheritance of a certain body type from genes. Body type relates to a combination of body shape and size. There are three general body types: ectomorph (thin and tall shape), endomorph (round shape) and mesomorph (muscular shape). Biological factors are also often influenced by behavioural factors, which are in turn influenced by environmental factors. For example, the health-related behaviours of physical activity and food intake can affect the biological factor of body weight.

Body mass index and waist circumference are the main methods used for monitoring body weight. BMI is the most suitable for assessing overweight and obesity at a population level. This classification is not suitable for children; however, there are separate calculations available to classify overweight and obesity in children.



SOURCE: AIHW (2019)

FIGURE 3.12 Proportion of overweight and obese adults (based on measured BMI), by age and sex, 2017–18

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It is important to note that a high BMI calculation may not always be attributable to a high level of body fat. BMI calculations will overestimate the amount of body fat for body builders and some high-performance athletes, and cannot be used accurately for pregnant women. BMI calculations are also not accurate in cases where people's muscles are wasting because they are physically disabled and do not get much exercise, and they can underestimate the amount of body fat in the elderly.

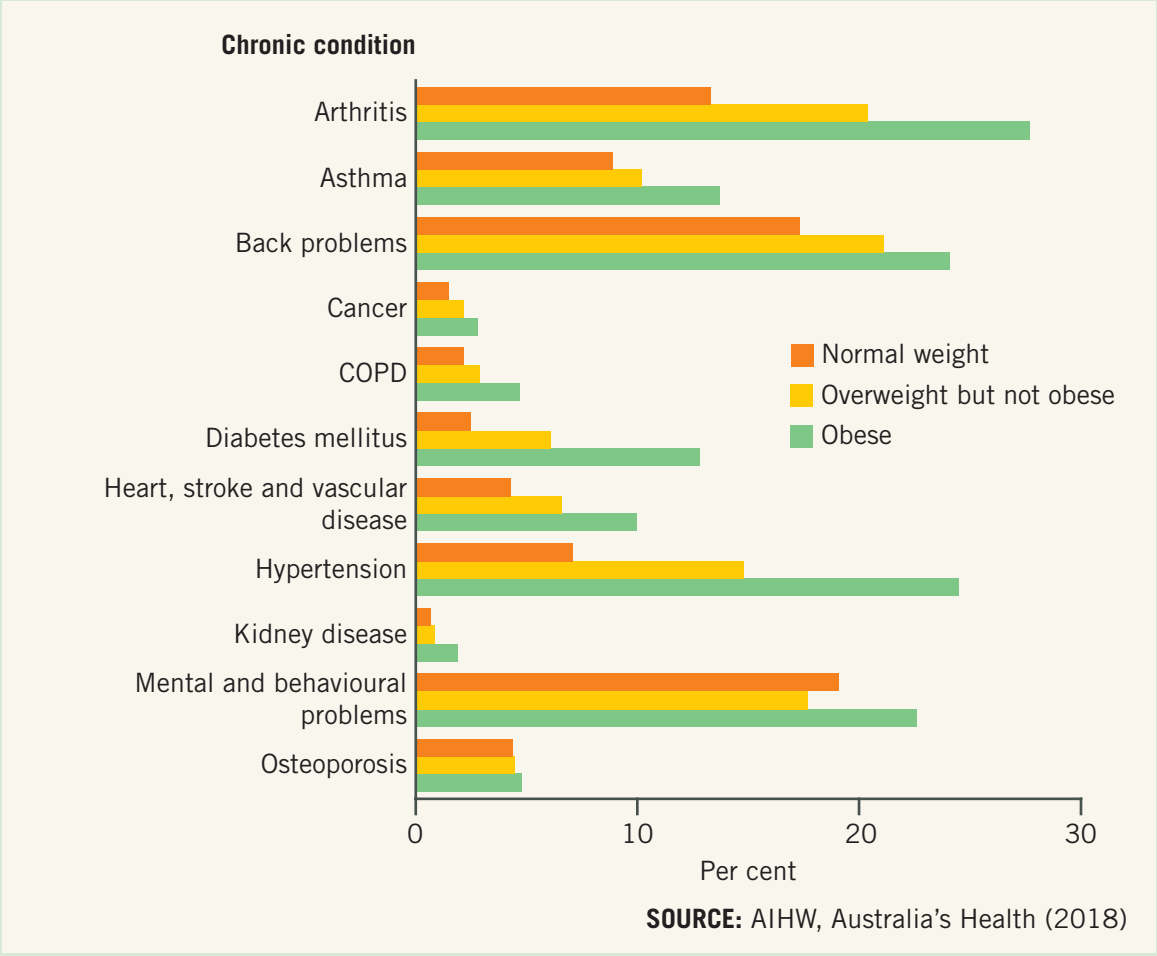
Based on measured BMI in 2017–18, 67 per cent of Australians aged 18 years and over were overweight or obese (35.6 per cent overweight and 31.3 per cent obese). Overall, men have higher rates of overweight and obesity than women (AIHW, *Overweight and Obesity Web Report 2019*; Table S5). A high BMI, or being obese, is associated with higher rates of mortality and lower life expectancy. The impact of high body mass on chronic conditions is so substantial that it is expected that, over the next 10 years, obesity rates will contribute to significant growth in type 2 diabetes mellitus.

Relationship between high body mass and disease

High body mass index and diabetes mellitus

Diabetes mellitus (diabetes) refers to a metabolic disease in which the body cannot maintain normal blood glucose levels.

EXTENSION QUESTION 3.3



SOURCE: AIHW, Australia's Health (2018)

FIGURE 3.13 Prevalence of selected chronic conditions in adults, by BMI category, 2014–15

Using Figure 3.13 and your own knowledge, analyse how addressing the risk factor a high body mass index (BMI) of over 30 can lead to an improvement in the prevalence of the chronic conditions.

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High blood glucose levels result from defective insulin secretion, insulin action or both. Diabetes mellitus has several forms, including type 1, type 2 and gestational, but type 2 is associated with a high BMI.

Type 1 diabetes mellitus is characterised by a deficiency of insulin – the hormone that metabolises glucose – and is often associated with children and a genetic disposition. Gestational diabetes mellitus occurs during pregnancy in some women, due to hormonal changes that block the action of the mother's insulin, and usually goes away after the birth.

Type 2 diabetes mellitus is more prevalent than type 1, and accounts for 85–90 per cent of all people with diabetes; it is also the type of diabetes most associated with dietary risks, such as high sugar and high fat intake. It is caused by a decrease in insulin production or the inability of the body to use insulin properly, and is associated with being overweight. Type 2 diabetes mellitus was once associated with adults but due to the significant increase in childhood obesity the incidence of type 2 diabetes mellitus is now increasing in children.

Excess body fat seems to trigger the release of certain proteins from fat cells that negatively affect the secretion of insulin (a hormone that metabolises blood sugar in order to maintain it at healthy levels within the bloodstream). This leads to a fluctuation of insulin and blood glucose levels, and over a long period of time can overwork the pancreas and lead to impaired glucose regulation, which is a precursor to type 2 diabetes mellitus.

ACTIVITY 3.3: HIGH BODY MASS INDEX

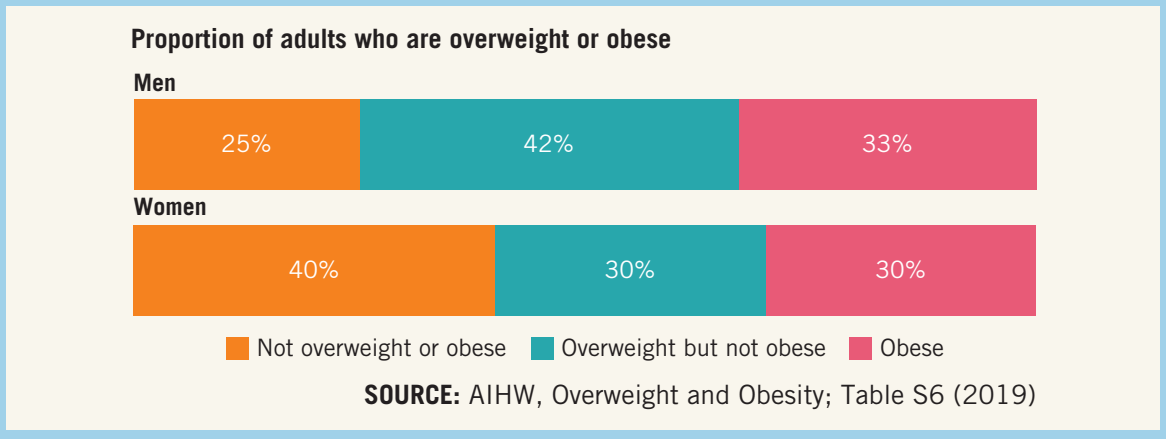


FIGURE 3.14 Proportion of adults who are overweight or obese

1 Body Mass Index (BMI) is one way of classifying various weight ranges. Explain how BMI is calculated providing the BMI range for both overweight and obesity.
2 Using data, identify a trend in the proportion of adults who are overweight or obese.
3 Explain why the prevalence of obesity is of such concern.
4 Discuss a sociocultural, environmental and biological factor that could contribute to the trend identified in the graph above.
5 Explain two ways in which a high BMI can contribute to burden of disease in Australia.
6 Describe the impact that the current rates of high BMI have on the overall health status of the Australian population.

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High body mass index and cancer

There are a number of different ways that obesity is thought to increase the risk of cancer, including having more fat tissue, or adipose tissue, which is believed to produce excess amounts of oestrogen and increase the risk of breast, endometrial or ovarian cancer. People who are obese often have inflammation within body tissue over a long period of time, which increases the risk of damage to the genes in cells leading to cancer such as liver cancer. Increased blood insulin levels is associated with increased risk of some cancers, such as colon cancer.

High body mass index and cardiovascular disease

Abdominal fat is often associated with increased cholesterol levels and a build-up of plaque, which narrows and hardens arteries (atherosclerosis) reducing blood supply. This requires the heart to work harder at circulating the blood around the body, increasing hypertension. Consequently, the risk of cardiovascular disease including coronary heart disease and stroke is increased.

High body mass index and other health concerns

Having excess body fat (especially around the abdomen) increases the risk of the following health concerns:

- osteoarthritis
- metabolic syndrome
- musculoskeletal conditions
- respiratory conditions
- sleep apnoea
- gall bladder disease
- hernia
- reproductive disorders

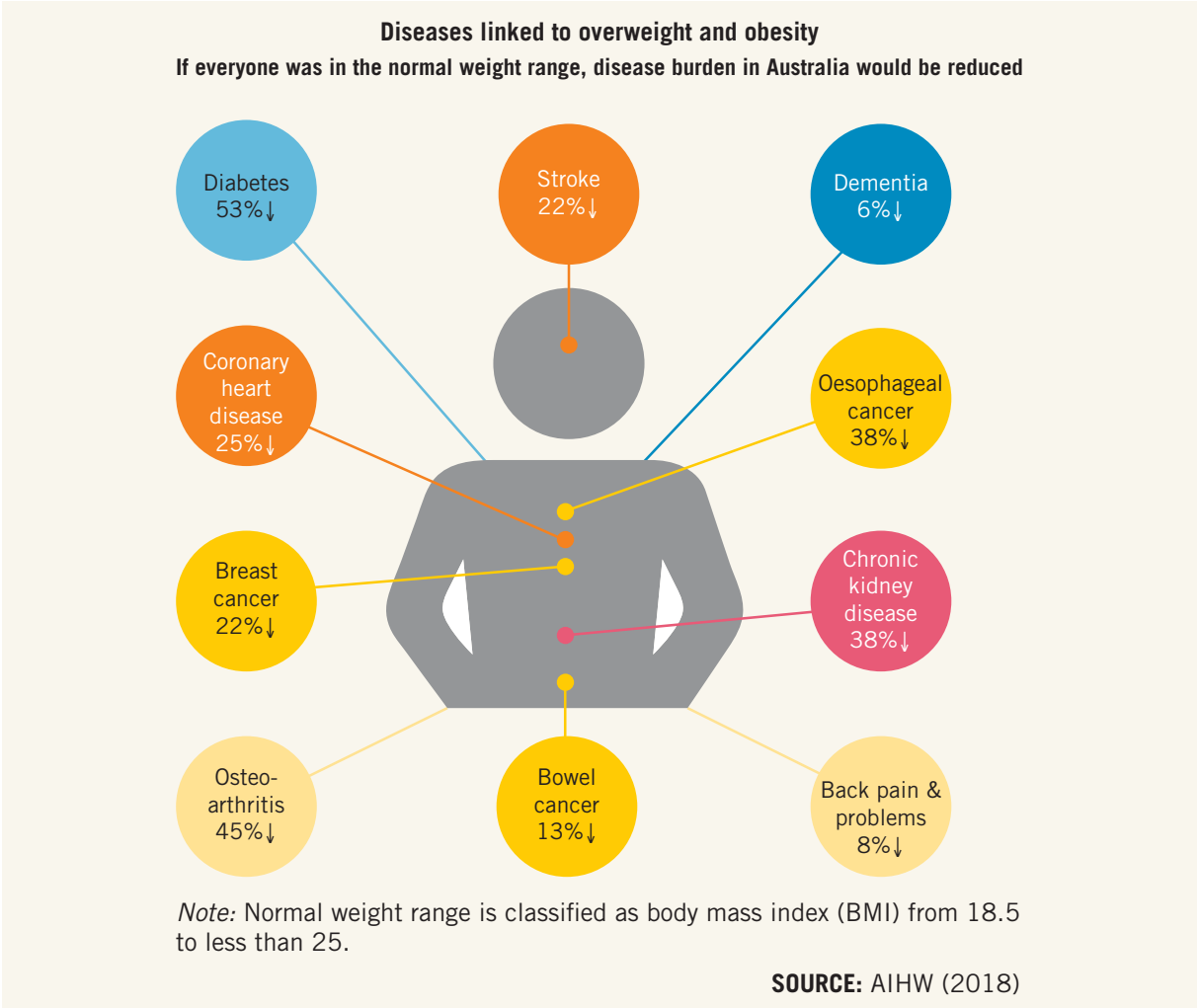


FIGURE 3.15 Diseases linked to overweight and obesity

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- urinary incontinence
- fatty liver disease
- depression and other mental health disorders.

Refer to Figure 3.13 to compare the prevalence of selected chronic conditions in adults, by BMI category.

A high body mass also has an impact on life expectancy. For example, having a BMI of 30–35 rather than a healthy BMI (between 18.5 and 25) can reduce life expectancy by two to four years, and having a BMI of 40–45 reduces it by eight to ten years.

It has been estimated that Australia's disease burden due to overweight and obesity could be cut by 14 per cent if people who are overweight or obese and of average height lost about 3 kg and this was maintained (*Australia's health 2018*).

High body mass: variations between population groups

Differences exist in the prevalence of overweight and obesity among different population groups. When comparing males to females it was found that more men (42 per cent) than women (30 per cent) were overweight but not obese. However, similar proportions of men (33 per cent) and women (30 per cent) were obese (AIHW, 2019).

As socioeconomic status decreases, the rates of overweight and obesity increase. According to the AIHW (*Overweight and Obesity Web Report 2019*) in 2017–18 adults in the lowest socioeconomic area were more likely to be overweight or obese (72 per cent) than adults in the highest socioeconomic area (62 per cent).

A high body mass is more common among Indigenous populations in comparison to non-Indigenous populations. Indigenous people aged 18 and over were 1.2 times as likely to be overweight or obese as non-Indigenous people, and 1.6 times as likely to be obese (*Australia's Health 2018*; Table S4 10.2).

Where we live also impacts BMI. Those populations living in inner regional and outer regional areas and remote parts of Australia are more likely to be overweight or obese than those living in major cities. In 2017–18, adults aged 18 years and over living in Inner Regional, and Outer Regional and Remote Australia were more likely to be overweight or obese than those living in Major Cities (71 per cent and 70 per cent compared with 65 per cent respectively) (AIHW, *Overweight and Obesity web report 2019*).

TABLE 3.3 Summary of the contribution to Australia's health status and burden of disease of high body mass index

HOW THE BODY IS IMPACTED	CONTRIBUTION TO HEALTH STATUS AND BURDEN OF DISEASE
Excess body fat triggers the release of certain proteins from fat cells that negatively affect the secretion of insulin	Can increase the risk of type 2 diabetes mellitus, increasing DALYs and burden of disease
Abdominal fat and increased cholesterol levels can lead to a build-up of plaque, narrowing and hardening arteries, reducing blood supply	Can increase the risk of cardiovascular disease, stroke and heart attack, leading to premature mortality and reducing life expectancy
Results in excess amounts of oestrogen, inflammation and high insulin levels	Increases rates of some cancers, particularly breast and colorectal cancer, and type 2 diabetes mellitus
Excess body tissue places extra pressure on the joints and muscles of the body	Can increase the burden of disease attributable to years lived with disability (YLL) from and musculoskeletal conditions including osteoarthritis
Reduced positive body image due to excess body weight	Can increase rates of depression and mental health conditions, increasing morbidity

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3.4 DIETARY RISKS

The food and drinks an individual consumes will impact on health and wellbeing. Food and drinks supply nutrients and when supplied in excess or insufficient quantities, ill health can result, impacting on health status and burden of disease in Australia. According to the AIHW's *Australia's Health 2018* report, 7.3 per cent of the disease burden in 2015 was due to all dietary risks combined. When looking at specific dietary risks, 'more than 99 per cent of all children and 96 per cent of adults do not eat the recommended amount of vegetables. Additionally, more than two-thirds of children and almost half of adults do not follow the recommendation to limit their consumption of free sugars to less than 10 per cent of total energy intake' (AIHW, 2018, p. 22).

The nutrients in food enable the cells in our bodies to perform their necessary functions. If the correct balance of nutrients is not obtained, then metabolic processes suffer and health declines.

An individual's nutrient and food intake can have both short- and long-term consequences on their health. When a person's food intake is consistently composed of nutrient-dense choices that provide a regular variety of essential nutrients and phytochemicals, nutritional needs for growth and development are met and a level of health can be maintained that can contribute to the prevention of particular diseases. Food choices can therefore act as a protective factor against certain diseases. Unfortunately, some commonly consumed foods can decrease the quality of nutrient intake and lead to negative health outcomes.

The burden of disease and reduction in health status caused by poor dietary intake is often associated with overconsumption of energy dense foods with high saturated fat, sugar and/or salt content. It is also associated with low intakes of dairy foods and nutrient-dense high fibre foods, such as fruit and vegetables, as well as reduced intake of specific nutrients such as iron.

3.5 HIGH INTAKE OF FAT

Fats are an essential part of our diet. Fats have several functions in the body for maintaining good health, including being a source of energy. In fact, fats offer a very concentrated source of energy, providing 37 kilojoules of energy per gram. However, they are not the body's preferred source of energy because they are more difficult and take more time to break down (catabolise) in order to be a useable energy source.

There are four different types of fat: saturated fats, monounsaturated fats, polyunsaturated fats and trans fats. While a high intake of all types of fat is a risk factor for overweight and obesity (high BMI) due to a high energy content, some fats are considered healthier than others. Each type of fat behaves differently within the body and therefore has a unique impact on health. For this reason, each type will be discussed separately.

EXTENSION QUESTION 3.4



Justify why foods high in saturated fats should not be eaten regularly.

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Saturated fats

Saturated fats include fats found in animal foods. This type of fat tends to be solid at room temperature and does not contain any double bonds (the connections holding one carbon atom to the next in the long chain of carbons). Examples of foods high in saturated fats include fatty cuts of meat, bacon, full-fat milk, butter, cream, fatty snack foods and deep-fried foods. Saturated fats increase the risk of cardiovascular disease by raising the **low-density lipoprotein (LDL)** cholesterol (considered to be the 'bad' cholesterol) in the blood.

low-density lipoproteins (LDL): These carry most of the cholesterol from the liver to the cells. If there is an excess of cholesterol or it cannot be properly delivered to the cells, LDL (known as 'bad' cholesterol) tends to accumulate in the vessel walls, forming plaque and hardening the artery. This condition is known as atherosclerosis.

Monounsaturated fats

Monounsaturated fats are the most common fats found in plant-based oils such as olive, canola and peanut oils, and in monounsaturated soft margarines, avocados, nuts such as almonds and cashews. Unlike saturated fats, a diet high in monounsaturated fats helps lower levels of LDL cholesterol ('bad' cholesterol) without lowering the levels of **high-density lipoprotein (HDL)** cholesterol (considered to be the 'good' cholesterol) in the blood. For this reason, these fats are considered to be the healthier source of fat. It is advisable to replace saturated and trans fats with monounsaturated or polyunsaturated fats to help lower blood cholesterol levels and the risk of cardiovascular disease.

high-density lipoproteins (HDL): Known as the 'good' cholesterol, they recover cholesterol from cells, vessel walls and other lipoproteins to take back to the liver for disposal. HDLs tend to prevent or reverse the build-up of plaque in the arteries.

Polyunsaturated fats

Along with monounsaturated fats, polyunsaturated fats are considered to be a healthier option than saturated fats. These fats are found in products such as vegetable oils. A vegetable oil could be any oil product derived from a plant – fruit, vegetable or other plants. Different parts of plants are used to produce oil; for example, olive oil comes from the fruits of the plant while others, like sunflower oil or peanut oil, are pressed from the seeds. Polyunsaturated fats are essential for good health and to maintain a healthy balance of cholesterol in the blood by reducing the levels of LDL (bad cholesterol) and increasing the levels of HDL (good cholesterol).

Omega-3 and omega-6 fatty acids are two types of polyunsaturated fat. These nutrients are important for the body's development and they help protect against many diseases. Omega-6 type fats are found in vegetable oils, such as canola and sunflower; nuts including pine nuts, walnuts and brazil nuts; and are essential for growth, cell structure and maintaining a healthy immune system. Omega-6 fats help to lower the risk of cardiovascular disease. Omega-3 fats are found in fish, especially oily fish like sardines and salmon; chia seeds, meat and eggs. Omega-3 fats have a role in reducing blood pressure and blood clotting, lower heart rate and they improve heart rhythm, delay the build-up of plaque in arteries, reducing cardiovascular disease and helping to maintain a healthy immune system. They also assist in brain and spinal cord function. Omega-3 also helps reduce triglycerides, a type of fat found in blood, further reducing risk of heart disease.

Trans fats

Trans fats are monounsaturated and polyunsaturated oils that have been processed (hydrogensied) to solidify.

Fats and oils differ in that fats are solid at room temperature and oils are liquid. This occurs due to their chemical structure. In some foods, solid fats are more desirable for the consumer or manufacturer than liquid fats. For example, solid shortenings (found in breads and cakes) and margarines are developed from oils that are comparable to butter in terms of being solid but are soft enough to be spreadable. Solid oils also have a prolonged shelf life over natural oils, are lower in cost and are more suitable for commercial frying.

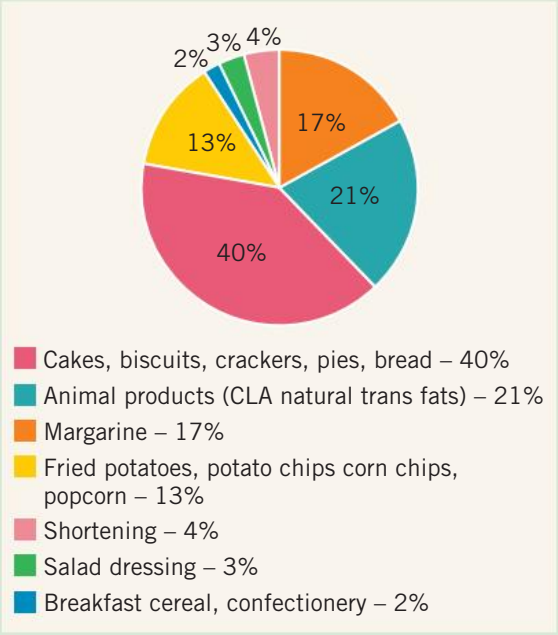
Trans fats behave similarly to saturated fats in the body and present similar health issues. Trans fats tend to increase the level of 'bad' LDL cholesterol in the body in much the same

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way as saturated fats. Trans fats also seem to lower the concentration of 'good' HDL cholesterol that is protective against cardiovascular disease.

Although trans fats can be produced naturally in very small quantities in some foods, it is the consumption of foods containing manufactured trans fats that is a concern for health and wellbeing.

EXTENSION QUESTION 3.5



1 Provide three examples of foods that are highest in trans fats.
2 Why do you think food-manufacturing companies add trans fats to foods in higher quantities than is considered healthy?
3 Justify the need to limit consumption of trans fats to improve the health status of Australians.

FIGURE 3.16 Major sources of trans fat

ACTIVITY 3.4: MEDIA ANALYSIS

Fats, oils, food and food service industries should join global effort to eliminate industrial trans fat from processed food by 2023.

Statement by Dr Tedros Adhanom Ghebreyesus, WHO Director-General

23 April 2019

The elimination of industrially-produced trans fat from the global food supply is a WHO priority and a target in the 13th General Programme of Work (GPW), which will guide the WHO through 2023.

As part of WHO's efforts to provide support to governments to eliminate industrially-produced trans fat from their nation's food supply, and replace these harmful compounds with healthier fats and oils, the REPLACE action package was developed and launched in May 2018.

To meet this target, we call not only on governments' commitment, but also on industry to commit and act to replace industrially-produced trans-fat with healthier fats and oils.

WHO calls on the fats, oils and food industry, including the food service industry, to commit to the following:

- Reformulate foods to eliminate industrially-produced trans-fat: Set, commit to, and meet trans-fat elimination targets by 2023 or earlier for all products across

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global product lines, in line with the WHO recommendation for all food categories (<2 grams per 100 grams of total fat or oil in all foods) without replacement with saturated fat.

- Label trans-fat content: Implement trans-fat labelling on any pre-packaged food.
- Increase supply of healthier fats and oils: Increase the supply of replacement alternatives low in saturated fat.
- Evaluate commitments: Support the implementation of an independent evaluation to monitor the progress and achievement of commitments made, including disclosing annually the company volume of production of industrially-produced trans fat and country-specific quantity of the volume of sales.

There has been important progress moving from partially hydrogenated oils to healthier oils, particularly in high-income countries.

But much more needs to be done.

Eliminating industrially-produced trans-fat is one of the simplest and most effective ways to save lives and create a healthier food supply.

There are 130 million babies born around the world each year. With industry's commitment and cooperation, none of them will ever have to be exposed to the dangers of industrially-produced trans fat by 2023.

Using your own knowledge and the information contained in the article, respond to the following:

1 Explain how trans fats are formed.

2 Describe the differences between trans fats and unsaturated fats.

3 Why do you think the WHO needs to call on governments and food industry to reduce trans fats in foods globally?

4 One of the commitments the WHO is calling for is to 'increase supply of healthier fats and oils and increase the supply of replacement alternatives low in saturated fat'. Explain why the supply of healthier fats and oils would be recommended.

5 Outline the ways in which trans fats are similar to saturated fats.

6 Describe the effect trans fats have on burden of disease.

7 The author states that with the reduction of trans fats, of 130 million babies born each year none will ever have to be exposed to the dangers of industrially-produced trans fat. What dangers is the author referring to and what implications will this have on the health status of these children?

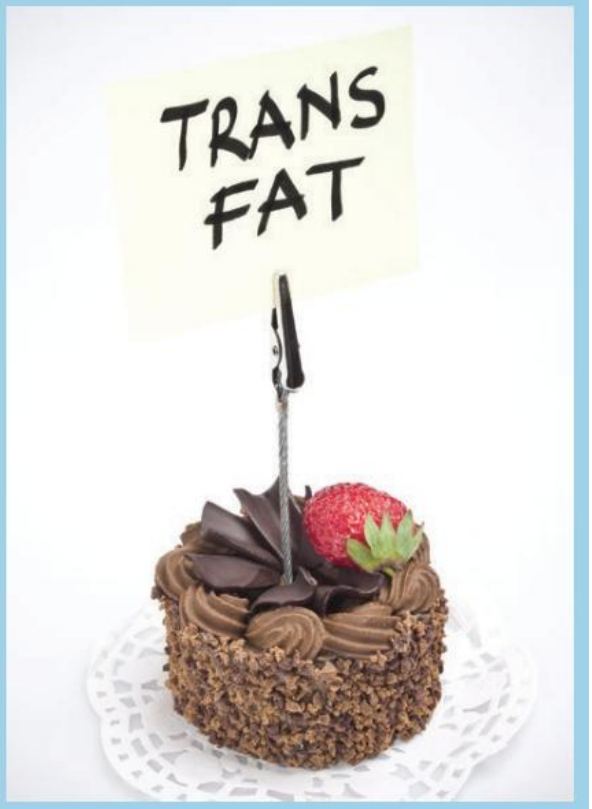


FIGURE 3.17 Cakes, biscuits, meat pies and fried foods are high in trans fat, so consumption should be limited.

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Cholesterol

Cholesterol is a waxy, fatty substance that circulates in the body's blood stream. It is crucial to many metabolic functions, is an essential part of all the body's cell membranes, is required for the production of hormones and occurs in very high concentrations in the brain and nervous system. Cholesterol is also required for the production of bile acids, which helps to assist with the absorption and digestion of fat from food. The body's cholesterol needs are met through the cholesterol that is made in the liver from saturated fats and the body's cells. The remainder of the cholesterol comes from the animal food sources we eat. However, as a consequence of a diet high in fat, too much cholesterol in the bloodstream can lead to fatty deposits building up in the blood vessels, narrowing the arteries making it harder for blood to flow and increasing the risk of cardiovascular disease including heart attack or stroke increasing burden of disease.

According to the ABS, since 2014 there has been a decline in the proportion of Australians with high cholesterol levels. However, in 2017–18, 6.1 per cent of all Australians (1.5 million people) still had high cholesterol levels and both males and females had the same proportion of high cholesterol. The prevalence of high cholesterol increased with age, doubling from 6.8 per cent at age 45–54 to 14.1 per cent at ages 55–65, and increased to 21.2 per cent, or one in five people, at ages 65 and over (ABS, 2018).

Lipoproteins

Fats are transported around the body by substances called lipoproteins. A lipoprotein is a molecule made up of a protein and a lipid (fat molecule). Different lipoproteins contain different concentrations of lipids, including cholesterol. Two types, low-density lipoprotein (LDL) and high-density lipoprotein (HDL), have a high percentage of cholesterol but carry it differently. LDLs are ineffective cholesterol carriers and tend to deposit it on the artery walls, whereas HDLs deliver the cholesterol to the liver, where it is removed from the body.

Relationship between a high intake of fat and disease

A high fat intake is a risk factor for:

- overweight and obesity
- type 2 diabetes mellitus
- cardiovascular disease
- colorectal cancer
- musculoskeletal conditions that impact the joints.

High intake of fat and obesity

Consuming foods that are high in fat is a risk factor for obesity. Fats consumed in high amounts on a regular basis will increase the amount of excess kilojoules being stored by the body and will increase the presence of body fat (adipose tissue). If the intake of foods high in fat is prolonged, then storage of body fat will continue to increase leading to overweight and obesity.

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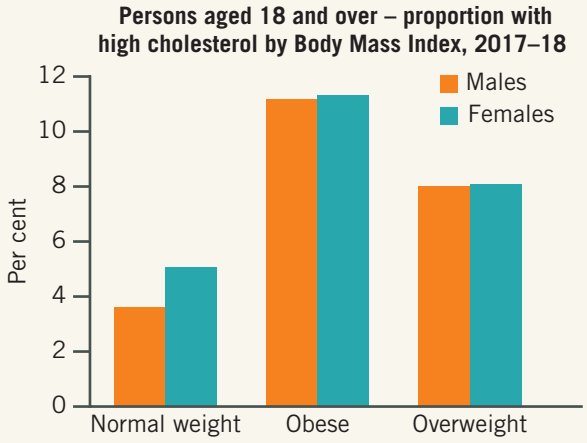
Reducing the intake of energy-dense foods is also essential in order to reduce total energy intake. There is convincing evidence that a high intake of energy-dense foods promotes weight gain. Energy-dense items tend to be high in fat (although they are often also high in sugar and starch); for example, fried foods. These foods often tend to be poor in overall nutrient content because they have low amounts of vitamins, minerals and fibre, and this can exacerbate the burden of disease associated with high fat intake.

EXTENSION QUESTION 3.6



Explain how swapping high-fat foods for low-fat foods can reduce burden of disease.

EXTENSION QUESTION 3.7



SOURCE: ABS (2018), National Health Survey: First Results, 2017–18

Explain the relationship between consuming a diet high in fat and an increase in BMI and cholesterol levels, and evaluate the impact of this relationship on health status.

FIGURE 3.18 In 2017–18, adults aged 18 years and over who were obese were more than twice as likely as adults who were in the normal weight range to have high cholesterol (11.2 per cent compared to 4.5 per cent).

High intake of fat and type 2 diabetes mellitus

One of the main risk factors for developing type 2 diabetes mellitus is being overweight or obese, as excess body weight can interfere with the body's production of, and resistance to, insulin (ABS, 2018).

As discussed previously, consuming a diet high in fat on a prolonged basis can increase energy intake and the amount of excess kilojoules being stored by the body. This will increase the presence of body fat (adipose tissue) and the likelihood of becoming overweight and obese. Saturated fats can raise cholesterol and triglyceride levels in the blood, increasing the likelihood of an increase in body fat. This increase in body weight (high BMI) due to a high intake of fat is associated with a range of health concerns such as musculoskeletal conditions including arthritis and osteoarthritis due to added weight placing more pressure and strain on weight-bearing joints. Obesity and overweight is also a precursor to type 2 diabetes mellitus and linked to an increased risk of CVD.

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FIGURE 3.19 A high fat intake increases the risk of becoming overweight and obese which is one of the main risk factors for developing type 2 diabetes mellitus.

High levels of fat, specifically saturated fats, in the bloodstream are thought to build up inside the muscle cells and block the insulin-signalling process that enables blood glucose to be used as energy by 'unlocking' cells. Regardless of the amount of insulin in the blood, if it is not able to effectively allow glucose to enter the muscle cells, glucose levels will build up in the blood. This is referred to as impaired glucose regulation (IGR) (also known as pre-diabetes) and is a pre-cursor to type 2 diabetes mellitus.

In 2017–18, adults aged 18 years and over who were obese were almost five times as likely as those who were of normal weight to have type 2 diabetes mellitus (9.8 per cent compared to 2 per cent). Similarly, adults who were overweight were more than twice as likely to have type 2 diabetes mellitus (4.6 per cent compared to 2 per cent) than adults of a normal weight (ABS, 2018).

EXTENSION QUESTION 3.8

Males experienced poorer health status than females for most age groups except for those aged 85 and over. Using your knowledge, explain the impact the consumption of a high fat diet may have on the health status of males.

High intake of fat and cardiovascular disease

Cardiovascular disease has two main components: diseases of the heart (cardio) and diseases of the blood vessels (vascular). Two of the cardiovascular diseases most impacted by food and nutrient intake are **atherosclerosis** and hypertension. Overconsumption of a high fat diet, specifically saturated and trans fats, can increase the risk of cardiovascular disease due to the way these fats impact cholesterol levels in the blood.

atherosclerosis: The hardening and thickening of the walls of the arteries as a result of deposits of atheroma (a substance known as plaque) on their inner lining; this build-up of atheroma may slow down or stop blood flow.

Atherosclerosis occurs when the inner walls of the arteries become narrow and hard due to a build-up of plaque (atheroma), which consists of substances including fats, cholesterol, cellular waste products and calcium. Plaque can grow on the lining of artery walls large enough to significantly reduce or even block the blood flow through an artery. The additional strain placed on the heart to pump blood through narrowed blood vessels can lead to high blood pressure (hypertension) a significant risk factor for cardiovascular disease. If a blood vessel that feeds the heart is blocked, it causes a heart attack. If plaque blocks a blood vessel that feeds the brain, it causes a stroke (cerebrovascular disease).

Atherosclerosis can be prevented to a large extent by minimising the following major risk factors associated with fat intake:

- high blood cholesterol levels
- high saturated and trans fat intake
- overweight and obesity.

A high level of cholesterol in the blood is a major risk factor for coronary heart disease, which leads to heart attack.

Consumption of saturated fats and trans fatty acids (hydrogenated oils and fats) from fried foods and processed foods increases LDL 'bad' cholesterol levels in the blood. These fats need to be reduced or avoided altogether as evidence suggests a direct link between saturated and trans fats and cardiovascular risk. Saturated fats are generally found in animal fats such as visible fat

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benign tumour: An abnormal growth that is not cancer and does not spread to other areas of the body.

malignant tumour: A mass of cancer cells that is likely to penetrate the tissues or organ in which it originated as well as move to other sites.

on meat, poultry skin, full-cream dairy products and many processed foods such as pastries and biscuits that contain both saturated and trans fats.

According to the latest Australian Burden of Disease study, in 2015, 3 per cent of the disease burden in Australia was due to high cholesterol, contributing to coronary heart disease and stroke burden (AIHW, 2015). The greatest burden was attributed to fatal burden of disease.

It is also important to remember that there is a benefit of consuming some fat in the diet in the form of unsaturated fats ('good fats') but the quantity consumed still needs to be controlled. According to the Heart Foundation, foods containing the polyunsaturated fats omega-3 and omega-6 are thought to decrease the risk of cardiovascular disease by several possible mechanisms, including:

- decreasing triglyceride levels
- increasing high-density lipoprotein (HDL) cholesterol levels
- decreasing the risk of blood clots inside blood vessels
- slowing the progression of atherosclerotic plaques
- modestly reducing blood pressure.

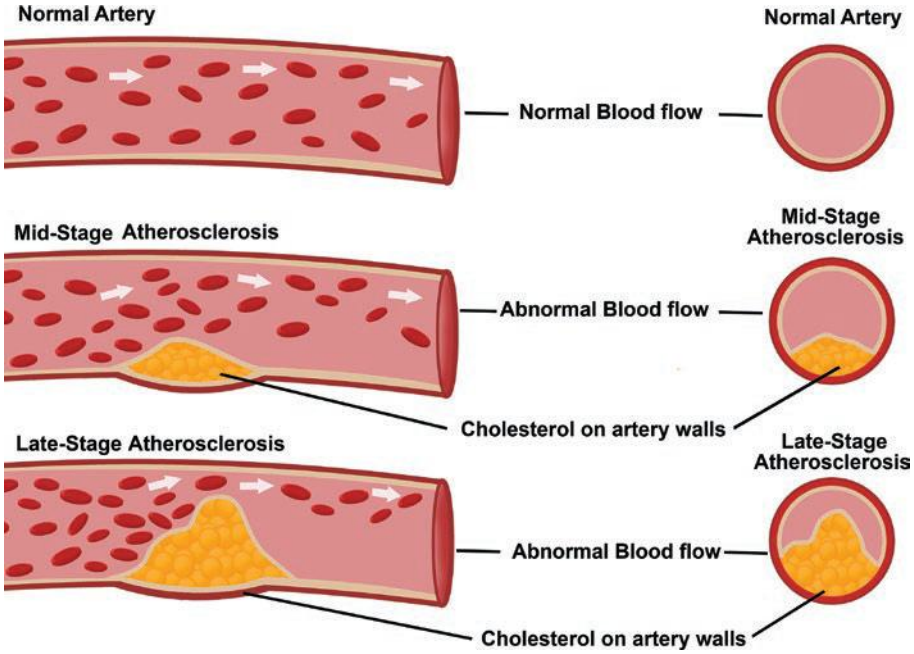
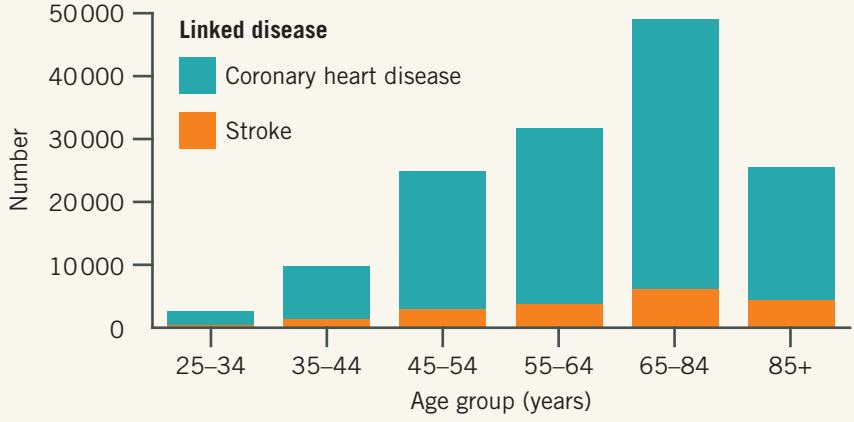


FIGURE 3.20 The difference between a normal and a diseased artery



SOURCE: AIHW (2019)

FIGURE 3.21 Burden of disease attributable to high cholesterol, by age

High intake of fat and colorectal cancer

Cancers affecting either the colon or the rectum are called colorectal cancer. The colon and rectum are the parts of the body's digestive system that remove nutrients from food and store waste until it passes out of the body. The colon is the large intestine. It begins where the small intestine ends and ends where it connects to the rectum.

Cancer is the abnormal and uncontrollable growth of cells. Normally, cells grow and divide to produce cells as they are needed by the body. When cells keep dividing even though the body does not need them, they form a mass of extra cells called a tumour. Tumours can be either benign or malignant. A benign tumour is not cancerous. It can often be removed and in most cases does not come back. Cells in **benign tumours** do not spread to other parts of the body. A **malignant tumour** is cancerous. Cells in malignant tumours are abnormal and divide without

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control or order. These cancer cells can destroy the tissue around them and spread throughout the body.

Research has consistently provided evidence that a high fat diet – especially saturated fats – directly increases the risk of colorectal cancer. The exact mechanism that causes colorectal cancer is still not completely understood. Dietary fats should only contribute around 15–30 per cent of daily energy needs. Men seem to be particularly at risk because of this association. Being overweight, particularly for men, is linked to increased risk of developing colon cancer.

The distribution of body fat appears to be an important factor, with abdominal obesity, which can be measured by waist circumference, showing the strongest association with colorectal cancer risk. A number of reasons have been proposed to account for the association of obesity with increased colon cancer risk. One theory is that high levels of insulin, or insulin-related growth factors in obese people, may promote colon cancer development (Modern Cancer Hospital Guangzhou, 2016).

High intake of fat: variations between population groups

People living outside of major cities are more likely to have a high intake of fats than those living within major cities. A contributing factor may be differences in the availability of foods, such as low-fat versions of dairy foods and meat products, which are more likely to be available in major cities.

Those living in the most disadvantaged (lowest) socioeconomic group have a higher disease burden due to high cholesterol compared with the highest (least disadvantaged) group.

ACTIVITY 3.5: CONCEPT MAPPING

The different types of fats behave differently in the body in relation to the risk of disease and chronic conditions. Conduct some further research and create a summary concept map that outlines the relationships that exist between obesity, cardiovascular disease, diabetes mellitus, colorectal cancer, and each of the types of fats:

- monounsaturated fat
- polyunsaturated fat
- saturated fat
- trans fat.



3.6 HIGH INTAKE OF SALT

A major component of salt is sodium. The main use of sodium by the body is in the regulation of blood pressure and blood volume. Sodium, together with potassium, is found in extracellular fluid and its concentration needs to be controlled efficiently. The role of sodium is to maintain body water distribution. Like fat, only a small amount of salt is needed by the body for optimal functioning of body processes. However, Australians consume far more salt in their diets than is actually needed, contributing to excess sodium in the body. In 2017–18, more than one in five (22.8 per cent or 4.3 million people) Australians aged 18 years and over had a measured high blood pressure reading. This has remained unchanged since 2014–15 (23 per cent) (ABS, 2018).

Relationship between high intake of salt and disease

A high salt intake is a risk factor for:

- cardiovascular disease
- osteoporosis.

High intake of salt and cardiovascular disease

A diet containing foods with high amounts of salt, such as cured meats (for example, hams and salami), cheese, pickled and preserved vegetables (for example, olives and sundried tomatoes), savoury sauces and almost all processed foods is associated with hypertension and cardiovascular disease.

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A diet high in salt and consequently sodium can significantly increase burden of disease and reduce health status. Increased sodium levels in the body result in excess fluid being withdrawn from the cells in the body, leading to increased blood volume. This means the heart has to work harder to pump blood around the body (through the blood vessels) which is a risk factor for hypertension (high blood pressure).



FIGURE 3.22 Victorians eat too much salt

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As blood circulates around the body, it exerts pressure on the walls of the blood vessels. Blood pressure is the measurement of pressure of the blood in the artery. Hypertension means that the heart is working too hard, therefore increasing the risk of heart failure. It can also increase atherosclerosis, which can restrict blood flow to the heart and lead to a heart attack. The walls of the arteries in the brain can also be weakened, which increases risk of a stroke.

High intake of salt and osteoporosis

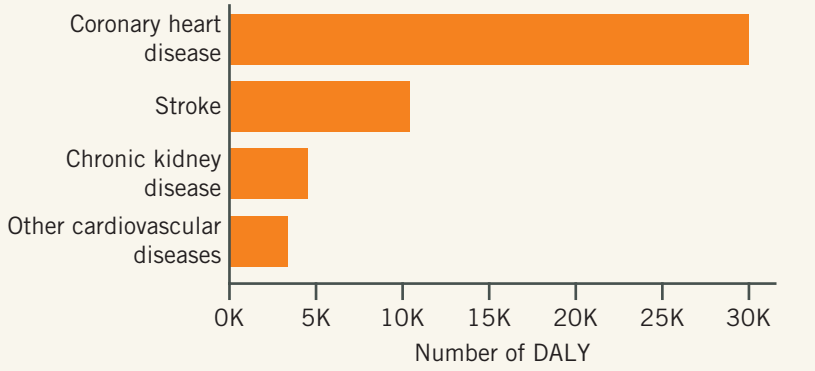
High consumption of salt is also linked to greater excretion of calcium in the urine, leading to loss of calcium that is actually needed for a range of body functions, including maintaining bone density. This calcium loss can therefore increase the risk of osteoporosis. Consuming more than the recommended daily intake of salt can be responsible for a significant change in bone calcium balance, causing it to move from positive to negative imbalance. The more calcium that is excreted from the body, the less there will be available for the bones to use in the continual process of rebuilding new bone cells – a process that takes place in the body throughout life. Once calcium is excreted, the body needs to find additional calcium for use in other body functions such as muscle contractions. In order to have calcium available for these functions, the body responds by removing what it needs directly from the bones. Without sufficient calcium present in the bones due to loss in urine, porous bones can develop and a greater incidence of fractures may occur. A low-sodium intake will help to ensure that the calcium balance in bones is optimal and peak bone density is achieved.

High intake of salt: variations between population groups

In relation to population groups most at risk of conditions relating to high salt intake, around 83 per cent of Aboriginal and Torres Strait Islander peoples aged 12 years or older living in remote areas reported 'sometimes' or 'usually' when asked about adding salt after cooking. This compares with 66 per cent of people living in major cities and indicates a high risk for high blood pressure and cardiovascular disease among Indigenous Australians in remote areas.

According to recent studies, men on average consume slightly more salt (10 grams) than females (7 grams) which is double the WHO recommended intake of 5 grams. This may be a risk factor contributing to males (25.4 per cent) having higher levels of hypertension than females (20.3 per cent).

EXTENSION QUESTION 3.9



SOURCE: Adapted from ABS (2018), Australian Burden of Disease Study 2015

Using the data on the left, explain the role that sodium plays in increasing the risk of cardiovascular disease and the impact on health status in Australia.

FIGURE 3.23 Impact of a high sodium intake on burden of disease

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3.7 HIGH INTAKE OF SUGAR

Sugar is a type of carbohydrate. Carbohydrates are one of three macronutrients that provide the body with energy. Carbohydrates are the preferred energy source for the body and provide 17 kilojoules per gram. Carbohydrates are generally divided into two main kinds: complex carbohydrates (starches), which occur naturally in vegetables and grains; and simple carbohydrates (sugars), which can be found in foods such as fruit, honey and milk. During digestion, both starches and sugars are broken down into glucose, which provides essential energy for the brain and central nervous system and for muscles during activity. Glucose is the most common type of sugar and the primary form of sugar that is stored in the body for energy.



FIGURE 3.24 Yoghurt, honey and fruits are examples of foods that contain simple carbohydrates.

Most simple carbohydrates elevate blood sugar levels quickly because they convert rapidly to glucose, providing instant energy, which is quickly used by the body.

Food sources for simple carbohydrates include a range of sugars or sweet liquids such as maple syrup or honey, fruit juices and fruit juice concentrates. Simple carbohydrates are found naturally in a range of food products such as fruits (fructose) and dairy products, including milk and yoghurt (lactose). However, they are also added to many processed foods, such as confectionery, sports drinks, vitamin water and soft drink, to enhance flavour. The natural and unprocessed food sources are best for health because many of these also contain some vitamins and minerals. For example, while fruits have a good supply of simple sugars, they are also high in some complex carbohydrates, fibre and a wide range of vitamins and minerals.

TABLE 3.4 Sources and types of simple carbohydrates

FOOD SOURCE OF SIMPLE CARBOHYDRATES	NAME OF CARBOHYDRATE
Cane sugar	Sucrose
Corn syrup	Glucose
Sugar from fruit	Fructose
Honey	Fructose and glucose
Malt from grains	Maltose
Milk sugar	Lactose
White table sugar	Sucrose

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Although it is recommended that less than 10 per cent of daily energy intake should be obtained from 'free' or 'added' sugars (sugars added to foods by manufacturers, cooks or consumers, as well as sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates) (WHO, 2015), most Australians consume sugar in amounts that exceed energy needs. On average, free sugars contributed to 13 per cent of total energy intake for boys and girls, 11 per cent for men and 10 per cent for women (AIHW, 2018).

Relationship between a high intake of sugar and disease

A high sugar intake is a risk factor for:

- overweight and obesity
- diabetes mellitus
- dental caries
- cardiovascular disease.

Sugar-sweetened and diet drinks are classified as a discretionary food item as they tend to have little nutritional value. High and frequent intake of these drinks may lead to adverse health outcomes, such as dental caries, high blood pressure, type 2 diabetes mellitus, cardiovascular disease and an increased risk of weight gain in both adults and children (ABS 2018, *National Health Survey: First Results, 2017–18*).

EXTENSION QUESTION 3.10



Explain how over-consumption of sugary drinks contributes to increased burden of disease in Australia.

High intake of sugar and overweight and obesity

A high intake of sugar-rich foods promotes the use of carbohydrates as the only energy source used by the body. This can then lead to an energy imbalance and fat storage in the body in the form of adipose tissue, increasing weight gain and contributing to a high BMI. Overweight and obesity are associated with an increased risk of type 2 diabetes mellitus and cardiovascular disease, especially when the excess body fat is distributed on the abdominal area of the body, which can decrease health status in Australia.

Consequently, foods that are low in sugar can potentially be a protective factor against weight gain because they are lower in kilojoules and take longer to release glucose into the bloodstream. This allows the body to use fat as an energy source (since the body does not have an instant source of energy available to it in the form of glucose). An increase in the use of fat as a fuel source will decrease the overall amount of adipose (fat) tissue in the body.

High intake of sugar and diabetes mellitus

Each form of diabetes mellitus has its own particular characteristics; however, the nutritional and healthy eating recommendations can be applied to all. For type 2 diabetes mellitus and gestational diabetes mellitus, appropriate food intake will help to control the impact and manage the condition. Type 1 diabetes is also managed with insulin injections several times during the day. In relation to type 2 diabetes mellitus, appropriate food intake to maintain a health body weight can help to prevent the onset of the illness and can help control the symptoms for those who have been diagnosed with pre-diabetes.

Research into the connection between a high sugar diet and type 2 diabetes mellitus is ongoing. However, what is known is that eating too much sugar can lead to increased body fat, increased BMI and obesity, which is a precursor to type 2 diabetes mellitus.

In type 2 diabetes mellitus, the body may produce enough insulin but its action may be

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blocked because of excess fat around the cells or the insulin receptor sites of the body becoming hyposensitive and losing the ability to respond to insulin (also known as insulin resistance). The body compensates for the resistance to the action of insulin by producing even more insulin. As the amount of insulin in the blood increases, side-effects of its excess become evident, such as fluctuating blood sugar and damage to the pancreas and ultimately type 2 diabetes mellitus.

Complications of diabetes include blindness, kidney failure, foot ulceration (which may lead to amputation), increased risk of infections, coronary heart disease and stroke, consequently increasing both fatal and non-fatal burden of disease. According to Diabetes Australia, type 2 diabetes mellitus is the fastest growing chronic condition in the country. Type 2 diabetes mellitus accounts for 85 per cent of all diabetes and this figure is expected to continue to increase. Currently, 280 Australians develop diabetes every day, which is the equivalent of one person every five minutes.

Choosing an appropriate healthy eating plan with a low intake of sugar will assist with:

- control of blood glucose levels
- control of blood lipid levels (cholesterol and triglycerides)
- control of body weight.

High intake of sugar and cardiovascular disease

There is no scientific consensus that sugar as a nutrient on its own causes cardiovascular disease. However, as with too much fat, a diet high in sugar can increase the amount of excess kilojoules being stored as body fat due to the imbalance of energy input and expenditure. This can lead to weight gain and being overweight or obese can increase the risk of cardiovascular disease. Diets with a high sucrose load have been found to raise blood triglyceride levels, increasing the risk of cardiovascular disease. Foods high in this form of sugar, with few other nutrients in them (for example, soft drink), should be limited. Carbohydrate-rich foods should be wholegrain, and simple sugars – particularly from processed foods – should be avoided.

High intake of sugar and dental caries

A high intake of added sugars in food and drinks increases the risk of developing tooth decay, or dental caries. Bacteria within the plaque on teeth digest the sugar in the mouth for energy. As a by-product of this process the bacteria release an acid, which gradually dissolves the enamel in the teeth, creating tooth decay.

ACTIVITY 3.6: DIABETES

Contribution of diabetes to burden of disease and health status

Using your knowledge and the Diabetes Australia website, complete the activities below. (https://cambridge.edu.au/redirect/8632)

1 Draw a mind map to show how dietary factors are a risk for type 2 diabetes mellitus.
2 Identify the impact of diabetes in Australia.
3 Explain what is meant by pre-diabetes
4 What are some common conditions linked with type 2 diabetes mellitus?
5 Explain how a diet high in fat can increase burden of disease in relation to type 2 diabetes mellitus.
6 A diet high in sugar can increase the risk of type 2 diabetes mellitus. Discuss how this dietary risk factor can contribute to health status in Australia.

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High intake of sugar: variations between population groups

Males are more likely than females to have a high sugar intake, and in particular consume higher amounts of sugary drinks (soft drinks). This is particularly the case for males aged 18 to 24 years.

A high level of sugar consumption is also more prevalent among low socioeconomic populations in comparison to high socioeconomic populations. Likewise, those most disadvantaged groups are more likely to consume sugar-sweetened drinks daily compared to the least disadvantaged groups. There is some argument that high-sugar foods are cheaper to purchase than foods that are nutrient-rich and low in sugar, increasing the selection of these high-sugar foods by low-income earners.

Many processed foods contain significant amounts of sugar. People living outside of major cities may rely on processed foods because they are more readily available than low-sugar fresh foods. This contributes to a higher consumption of sugar among these populations in comparison to those living in major cities. People living in major cities consume fewer sugary drinks (8.3 per cent) compared to adults living in inner regional areas (9.9 per cent) and outer regional and remote areas (13.1 per cent) who consume the highest quantity of sugar-sweetened drinks. The highest death rates among people with type 2 diabetes mellitus occur in remote and very remote areas.

3.8 LOW INTAKE OF FIBRE

Dietary fibre is found in cereals, fruits and vegetables. **Fibre** is mainly a carbohydrate and is defined as the edible parts of plants. Fibre is resistant to digestion and absorption in the stomach and intestine, passing through them virtually unchanged. As a result, fibre does not provide energy for the body. The main function of fibre is to keep the digestive system healthy. There are two major types of fibre: soluble and insoluble. Most foods contain a combination of both. A more recent addition to the fibre category is resistant starch, which – while not traditionally considered a fibre – has been found to act in a similar way.

fibre: A type of carbohydrate that the body does not digest.

soluble fibre: Fibre in the form of pectins and gums found in fruits, vegetables, oats and legumes. It has a binding effect that can lead to the increased removal of cholesterol from the body, delay blood glucose absorption and contribute to healthy bacteria.

Soluble fibre includes pectins, gums and mucilage, which are found mainly in plant cells. Other sources include fruit, vegetables, oat bran, barley, dried beans and soy products. One of fibre's major roles is a to increase the absorption of dietary low-density lipoprotein (LDL) ('bad') cholesterol, therefore helping to lower blood cholesterol levels and cardiovascular disease. Soluble fibre absorbs water and changes texture, which acts to slow down the rate of digestion. This can delay blood glucose absorption from the small intestine, thus regulating blood glucose levels and reducing the risk of developing type 2 diabetes mellitus. Soluble fibre is used mostly in the first part of the large intestine and is almost completely fermented in the colon; it provides energy for bacterial growth. Without food, these bacteria cannot survive and perform their beneficial effects in the large intestine.

Cellulose, hemicelluloses and lignin all form part of cell walls and are examples of insoluble fibre. Good sources also include wholegrain cereals, wheat bran, corn bran, rice bran, the skins of fruits and vegetables, nuts and seeds.



FIGURE 3.25 High-fibre grains, breads, fruits and vegetables

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Insoluble fibre does not change texture and promotes a shorter transit time through the intestinal tract. Insoluble fibre adds bulk to faeces and promotes easier movement of wastes through the intestines, contributing to regular bowel movements and helping to prevent the build-up of harmful toxins, along with constipation and associated problems such as haemorrhoids. It can also have an influence on the bowel bacteria, which may help prevent bowel cancer (also known as colorectal cancer).

insoluble fibre: Mainly cellulose; makes up the structural part of plant cell walls; has a major role in absorption of water and adding bulk to faeces to reduce the risk of colorectal cancer.

All types of fibre are beneficial to the body and an individual needs to consume a combination each day to maintain good health, particularly healthy bowels.

According to the AIHW, a diet low in wholegrains and high fibre cereals was the leading dietary risk contributing to 1.6 per cent of the total burden in Australia in 2015. This was followed by a diet low in fruit (1.4 per cent of total burden in 2015), and a diet low in nuts and seeds (1.3 per cent).

Including whole grains regularly in a balanced diet is thought to reduce the risk of coronary heart disease by 20–40 per cent. Consuming whole grains has also been associated with enabling individuals to maintain a healthy body weight, thereby reducing the risk of overweight or obesity and associated conditions such as CVD.

polyp: An abnormal growth of tissue (tumour) projecting from a mucous membrane such as the intestine.

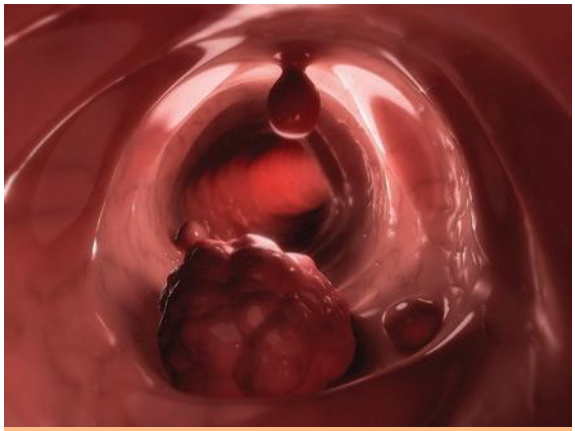


FIGURE 3.26 Intestinal polyps

Relationship between low intake of fibre and disease

Disorders that can result from eating a diet low in fibre include:

- constipation – small, hard and dry faecal matter that is difficult to pass
- haemorrhoids – varicose veins of the anus
- diverticulitis – small hernias of the digestive tract caused by long-term constipation
- irritable bowel syndrome – pain, flatulence and bloating of the abdomen
- overweight and obesity – carrying too much body fat
- coronary heart disease – a narrowing of the arteries due to fatty deposits
- diabetes – a condition characterised by too much glucose in the blood
- colon cancer – cancer of the large intestine.

EXTENSION QUESTION 3.11

Explain two ways in which a low-fibre intake can impact health status in Australia.

Low intake of fibre and colorectal cancer

Bowel cancer sometimes starts with a cancerous cell within the lining of the colon or the rectum; however, it more commonly develops from a **polyp** (a small, fleshy growth) forming in the intestine. While colon polyps start out as benign tumours, certain types of polyps may turn into cancer. The risk is greater as the polyp gets larger. Colorectal cancer is a preventable disease. These polyps can be removed before they become cancerous if they are detected early. Approximately 75 per cent of deaths from colorectal cancers are thought to be preventable through a healthy diet.

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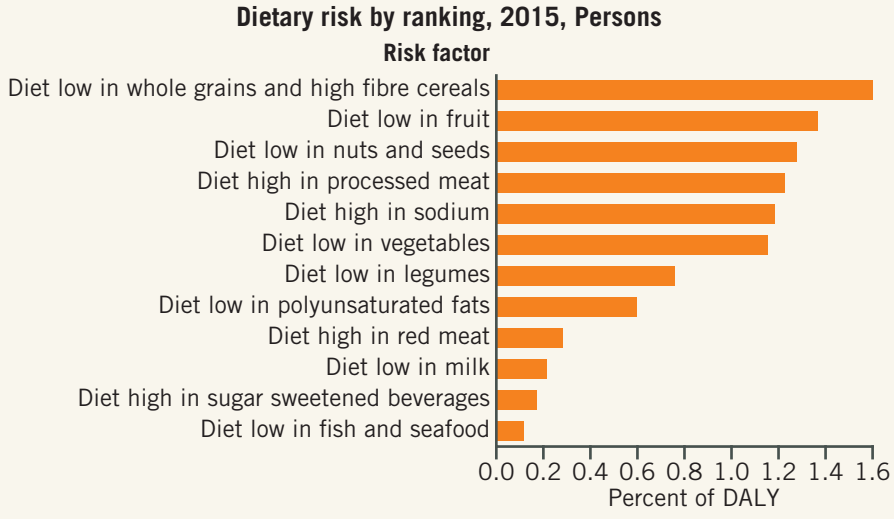
The most established diet-related risk factor for colorectal cancer is overweight and obesity. Currently, that risk is thought to be linked to high intakes of fat and low intakes of fibre. As such, fibre intake is the most important food-related protective factor against colon cancer. Fibre absorbs water in the intestine and adds softness and bulk to the faeces. This allows the muscles of the bowel to more easily push the faeces along the digestive tract. It has been suggested that faster elimination of faeces may prevent cancer agents from lingering against the bowel wall. Fruits, cereals and vegetables contain fibre, as well as hundreds of flavonoids and carotenoids that act as antioxidants and anti-tumour agents. The AIHW reported that all dietary risks combined contributed 22 per cent of bowel cancer burden. The data in Figure 3.28 show that a diet low in wholegrains and high-fibre cereals was the leading dietary risk contributing to 1.6 per cent of the total burden in Australia in 2015. This was followed by diet low in fruit (1.4 per cent of total burden in 2015), and diet low in nuts and seeds (1.3 per cent) (AIHW Burden of Disease, 2015).



FIGURE 3.27 Cancer affecting either the colon and or the rectum is called colorectal cancer.

The theory that fibre prevents colon cancer was introduced when scientists noticed that people in rural Africa had a lower incidence of colon cancer than people in Western countries living on a rich diet. There are many differences in food consumption between the two populations, the most obvious one being the Africans' higher consumption of fibre. Over time, much evidence has strengthened this theory.

DISCUSS



SOURCE: AIHW, Australian Burden of Disease Study (2015): Interactive data on risk factor burden, 2018

FIGURE 3.28 Dietary risk contributing to burden of disease, 2015

Referring to Figure 3.28, identify and discuss all dietary risk factors in the graph that would contribute to a low intake of fibre.

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Low intake of fibre and overweight and obesity

A low fibre intake is a risk factor for overweight and obesity and associated conditions. After eating a meal rich in fibre, the body will experience a feeling of satiety (fullness). High-fibre foods tend to make the stomach feel full during the meal, leading to a decrease in the quantity of food consumed, whereas low-fibre foods have the opposite effect and often result in overeating or snacking due to hunger. This results in additional kilojoules not used as energy being stored as body fat, increasing the likelihood of becoming overweight and obese. High-fibre foods are almost invariably low in fat; therefore, a high-fibre diet will usually be a low-fat diet.

Low intake of fibre and cardiovascular disease

A low-fibre intake can increase blood cholesterol levels, a risk factor for cardiovascular disease – specifically coronary heart disease, stroke and high blood pressure. This is because soluble fibre lowers blood cholesterol levels by binding to bile acids and removing them from the body. Bile acids are produced by the liver and are made from cholesterol and help in the digestion process; specifically, they have a role in the breakdown of fats. During digestion, bile salts themselves are broken down in the intestine and the cholesterol is reabsorbed into the bloodstream. When soluble fibre is consumed, the bile salts get bound to the fibre and are then able to be excreted by the body. Thus, the fibre removes some cholesterol from the body including LDL (bad) cholesterol levels.

Low intake of fibre and diabetes mellitus

Low-fibre intake is associated with difficulty in controlling blood glucose levels and as previously discussed, foods that result in poor blood glucose control lead to a high risk for developing type 2 diabetes mellitus. Food low in fibre also tend to be energy dense contributing excess kilojoules to the diet and to an increased risk of weight gain, a precursor to type 2 diabetes mellitus.

While foods high in fibre are often lower in kilojoules and are digested more slowly, and

ACTIVITY 3.7: ANALYSIS TASK

Part A: Complete the following to collect data:

- Compare the carbohydrate content of three different types of breakfast cereals by looking at their nutrition panel (refer to the 100 g quantity for an equitable comparison as the suggested serving sizes may be different).

Part B: Complete the following based on your data:

1. Identify the types of carbohydrates and compare the respective quantities of them that are found in your chosen breakfast cereals.
2. What is the percentage of daily energy contributed by each of the cereals?
3. Does the breakfast cereal make any nutrient claims in relation to health? If so, what are they?
4. Make a recommendation about the cereal with the highest nutritional quality, based on your knowledge of carbohydrates and their functions.
5. Summarise the impact that a low intake of fibre has on the health status of Australians. In your answer, include data to support your discussion.

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this slows the rise in, and absorption of, blood glucose from the small intestine into the blood reducing the risk of type 2 diabetes mellitus.

Low intake of fibre: variations between population groups

Fibre is obtained from plant foods; therefore, a low intake of fibre is strongly associated with the under-consumption of fruits and vegetables. Population groups at risk of a low-fibre intake because of this include Indigenous populations in comparison to non-Indigenous, low socioeconomic groups in comparison to high socioeconomic groups, and those living outside major cities in comparison to those living in major cities. Refer to the section regarding under-consumption of vegetables and fruit for more information on variations in population groups.

3.9 LOW INTAKE OF IRON

Iron is an important micronutrient. Iron is not made in the body and must be provided by the diet, making it an essential dietary mineral. Iron is an essential component of haemoglobin (a type of protein) in red blood cells and myoglobin in muscles. Haemoglobin transports oxygen in the blood from the lungs to the tissues, which need oxygen to maintain basic life functions and energy production. Myoglobin (an iron-containing protein in muscle) supplies oxygen to muscle cells for use in the chemical reaction that results in muscle contraction. Iron is also a necessary component of many other proteins and enzymes in the body. Lean red meat is a rich source a of iron that is efficiently absorbed. Another major source of iron is wholegrain cereal products. Iron can also be found in green leafy vegetables such as spinach, legumes and nuts; however, the absorption of the iron found in these sources is often not as effective and depends on the level of absorption inhibitors such as phytates and phenols.

A low intake of dietary sources of iron will lead to a decline and depletion in the body's iron stores, which results in an iron deficiency.

Relationship between low intake of iron and disease

A low iron intake is a risk factor for:

- iron-deficiency anaemia.

A low intake of iron is a risk factor for iron-deficiency anaemia, a condition where there is insufficient haemoglobin in the red blood cells to carry oxygen to the cells to meet the body's needs. This means the red blood cells have to work harder to move oxygen around the body. Blood cells are created in the bone marrow and depend on certain dietary nutrients for their manufacture and maintenance. Iron-deficiency anaemia can lead to a range of symptons including fatigue, tiredness, dizziness and decreased immunity. An anaemic person may also experience a drop in blood pressure when standing from a sitting or lying position (orthostatic hypotension). This may happen after acute blood loss, such as a heavy menstrual period.

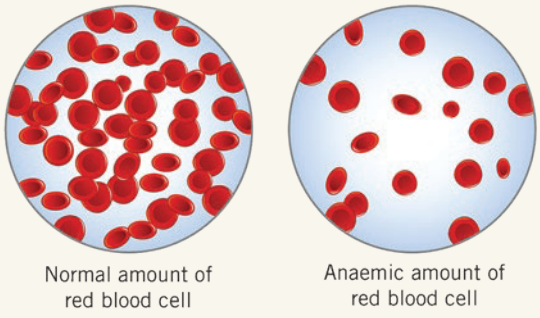


FIGURE 3.29 Anaemia is a condition that develops when there are not enough healthy red blood cells in the blood or haemoglobin in red blood cells, resulting in a lack of oxygen to the body's organs.

Low intake of iron: variations between population groups

Low intake of iron is more common among females than males. Anaemia is considered to be common in females with estimates suggesting that around one in five menstruating women and half of all pregnant women are anaemic.

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There is also some indication that low-socioeconomic populations and those who live outside of major cities are more likely to have a lower intake of iron than high-income populations. The costs of many foods that are rich in iron, such as red meats, and limited access to a wide range of foods can disadvantage some low-income groups and those living in outer regional remote areas.

3.10 UNDER-CONSUMPTION OF VEGETABLES

Vegetables come in many different shapes, sizes and tastes. They can be divided into:

phytochemicals: Bioactive chemical compounds found in plants; also known as antioxidants.

- gourd vegetables – pumpkin, cucumber
- root and tuber vegetables – carrots, yams, potatoes
- allium vegetables – onion, garlic, shallot
- leafy green vegetables – spinach, lettuce, silver beet
- members of the crucifer family – broccoli, cabbages, Brussels sprouts
- edible plant stems – celery, asparagus.

Including a variety of vegetables in the diet provides a diversity of colours, textures and flavours to meals and, importantly, ensures a balanced intake of all nutrients required by the body. Vegetables are nutrient dense, generally low in fat (kilojoules), provide dietary fibre, water, vitamins and minerals. Vegetables are also a rich source of a range of **phytochemicals** – bioactive chemical compounds found in plants, which are also known as antioxidants. These compounds help to inhibit the potentially harmful damage of free radicals – molecules that cause damage to body cells including DNA in the body. Antioxidants also help prevent the build-up of cholesterol fatty deposits in the arteries and improve blood flow in the body.

Consuming sufficient amounts of vegetables is a protective factor against many chronic conditions such as cancer, heart disease and diabetes mellitus as well as obesity. The recommended intake of vegetables is at least five serves per day; however, most Australians do not meet this intake. This insufficient consumption of vegetables contributed to 1.2 per cent of the total burden of disease in Australia in 2015.

According to the ABS, in 2017–18, only one in 13 (7.5 per cent) Australians aged 18 years and over met the guidelines for serves of vegetables while only one in 20 (5.4 per cent) adults met the recommended guidelines for both fruit and vegetable intake. More women (10.9 per cent) than men (4.1 per cent) met the guidelines for vegetable consumption. *Australia's Health 2018* reported more than 99 per cent of all children and 96 per cent of adults do not eat the recommended daily amount of vegetables (ABS, 2018).



FIGURE 3.30 A variety of vegetables provides a wide range of essential nutrients.

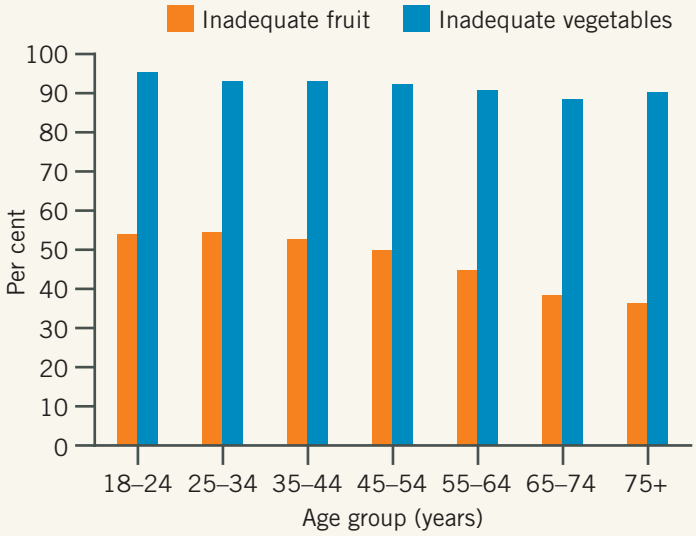
EXTENSION QUESTION 3.12

Think back over the vegetables you have consumed in the past week. How many different types from different groups of vegetables have you eaten? Explain two ways in which consuming the recommended intake of vegetables is important for reducing burden of disease in Australia.

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ACTIVITY 3.8: DATA ANALYSIS

1 Describe the consumption patterns of vegetables and fruit evident from this graph.
2 Explain how Australia's health status may be impacted by the trend in vegetable consumption.
3 Identify sociocultural and biological factors that may influence the consumption patterns evident.
4 Explain how these consumption patterns would affect the average fibre intake, and the phytochemical intake, of Australians.



SOURCE: AIHW, Poor diet (2019)

FIGURE 3.31 Prevalence of inadequate fruit and vegetable intake for persons aged 18 and over, 2017–18

5 Identify the diseases for which low-fibre intake are risk factors.
6 Discuss the impact this data could have on obesity rates and burden of disease.

Relationship between under-consumption of vegetables and disease

A low intake of vegetables is a risk factor for a number of chronic conditions, including:

- some cancers such as colorectal cancer
- cardiovascular disease including coronary heart disease and stroke
- overweight and obesity
- diabetes mellitus.

Under-consumption of vegetables and cancer

Each year in Australia, approximately 27 per cent of all deaths can be attributed to cancer.

Numerous studies conducted on the effect of phytochemicals on health have found that they are protective factors against some types of cancer. For example, vegetables that are carotene-rich (yellow, orange and red) and the cruciferous vegetables (broccoli, cauliflower, Brussels sprouts and cabbage) are highly recommended as a preventative measure against colon cancer. The role of fibre in reducing colorectal cancer has been discussed previously. A reduction in the consumption of vegetables reduces the quantity of fibre in the diet and therefore the ability to add bulk to faeces and regulate bowel movements, increasing the risk of colorectal cancer.

Under-consumption of vegetables and cardiovascular disease

Like cancer, recent studies suggest that protection against heart disease may occur through the presence of antioxidant phytochemicals and antioxidant vitamins (for example, vitamins E and C) which occur in significant levels in vegetables. This may reduce the risk of cholesterol becoming oxidised in the blood vessels near the heart, which can form plaque in the arteries,

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causing blockages. Therefore a reduction in vegetable consumption reduces the levels of antioxidants in the body and this can increase the risk of plaque build-up in the arteries (atherosclerosis), increasing coronary heart disease and negatively impacting health status. This build-up of plaque can also lead to the immune system trying to fight off the plaque causing inflammation inside the arteries, which can lead to hardening of the arteries and heart disease. According to the *AIHW Burden of Disease Study 2017*, insufficient consumption of vegetables contributed to 14 per cent of the total burden of disease due to coronary heart disease and 8 per cent of the total burden of disease due to stroke in Australia in 2015.

Under-consumption of vegetables and obesity

As previously mentioned, vegetables are nutrient dense, generally low in fat and high in fibre. Under-consumption of vegetables can result in reduced feelings of satiety. This can lead to greater quantities of food being consumed and the inclusion of other foods in the diet (in place of vegetables) which can be higher in kilojoule content. This can increase the risk of excess kilojoules being stored as body fat and increasing the likelihood of becoming overweight and obese, contributing to reduced health status and increased burden of disease.

Under-consumption of vegetables and diabetes mellitus

Because there is a strong relationship between type 2 diabetes mellitus and high body mass, there is also an association between the under-consumption of vegetables and increased risk of type 2 diabetes mellitus.

Variations in population groups in vegetable and fruit consumption will be discussed in Section 3.11.

3.11 UNDER-CONSUMPTION OF FRUIT

While fruit and vegetables are being discussed separately, there is increasing evidence that a number of chronic diseases can be avoided by consuming both fruit and vegetables; therefore much of the impact of fruit on health status is the same as that of vegetables.

The term 'fruit' generally applies to the sweet, fleshy edible portion of a plant that arises from the base of the flower and surrounds the seeds of the plant, and is usually consumed raw. Eating foods such as fruit in a raw state has some health advantages because it is more likely that the quantity and quality of the vitamins and minerals present will be maintained. Fruits are high in carbohydrates, including fibre, and a range of essential phytochemicals such as carotenoids and bioflavonoids (such as anthocyanins and flavonols). They also have a wide range of vitamins and minerals, such as vitamin C, vitamin B2, vitamin B6, folate, vitamin A and minerals such as potassium. Another specific characteristic of fruits is that they are low in energy (kilojoules) when eaten fresh.

Generally, fruit consumption rates in Australia are much better than those for vegetables. In 2017–18, just over half (51.3 per cent) of Australians aged 18 years and over met the guidelines for the recommended daily serves of fruit (two or more serves) and just over half (55.8 per cent) of women met the fruit guidelines, compared with 46.6 per cent of men (ABS, 2018). However, there were notable differences between age groups and sexes. Children on average consumed more serves of fruit than adults, and older adults aged 75+ were more likely to meet the guidelines than younger adults aged 18–24 years. A diet low in fruit contributed to 1.4 per cent of the total burden in Australia in 2015.

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Relationship between under-consumption of fruit and disease

A low intake of fruit is a risk factor for a number of chronic conditions, including:

- cardiovascular disease, including coronary heart disease and stroke
- overweight and obesity.

Under-consumption of fruit and cardiovascular disease

Evidence for the health advantages of including fruit in the diet has been strong for some time, but has strengthened considerably recently. For example, it has been found that consumption of each additional daily serve of fruit is associated with a reduced risk of coronary heart disease. Increased protection of at least 7 per cent is gained from each additional serve of fruit consumed per day, and consuming at least one and a half serves of fruit a day – ideally two and a half or more – is associated with a reduced risk of stroke (ABS, 2015). However, our current under-consumption of fruit contributed 14 per cent of stroke disease burden and 8 per cent of coronary heart disease burden in 2015 (AIHW, 2018). A reduced fibre intake and the likelihood of increased BMI due to an increase consumption of excess kilojoules are often the consequences associated with under-consumption of fruit, impacting the development of cardiovascular disease.

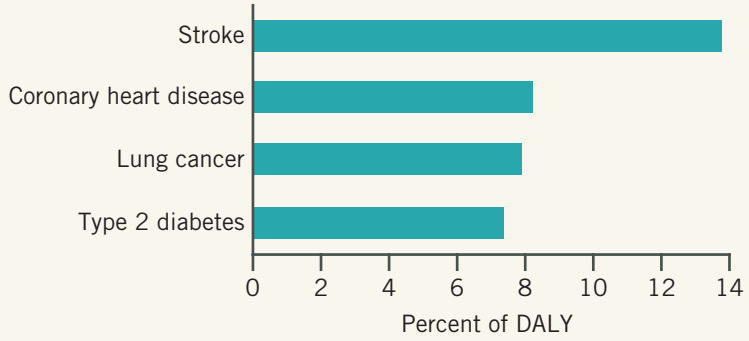
Consuming fruit in combination with reduced-fat dairy products has been shown to be beneficial in reducing blood pressure and supplying an adequate intake of potassium improving heart health.

Under-consumption of fruit and obesity

A high intake of energy-dilute foods in the form of fruits contributes to a reduction in total energy intake and an improvement in micronutrient intake. When there is an under-consumption of these foods, the risk of weight gain increases. With an increase in weight and BMI, the risk of type 2 diabetes mellitus increases. In 2015, 7 per cent of disease burden was attributed to a low fruit intake contributing to type 2 diabetes mellitus.

Under-consumption of fruit and vegetables: variations between population groups

In relation to the health status of different population groups and their consumption of fruits and vegetables, Indigenous Australians had a lower proportion of adequate consumption of fruit and vegetables compared to non-Indigenous Australians. Specifically, 46 per cent of Indigenous adults consumed an adequate daily intake of fruit and 5.8 per cent had an adequate daily intake of vegetables (AIHW, 2018).



SOURCE: AIHW, Australian Burden of Disease Study (2015)

FIGURE 3.32 Percent of DALY attributable to diet low in fruit, 2015

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Many Australians, particularly those experiencing socioeconomic disadvantage, do not meet the recommendations in the Australian Dietary Guidelines for food consumption, and fruit and vegetable intake in particular is much lower than the recommendations. Low-SES groups may have fewer skills for cooking and preparing healthy food, have poorer storage for fresh food, and pay relatively more for fresh food compared with high-SES groups. Individuals of low SES also tend to have poorer knowledge about nutrition and lack the income to purchase fresh fruit and vegetables. This may, in turn, influence their ability to choose a healthy diet.

While both males and females have an inadequate consumption of fruit and vegetables, females are more likely to meet the recommended guidelines for both fruit and vegetables than males.

3.12 UNDER-CONSUMPTION OF DAIRY FOODS

The term 'dairy' generally refers to cow's milk, and the yoghurts and cheeses produced from it. Dairy products provide the most significant source of calcium for our bodies while also providing good sources of a number other of nutrients, including protein, iodine, vitamin A, vitamin D, riboflavin, vitamin B12 and zinc, phosphorus and potassium. Other sources of dairy-related products include goat's milk/cheese, sheep's milk/cheese, soy milk, almond milk and milk made from various cereals, including oats and rice. However, their nutritional content differs from cow's milk and hence many of these products are fortified, specifically with calcium. The calcium in dairy foods is in a readily absorbable form. While the recommended intake of dairy foods (milk, yoghurt and cheese) varies on the basis of sex and age, consumption of at least two to three serves per day of dairy foods is associated with a reduced risk of a number of conditions.

Australians are missing out on the health benefits of dairy foods due to under-consumption. The Australian Dietary Guidelines recommends greater amounts of dairy foods (3½ serves) be consumed in adolescence (12–18 years) and also in older adulthood (3½ serves for males 70 years and over and 4 serves for females aged 51 years and over). However, current consumption rates indicate that only one in 10 Australians is meeting the recommended intake for dairy products outlined in the Australian Dietary Guidelines (ABS, 2016). Adults, adolescents and children all need to increase their intake of dairy foods to achieve the recommended guidelines.

It should be noted that it is possible to be intolerant of dairy products that contain lactose, a type of carbohydrate. Lactose intolerance is relatively high in Australia and is often experienced by those of Asian descent (80–90 per cent of people) and is also common in those of Aboriginal and Torres Strait Islander descent (80 per cent of people).

Relationship between under-consumption of dairy foods and disease

There is evidence that a low intake of dairy foods is a risk factor for a number of conditions, including:

- osteoporosis
- heart disease
- stroke
- hypertension
- colorectal cancer.

Under-consumption of dairy foods and osteoporosis

In particular, under-consumption of dairy foods is associated with the condition known as osteoporosis. Osteoporosis is a decrease in bone density and strength that results in increased susceptibility to bone fractures. Osteoporosis literally means 'porous bones'. Over time, bones contain less calcium, become brittle and fragile, and tend to fracture easily, typically in the wrist, hip and spine.

Milk foods are the richest source of calcium in the Australian diet. Calcium is the most abundant mineral in the body. Its primary role is the construction and maintenance of bones and teeth. Approximately 99 per cent of total body calcium is in the skeleton and teeth, and they act

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as a storage reservoir for calcium as well as other minerals. The other 1 per cent is in blood and soft tissues. Calcium is found in two different forms in the bones. One form is bound tightly and is not easily removed, while a second form can easily be removed from bone to aid in maintaining normal blood calcium levels. Calcium is one of the main bone-forming minerals and an appropriate supply to bone is essential at all stages of life.

An under-consumption of dairy foods will reduce calcium intake and prevent bones from developing to peak bone mass, and can also result in the demineralisation of bone to provide calcium for other functions in the body. The attainment of peak bone mass and a regularly high daily intake of calcium are required throughout the whole lifespan for both men and women. **Peak bone mass** refers to the genetic potential for bone density. By the age of 30, the average person has acquired most of their skeletal mass. It is important for an individual to achieve a high peak bone mass during youth and early adulthood. A person with a high bone mass at this time will be more likely to maintain their bone mass at a level that will prevent fractures from occurring when age-related loss begins. A large decline in bone mass occurs in older adults, increasing the risk of osteoporosis. For women, this occurs around the time of menopause and is related to changes in the release of the hormone oestrogen.

DISCUSS

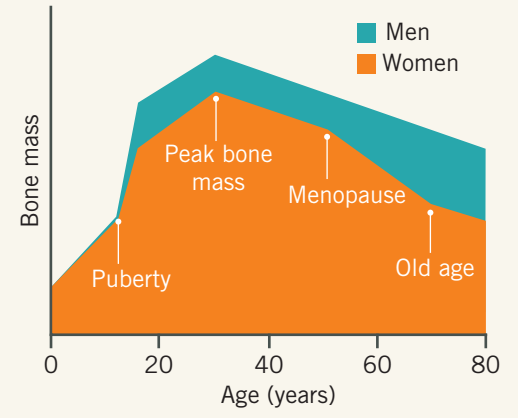


FIGURE 3.33 Peak bone mass

Discuss the role of calcium in establishing peak bone mass.

An inadequate intake of calcium therefore can adversely influence bone formation and ossification (hardening of bone) which may contribute to osteoporosis. Dairy products also contain other nutrients that help prevent osteoporosis, specifically protein and phosphorus. Mature bone is a connective tissue largely composed of protein in the form of collagen; the rest is a mineral composite made up mainly of calcium and phosphorus. Protein is therefore important to the integrity of bones at all life stages because it is essential for bone growth, maintenance and renewal. The recommended intakes for protein need to be adhered to for optimum bone health, and dairy foods are a good source of protein.

peak bone mass: Refers to the genetic potential for bone density.

Phosphorus can also be found in dairy foods. Phosphorus is the second most abundant mineral in the body. It is present in bones and teeth, and combines with calcium to form calcium phosphate, which is the substance that gives the skeleton its rigidity. An under-consumption of dairy foods can increase the risk of dental caries due to a lack of calcium and phosphorus to strengthen teeth.

EXTENSION QUESTION 3.13

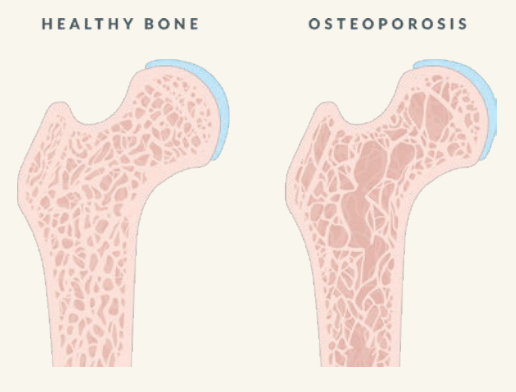


FIGURE 3.34 Normal bone (left) compared with an osteoporotic bone (right)

From the section of bone in Figure 3.34 showing osteoporosis, describe the differences in appearance of the two types of bone and explain the impact of osteoporosis on non-fatal burden of disease.

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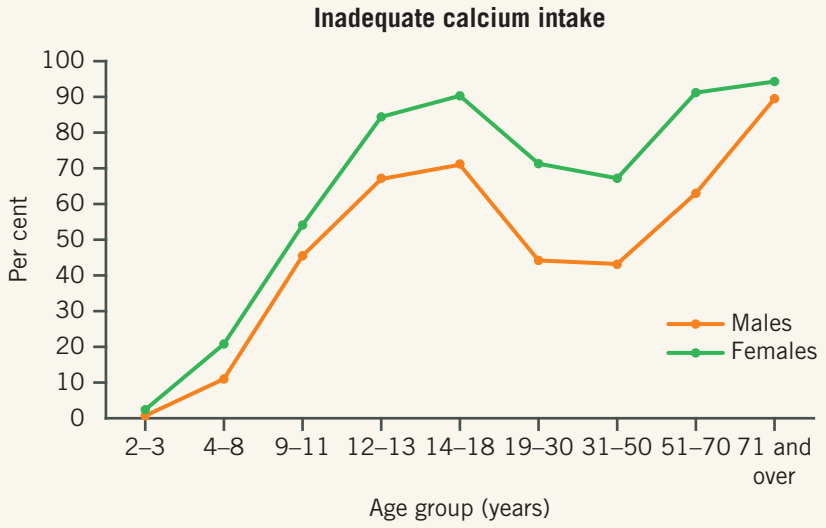
AOS 1

Under-consumption of dairy foods: variations between population groups

Males consume slightly more dairy food than females during adolescence and adulthood, although the difference in consumption is not considered to be very significant. However, the recommended intake for females is higher than males for some age groups, such as the 51–70 age group. The result of this is that females are more likely to be under-consuming dairy foods in these age groups.

Indigenous populations on average consume less dairy food than non-Indigenous populations. The overall consumption of dairy foods by Indigenous populations is considered to be significantly less than the recommendations across all age groups. A contributing factor to this consumption pattern may be the higher rates of lactose intolerance in the Aboriginal and Torres Strait Islander population.

ACTIVITY 3.9: DATA ANALYSIS



SOURCE: Nutrition Across the Lifespan Report (2017)

FIGURE 3.35 Proportion of the population with intakes less than the estimated average requirement for calcium, by sex and age, 2011–12

1 Describe two trends evident in Figure 3.35.
2 Identify the major food group that provides the mineral calcium and list two examples of food from this food group.
3 List any other nutrients that are provided by foods in this food group.
4 For the children who have a lower intake of foods from this major food group, what other food sources could be consumed in order to obtain calcium?
5 Why is it particularly important for adolescents and young adults to consume adequate quantities of the major nutrients found in dairy products?

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CASE STUDY: HOW HEALTHY IS THE TYPICAL AUSTRALIAN?

MEDIA RELEASE

12 December 2018

How healthy is the typical Australian?

The typical Australian is a non-smoker and has never smoked, does 42 minutes of exercise every day, is overweight or obese and does not eat enough vegetables.

Data released today by the Australian Bureau of Statistics' (ABS) National Health Survey 2017–18 shows that more than half of Australians (56 per cent) thought they were in excellent or very good health, while 15 per cent were feeling in fair or poor health.

ABS Director of Health Statistics, Louise Gates, said the typical Australian male weighed 87 kg and stood 175 cm tall and was therefore overweight while the typical female weighed 72 kg and was 161 cm tall and was also overweight.

'On average, we were doing 42 minutes of exercise every day, which mostly consisted of walking for transport or walking for exercise (24.6 minutes), however we didn't participate in sufficient strength and toning activities,' Ms Gates said. 'In addition, 44 per cent of us spent most of our work day sitting.'

'More than half of us were eating the recommended daily intake of fruit but not enough vegetables, with only 7.5 per cent of adults eating the recommended daily serves of vegetables.'

In good news, while 79 per cent of us consumed alcohol in the last year, we did so at safe levels.

Fewer than half of Australians (48 per cent) consumed either sugar sweetened or diet drinks and 47 per cent of Australians had at least one chronic health condition.

Further details are in National Health Survey: First Results, 2017–18 (cat. no. 4364.0.55.001) from the ABS website.

SOURCE: ABS (2017–18)

1. According to the National Health Survey 2017–18, the typical Australian is a non-smoker or has never smoked. Discuss how smoking can impact the health status of Australians.
2. More than half of Australians surveyed thought their health was excellent or very good. Identify and define the health status indicator this result refers to.
3. Respond to the following:
   - **a** Both men and women were found to be overweight. With reference to the classification overweight, briefly explain 'body mass index' (BMI) and how it is determined.
   - **b** Explain how high body mass may contribute to burden of disease in Australia.
   - **c** Identify and discuss a sociocultural factor that could contribute to males and females being overweight.
4. According to the survey results, only 7.5% of adults eat the recommended daily serves of vegetables. Discuss the contribution to health status of not consuming enough vegetables.



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AOS 1

5 Alcohol contributes significantly to burden of disease in Australia; however, pleasingly this data has identified that most people are consuming alcohol at safe levels. Identify a sociocultural factor and explain how it may have impacted this survey result.

6 Besides an increase in body weight, discuss another impact of over-consumption of sugar.

7 Identify a dietary risk factor not discussed in the case study and discuss how the factor may impact the health status of Australians.

TABLE 3.5 Summary of the contribution to Australia's health status and burden of disease of dietary risk factors

FACTOR	HOW THE BODY IS IMPACTED	CONTRIBUTION TO HEALTH STATUS AND BURDEN OF DISEASE
High intake of fat	Increased body weight (BMI) (adipose tissue)	Leading to overweight and obesity, and associated conditions such as type 2 diabetes, increasing morbidity
	High cholesterol levels, atherosclerosis, blood clots and hypertension	Increased risk of cardiovascular disease, stroke and heart attack, reducing life expectancy
	Impaired glucose regulation (IGR)	Can contribute to diabetes mellitus (type 2 diabetes mellitus) and associated conditions, increasing years of life lived with disability (YLD) and contributing to non-fatal burden of disease
	Abnormal and uncontrollable growth of cells	Increased rates of colorectal cancer, decreasing life expectancy
High intake of salt	Excretion of calcium in the urine	Increased risk of osteoporosis and years of life lived with disability (YLD), contributing to non-fatal burden of disease
	Excess fluid withdrawn from the cells in the body, leading to increased blood volume (high blood pressure)	Increased hypertension and cardiovascular disease, stroke and heart attack, increasing mortality
High intake of sugar	Excess kilojoules stored as fat or adipose tissue increasing body weight (BMI)	Contributes to overweight and obesity, increasing morbidity Increased risk of cardiovascular disease, stroke and heart attack, reducing life expectancy
	Impaired glucose regulation (IGR)	Can lead to diabetes mellitus (type 2 diabetes mellitus) and associated conditions, increasing years of life lived with disability (YLD) and contributing to non-fatal burden of disease
	Sugar digested by mouth bacteria releases an acid to dissolve tooth enamel	Can contribute to dental caries develop, increasing morbidity

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TABLE 3.5 (*Continued*)

FACTOR	HOW THE BODY IS IMPACTED	CONTRIBUTION TO HEALTH STATUS AND BURDEN OF DISEASE
Low intake of fibre	Reduced feelings of satiety (fullness) and increased feelings of hunger with potential overeating, increasing excess kilojoules stored as fat or adipose tissue that increase body weight (BMI)	Can contribute to overweight and obesity, increasing morbidity Increased risk of cardiovascular disease, stroke and heart attack, reducing life expectancy
	Greater difficulty passing faeces and increased waste in the intestines, irregular bowel movements, decreased elimination of waste	Increased build-up of harmful toxins in the bowel and risk of constipation and associated conditions such as haemorrhoids and colorectal cancer
	Decreased absorption of dietary LDL ('bad') cholesterol and increased cholesterol levels	Increased risk of cardiovascular disease, stroke and heart attack, increasing burden of disease attributed to premature death
	More rapid gastric emptying and irregular blood glucose absorption from the small intestine, leading to fluctuating blood glucose levels, which are more difficult to control	Increased rates of diabetes mellitus (type 2 diabetes mellitus) and associated conditions increasing years of life lived with disability, contributing to non-fatal burden of disease
	Reduced effectiveness and health of the digestive system due to poor quality and/or lack of bacteria	Increased build-up of harmful toxins in the bowel leading to a constipation and associated conditions such as haemorrhoids and colorectal cancer, decreasing HALE
Low intake of iron	Reduced oxygen supply to the tissues and a decline and depletion in the body's iron stores	Possible increased risk of iron deficiency anemia with symptoms of tiredness, weakness, lack of energy and dizziness, increasing years of life lived with disability (YLD) and contributing to non-fatal burden of disease
Under-consumption of fruit and vegetables	Reduced fibre intake decreasing feeling of satiety (fullness) and increased hunger and potential overeating, increasing excess kilojoules stored as fat or adipose tissue that increase body weight (BMI)	Can lead to overweight and obesity, increasing morbidity Increased risk of cardiovascular disease, stroke and heart attack, increasing mortality Increasing the risk of developing diabetes mellitus (type 2 diabetes mellitus) and associated conditions, increasing years of life lived with disability (YLD) and contributing to non-fatal burden of disease
	Reduced bulk and softness of faeces and irregular and more difficult bowel movements, build-up of harmful toxins in the intestine	Increased risk of constipation and associated problems such as haemorrhoids and colorectal cancer, increasing burden of disease, disability adjusted life years (DALYs)

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TABLE 3.5 (*Continued*)

FACTOR	HOW THE BODY IS IMPACTED	CONTRIBUTION TO HEALTH STATUS AND BURDEN OF DISEASE
	Reduced antioxidants in the body which can enable the build-up of potentially harmful free radicals, molecules that cause damage to body cells including DNA in the body	Leads to an increased risk of cancer, particularly colorectal cancer, decreasing life expectancy
	Decreased absorption of dietary LDL ('bad') cholesterol Increased cholesterol levels and build-up of plaque (atherosclerosis) and hypertension	Increased risk of cardiovascular disease, stroke and heart attack, increasing burden of disease attributed to premature mortality
	Less consistent blood glucose absorption from the small intestine, leading to fluctuating blood glucose levels, which are more difficult to control	Increased rates of diabetes mellitus (type 2 diabetes mellitus) and associated conditions, increasing morbidity
	Reduced effectiveness and health of the digestive system due to poor quality and/or lack of bacteria	Increased build-up of harmful toxins and risk of constipation with associated problems such as haemorrhoids and colorectal cancer
Low intake of dairy foods	Reduced calcium and phosphorus in the body, contributing to poor bone density and strength that results in increased susceptibility to bone fractures	Increased risk of osteoporosis, increasing years of life lived with disability (YLD) and contributing to non-fatal burden of disease
	Reduced health and strength of teeth	Increased dental caries, increasing morbidity



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CHAPTER SUMMARY

- Inhaling tobacco smoke causes damage to the body's organs and systems and increases the risk of:
  - CVD including coronary heart disease and stroke
  - cancer – lung and mouth cancer
  - peripheral vascular disease
  - respiratory infections and conditions such as asthma
  - during pregnancy can cause miscarriage, low birthweight and stillbirth
  - SIDS in newborns.
- Consuming alcohol causes damage to the body's organs and systems and increases the risk of:
  - road accidents, falls, injuries and drowning
  - hypertension
  - cardiovascular disease, including stroke and coronary heart disease
  - diabetes mellitus – type 2 diabetes mellitus
  - cancer including liver, breast, colorectal, larynx, oesophagus
  - mental health conditions
  - liver disease
  - foetal alcohol syndrome disorder, increasing morbidity.
- Having a high body mass index (BMI) is known as overweight or obesity and can increase the risk of:
  - cardiovascular disease, stroke and heart attack
  - cancers, particularly breast and colorectal cancer
  - musculoskeletal conditions including osteoarthritis
  - depression and mental health conditions
  - diabetes mellitus – type 2 diabetes mellitus.
- *High intake of fat*
  - There are four types of fat (two are considered healthy fats and two, unhealthy fats) and each group of fats behaves differently within the body. Excess fat in the diet can increase the risk of:
  - overweight and obesity
  - cardiovascular disease, stroke and heart attack
  - diabetes mellitus – type 2 diabetes mellitus and associated conditions
  - colorectal cancer.
- *High salt intake* can increase the risk of:
  - hypertension and cardiovascular disease, stroke and heart attack.
- *High sugar intake* can increase the risk of:
  - overweight and obesity
  - cardiovascular disease, stroke and heart attack
  - diabetes mellitus – type 2 diabetes mellitus
  - dental caries.
- *Low intake of fibre*
  - There are two major types of fibre: soluble and insoluble



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- Having a low intake of fibre can increase the risk of:
  - › overweight and obesity
  - › constipation and associated conditions such as hemorrhoids
  - › cardiovascular disease, stroke and heart attack
  - › diabetes mellitus – type 2 diabetes mellitus
  - › colorectal cancer.
- *Low intake of iron* can increase the risk of:
  - › Iron deficiency anaemia.
- *Under-consumption of fruit and vegetables*
  - › Fruit and vegetables are nutrient-dense, generally low in fat (kilojoules) and provide dietary fibre, water, antioxidants, vitamins and minerals.
- Under-consumption of fruit and vegetables can increase the risk of:
  - › overweight and obesity
  - › cardiovascular disease, stroke and coronary heart disease
  - › diabetes mellitus – type 2 diabetes mellitus
  - › constipation, hemorrhoids
  - › colorectal cancer.
- *Low intake of dairy foods* can increase the risk of:
  - › osteoporosis
  - › dental caries.

KEY QUESTIONS

SUMMARY QUESTIONS

1 Explain why tobacco smoking is of such concern in Australia.
2 Identify all the health status concerns that can be attributed to this risk factor.
3 Outline the population groups most at risk of having their health status impacted by tobacco smoking.
4 Explain why passive smoking is a risk to health status.
5 Explain how the smoking of illicit substances impacts health status.
6 Explain why excessive alcohol consumption affects people other than the individuals consuming it.
7 Outline how excessive alcohol consumption impacts the burden of disease in Australia.
8 Identify the population groups in Australia for which excessive alcohol consumption is a concern.
9 Explain how body mass index (BMI) is calculated or determined.

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10 Identify the BMI for someone who is overweight and someone who is obese.
11 Identify the conditions for which a high BMI is a risk factor.
12 Describe the condition of type 2 diabetes mellitus and explain how a high BMI is a risk factor for this condition.
13 List the different types of fats and briefly explain why a high intake of saturated fats and trans fats in particular is a concern in relation to health status.
14 Explain what cholesterol is and how it impacts the risk of cardiovascular disease.
15 Explain how a high salt intake can impact health status.
16 Explain the impact that a high sugar intake can have on health status.
17 Explain what is meant by colorectal cancer.
18 Describe the relationship between fibre intake and colorectal cancer.
19 Outline conditions (other than colorectal cancer) with which a low fibre intake is associated.
20 Explain how under-consumption of vegetables and fruit impacts burden of disease in Australia.
21 Outline what osteoporosis.
22 Explain what peak bone mass is.
23 Describe how a low intake of dairy products increases the risk of osteoporosis.
24 Discuss how a low intake of iron rich foods can impact burden of disease.

EXTENDED RESPONSE QUESTION

SOURCE 1: Body mass index – who is overweight and obese?



SOURCE: AIHW, Australia's Health (2018)

FIGURE 3.36 Proportion of overweight and obese adults by age and sex, 2014–15

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SOURCE 2

The Australian Dietary Guidelines provide advice on healthy eating habits to promote overall health and wellbeing, reduce the risk of diet-related disease and protect against chronic conditions (AIHW). One of the five dietary guidelines recommends that Australians eat a wide variety of nutritious foods from the five food groups every day. The data below indicates the proportion of people who do NOT eat the recommended serves from the five food groups.

TABLE 3.6 Proportion of the population with usual food intakes below the recommended serves (per cent), by age group, sex and food group, 2011–12[(a)]

FOOD GROUP	BOYS	GIRLS	MEN	WOMEN
Vegetables and legumes/beans	99.6	99.7	96.5	94.8
Fruit[(b)]	53.5	54.0	70.7	77.0
Grain (cereal) foods	60.5	73.7	66.6	75.6
Lean meat and poultry, fish, eggs, nuts and seeds and legumes/beans	92.4	98.7	79.1	87.0
Milk, yoghurt, cheese and alternatives	80.4	79.8	89.9	96.5

Notes:

(a) Boys and girls aged 2–8; men and women aged 19 and over.

(b) Includes dried fruit, fresh or canned fruit and fruit juice.

SOURCE: AIHW, Australia's Health (2018)

SOURCE 3: Consumption of dairy food

According to Nutrition Australia, Australians are not having enough dairy foods in their diet because: 'Unfortunately, most Australians are missing out on the health benefits of consuming milk, yoghurt and cheese as they don't include enough in their diet. It is estimated that 8 out of 10 Australian adults need to increase their intake of dairy foods to achieve the levels recommended by the Australian Dietary Guidelines. Most Australian children also need to increase their intake of the dairy food group in order to meet recommendations' (Nutrition Australia website, 2013).

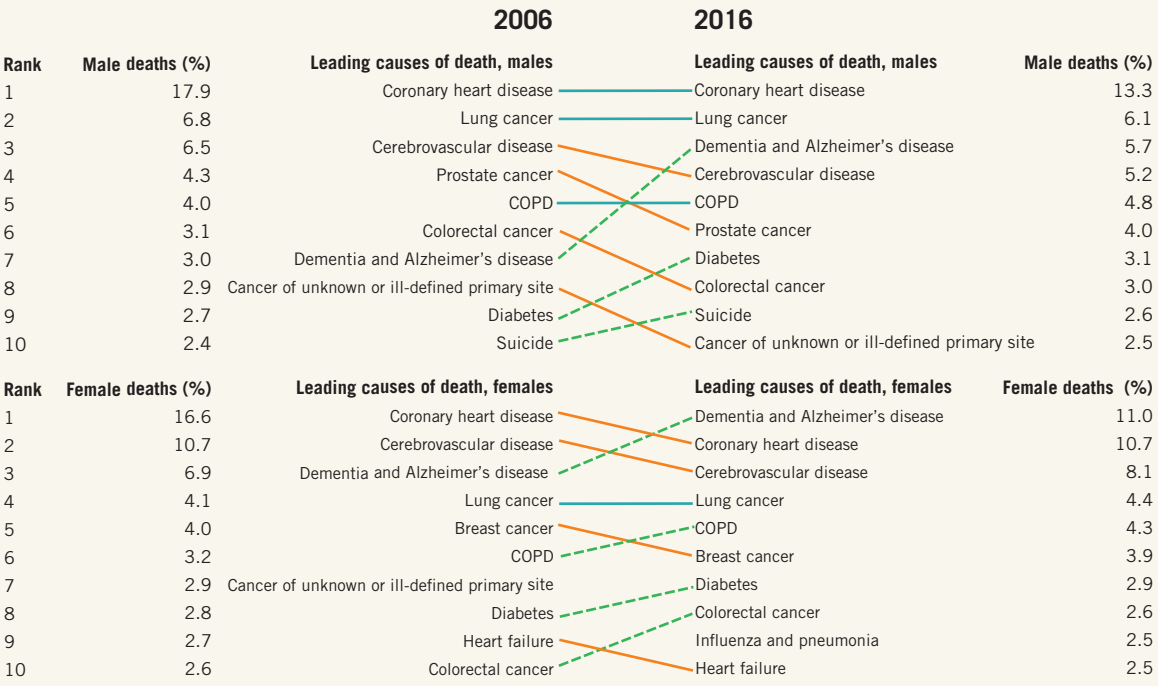
QUESTION

Dietary risks are modifiable factors that can lead to a reduction in the burden of disease attributable to diet-related diseases.

Using the source material provided, discuss the impact of body mass index (BMI) and dietary risk factors on health status and burden of disease in Australia. (10 marks)

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EXAMINATION PREPARATION QUESTIONS



		2006	2016	
Rank	**Male deaths (%)**	**Leading causes of death, males**	**Leading causes of death, males**	**Male deaths (%)**
1	17.9	Coronary heart disease	Coronary heart disease	13.3
2	6.8	Lung cancer	Lung cancer	6.1
3	6.5	Cerebrovascular disease	Dementia and Alzheimer's disease	5.7
4	4.3	Prostate cancer	Cerebrovascular disease	5.2
5	4.0	COPD	COPD	4.8
6	3.1	Colorectal cancer	Prostate cancer	4.0
7	3.0	Dementia and Alzheimer's disease	Diabetes	3.1
8	2.9	Cancer of unknown or ill-defined primary site	Colorectal cancer	3.0
9	2.7	Diabetes	Suicide	2.6
10	2.4	Suicide	Cancer of unknown or ill-defined primary site	2.5

Rank	**Female deaths (%)**	**Leading causes of death, females**	**Leading causes of death, females**	**Female deaths (%)**
1	16.6	Coronary heart disease	Dementia and Alzheimer's disease	11.0
2	10.7	Cerebrovascular disease	Coronary heart disease	10.7
3	6.9	Dementia and Alzheimer's disease	Cerebrovascular disease	8.1
4	4.1	Lung cancer	Lung cancer	4.4
5	4.0	Breast cancer	COPD	4.3
6	3.2	COPD	Breast cancer	3.9
7	2.9	Cancer of unknown or ill-defined primary site	Diabetes	2.9
8	2.8	Diabetes	Colorectal cancer	2.6
9	2.7	Heart failure	Influenza and pneumonia	2.5
10	2.6	Colorectal cancer	Heart failure	2.5

Notes:

1. Rankings are based on the number of deaths; a decline in rank does not necessarily mean a decline in the number of deaths.
2. Data for 2016 are based on the preliminary version of cause of death data and are subject to further revision by the Australian Bureau of Statistics.
3. Coloured lines link the leading causes of death in 2006 with those in 2016: a blue line means that the ranking of the cause of death remained the same in 2016 as in 2006; a green line, that the ranking of the cause of death rose compared with that in 2006; and a red line, that the ranking of the cause of death in 2016 decreased compared with that in 2006.

SOURCE: National Mortality Database (Table S3.2.3) in AIHW, Australia's Health (2018)

FIGURE 3.37 Leading cause of death, by sex, 2006 and 2016

The 10 leading causes of death in 2016 were generally the same as in 2006, albeit with different rankings.

A Define mortality. (2 marks)

B Identify the leading causes of death that have increased for both males and females. (2 marks)

C Identify the leading causes of death that did not change ranking for both males and females. (1 mark)

D Explain the contribution of tobacco, high body mass index, and **one** dietary risk factor to one of the leading causes of death identified in the graph above (Figure 3.37). (6 marks)



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4 IMPROVEMENTS IN HEALTH



KEY KNOWLEDGE

- Improvements in Australia's health status since 1900 and reasons for these improvements, focusing on policy and practice relating to:
  - the 'old' public health
  - the biomedical approach to health and improvements in medical technology
  - development of the 'new' public health, including the social model of health and Ottawa Charter for Health Promotion
  - the relationship between the 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.
- Apply the action areas of the Ottawa Charter for Health Promotion to a range of data and case studies.

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INTRODUCTION

This chapter looks at the changes in health status in Australia since 1900 and reasons for these changes. You need to consider changes in policy and practice related to old public health, which relate to the improvement in the physical environment, including waste management and sewerage systems, in order to reduce morbidity and mortality such as diarrhoea and cholera. You also need to have an understanding of the development of the biomedical approach to health, including improvements in medical technology, such as MRI scans, immunisations and breast screen programs. In addition, you need to have knowledge of the improvements in Australia's health status as a result of the introduction of new public health, including the social model of health and the Ottawa Charter. An awareness of the strengths and weaknesses of the biomedical approach and the social model of health and the relationship between the two models is also required.

What you need to know

- Improvements in Australia's health status since 1900, including life expectancy and changes in causes of burden of disease.
- Reasons for the improvements in health status, focusing on policy and practice relating to:
  - 'old' public health (the improvement of health at a population level through making changes to the physical environment, such as waste management and the development of sewerage systems)
  - the biomedical approach to health and improvements in medical technology (the diagnosis and treatment of disease through traditional medical intervention)
  - development of 'new' public health including the social model of health and the Ottawa Charter for Health Promotion
  - the focus on improving health at a population level by increasing awareness, reducing barriers and encouraging people to take control of their own health
- The relationship between biomedical and social models of health.

What you need to be able to do

- 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.

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4.1 AUSTRALIA'S CHANGING HEALTH STATUS

When evaluating progress in health status, it is important to take a long-term view rather than just looking at more recent snapshots of data. This can help to identify true trends rather than brief fluctuations. Health-related data have been collected in Australia since the 1850s; however, it is difficult to compare data prior to 1907 because this was the first time the Commonwealth began to collect and code data systematically for analysis. One of the barriers to accurately reporting health-related data is the changes that have occurred to disease groupings and classifications. As research and health-related knowledge have improved, illness and disease have become more accurately understood, and at times new disease groups have been identified. The International Classification of Diseases (ICD) identifies codes for different diseases that are used to record data about causes of death. Through advances in the understanding of diseases, the ICD increased the number of codes from 189 in 1907 to 2850 in 2000.

When comparing data over time, it is also important to look at the age-standardised rate of change rather than the actual incidence or prevalence as a number. This rate takes into account the increase in population growth. Obviously, as our population and life expectancy have both increased, the amount of illness has also increased.

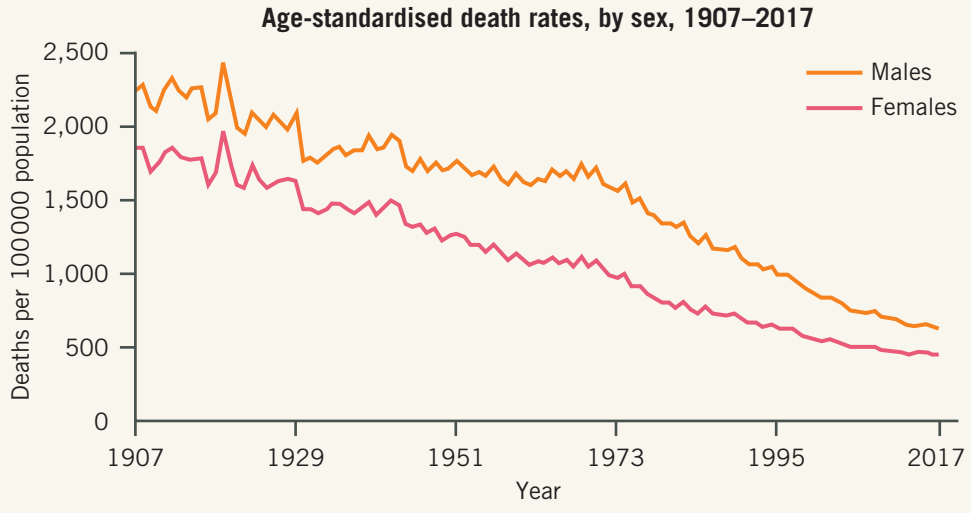
DISCUSS



Discuss how Australia's life expectancy has changed since 1900.

Death rates

There has been a continuing decline in death rates in Australia between 1907 and 2017 – 72 per cent for males and 76 per cent for females. Death rates have historically been higher for males than for females; however, over time the gap is closing.



SOURCE: AIHW National Mortality Database (Table S4.1)

FIGURE 4.1 Age-standardised death rates, by sex, 1907–2017

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ACTIVITY 4.1: CHANGES IN HEALTH STATUS OVER TIME

Watch Hans Rosling's *200 Countries, 200 Years, 4 Minutes – The Joy of Stats* on YouTube.

1 Briefly summarise the changes in life expectancy over time as discussed in the clip.

2 Identify one example each of a biological, sociocultural and environmental factor that may have contributed to these changes and explain the possible impact of each.

The decline in deaths in the first half of the last century may be attributed to a range of factors, including the control of infectious disease, better hygiene and improved nutrition. With improved sanitation; control of bacteria, viruses and parasites; and a better understanding of dehydration, Australia has seen dramatic declines in the death rates from diarrhoea. At the beginning of the twentieth century, 7000 male children and 5800 female children per 1 000 000 aged from 1–4 years died from diarrhoea but this had fallen to about two deaths per million by 2019.

More recent declines in death rates have been associated with improvements in the prevention, detection and treatment of non-communicable diseases such as cardiovascular disease. Improvements in road safety measures, increased educational attainment, higher vaccination rates, higher incomes and a reduction in smoking rates have also had a positive impact on death rates.

Life expectancy

The life expectancy at birth in Australia has increased for males from 53.8 years in 1900 to 80.5 in 2017, and for females from 57.5 years in 1900 to 84.6 in 2017. Despite these significant increases in life expectancy, when a long-term view is taken, it can be observed that these increases have occurred in two main periods. In the years from 1902 to 1962, life expectancy at birth improved by 14.1 years for males and 16.7 years for females.

FIGURE 4.2 Australia's life expectancy has increased by over 25 years since 1900.



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During the same timeframe, life expectancy from age 1 improved by 9.5 years for males and 12.6 years for females; however, when comparing this with life expectancy from age 65, there was only an increase of 1.2 years for males and 2.8 years for females, indicating that much of the increase in life expectancy was due to reductions in infant mortality. From 1960–70, there was an increase in non-communicable diseases and life expectancy for males actually fell.

The second period of improvements came from 1972 to 2002, when there was an increase in life expectancy at birth and also (and perhaps more significantly) an increase in life expectancy from age 65. During this time, life expectancy at birth for males increased by 9.6 years and for females by 8.1 years. From age 65, life expectancy increased by 5.2 years for males and 4.9 years for females during the same period.

This extension of life expectancy has led to an ageing population in Australia; however, it is important to note that a decline in birth rates during this period has resulted in Australia having fewer citizens aged under 30 years, a trend that has contributed significantly to the ageing population.

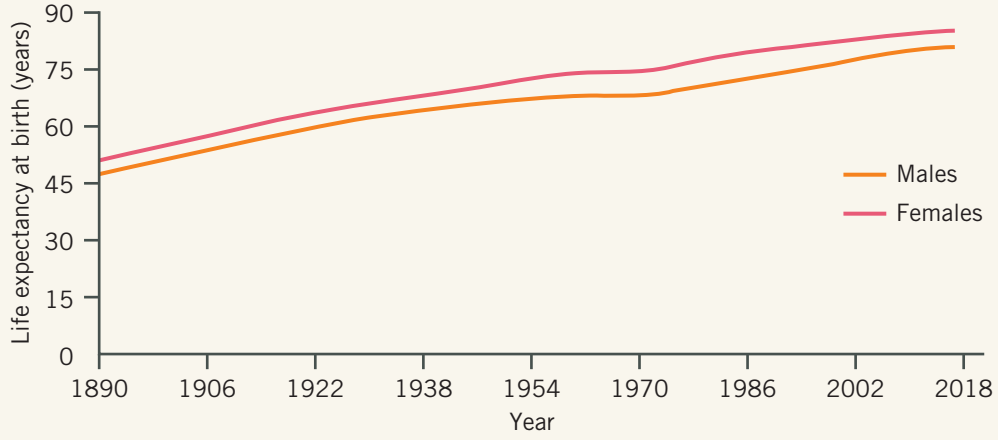
Death rates by broad cause

In 1907, most deaths fell into five broad categories: circulatory diseases, cancers, respiratory diseases, infectious diseases, and injury and poisoning. These disease groups accounted for approximately 60 per cent of all deaths in 1907, and by 2019 these same disease groups accounted for over 80 per cent of all deaths.

Circulatory diseases

Circulatory disease (also known as cardiovascular disease) refers to a group of diseases (including coronary heart disease and cerebrovascular disease) that impact the heart and blood vessels. While death rates have been declining, circulatory diseases have been a leading cause of death in Australia over the last century. Deaths from circulatory diseases peaked in 1968 (830 deaths per 100 000 population) and have since dropped significantly (143 deaths per 100 000 in 2016). Deaths from circulatory diseases have remained higher among males compared with females over the past century. In 1907, the death rate for circulatory disease for males was 437 per 100 000 compared with 379 per 100 000 for females. This fell to 168.6 per 100 000 males in 2016 and 120 per 100 000 females.

EXTENSION QUESTION 4.1



SOURCES: ABS 2014a; ABS 2014b; ABS 2015; ABS 2016; ABS 2017; ABS 2018a;

FIGURE 4.3 Life expectancy at birth by sex, Australia 1890–2018

Referring to Figure 4.3, explain how improved life expectancy is important as a resource nationally.

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Cancer

Cancer refers to a group of conditions in all parts of the body where the cells become abnormal and multiply. Cancer deaths have not experienced the same consistent decline over the past 100 years as many other disease groups.

The incidence rates for all cancers were predicted to increase by 26 per cent from 383 new cases per 100 000 population in 1982 to 483 per 100 000 in 2019. This increase can partly be explained by the ageing population, the increased size of the population and improvements in the diagnosis of cancer.

Overall cancer deaths have increased from 3096 deaths (age-standardised rate of 163.8 per 100 000) in 1907 to 46 307 deaths (age-standardised rate of 159 per 100 000) in 2019. The increase in the age-standardised death rate has not matched the rate at which cancer diagnosis has increased, indicating that more people each year are surviving their cancer diagnosis.

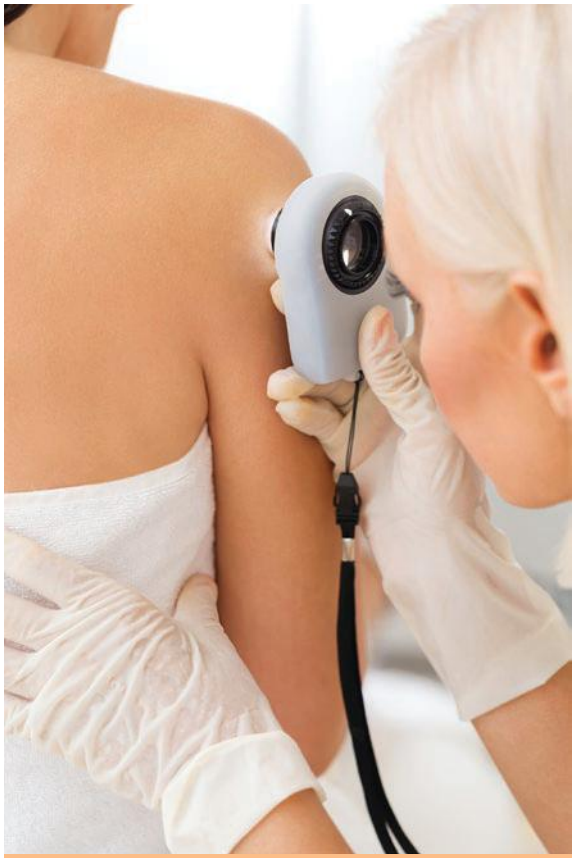


FIGURE 4.4 Cancer rates have not declined as much as other causes of burden of disease.

Despite the recent decline in the mortality rate, the number of deaths due to all cancers (49 896 in 2016) is now greater than the number of deaths due to circulatory diseases (43 447 in 2017).

Respiratory diseases

Respiratory diseases refer to conditions that affect the airways, lungs and breathing. Examples of respiratory diseases include COPD, asthma, pneumonia and influenza, cystic fibrosis and hayfever. In 1907, death rates for respiratory diseases were 320 per 100 000 for males and 263 for females. By 2016, this rate had progressively fallen to 58 per 100 000 for males and 42 for females, with the exception of a brief spike in death rates in 1918–19 as a result of the Spanish Influenza pandemic.

Injury and poisoning

Deaths from injury and poisoning include those from motor vehicle accidents, suicide, assault, poisoning, drowning, burns, falls and complications from medical care or surgery. Since 1907, there has been a decline of more than half of the number of deaths attributed to injuries and the gap between deaths from males and females has also narrowed. In 1907, the death rate for injury for males was 147 deaths per 100 000 and for females, 55 per 100 000. By 2016, this had fallen to 56 per 100 000 for males and 26 per 100 000 for females. Suicide rates have been fairly consistent over the past 100 years, with male rates approximately four times higher than females. Motor vehicle accidents were not recorded as their own cause of death until 1924; once they were recorded, death rates were significant for both males and females. Death rates for motor vehicle accidents peaked in 1970 with 49 deaths per 100 000 for males and 18 per 100 000 for females. By the year 2000, death rates due to motor vehicle accidents had fallen below those for suicide.

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DISCUSS



Discuss changes to workplace safety that may have reduced the mortality rate from injuries in workplaces since 1900.

Infectious diseases

Infectious or communicable diseases include a range of conditions such as tuberculosis, septicaemia, hepatitis, smallpox, polio, whooping cough and sexually transmitted diseases such as HIV/AIDS and syphilis. The data represented in this chapter do not include pneumonia and influenza as infectious diseases because they are included in the ICD in the category of respiratory diseases.

At the beginning of the twentieth century, infectious diseases were a leading cause of death. In 1907, there were 301.4 deaths per 100 000 population, which accounted for approximately 13 per cent of all deaths. By 1984, there had been a decline of more than 98 per cent, and deaths had reduced to just 3.3 per 100 000 population. Unfortunately, by 2016, deaths due to infectious diseases had increased to 11 per 100 000 population for males and 8 per 100 000 for females. This increase was due to increases in septicaemia, HIV/AIDS and hepatitis.

Since the introduction of childhood **vaccination** in Australia in 1932, deaths from vaccine-preventable infectious diseases have declined by 99 per cent (this is despite a significant growth in population over the same period). Several infectious diseases, such as diphtheria and poliomyelitis, are now rare or non-existent, and of the seven childhood deaths attributed to vaccine-preventable diseases in 2012, all were children who were too young to be vaccinated or had not completed a full course of vaccinations. While many infectious diseases have been eradicated in Australia, influenza cases have increased significantly in recent years. In 2016 there were 1.6 deaths per 100 000 people, while this increased to 3.9 deaths per 100 000 people 2017. Rates decreased again in 2018, largely due to greater awareness and an increase in the number of freely available vaccines for high-risk groups, including children under the age of 5 years and those aged over 65 years.

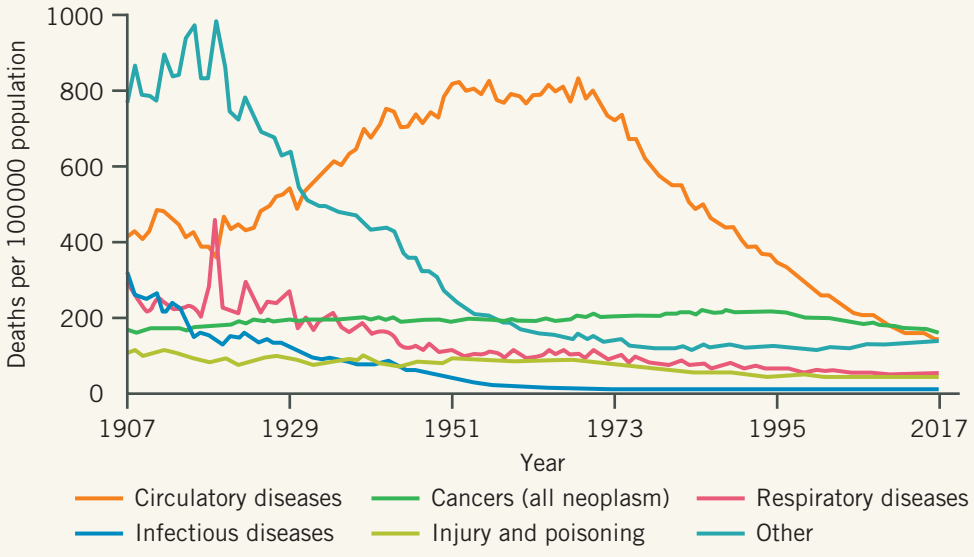
vaccination: The process of providing immunity (orally or via injection) against infectious disease.

TABLE 4.1 Summary of changes in mortality rates 1907–2016, age-standardised rate per 100 000 population

CAUSE	1907	1963	2016
Circulatory diseases	410.2	787.4	143.0
Cancers	163.8	192.9	161.8
Respiratory diseases	293.0	93.2	48.9
Infectious diseases	319.6	12.1	9.5
Injury and poisoning	104.6	79.4	40.4

SOURCE: AIHW, Trends in Deaths

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SOURCE: AIHW National Mortality Database (Table S4.2)

FIGURE 4.5 Age-standardised death rates by broad cause of death, 1907–2017

ACTIVITY 4.2: MORTALITY IN AUSTRALIA OVER THE TWENTIETH CENTURY

1 Table 4.2 shows that in 1907 senility was identified as a leading cause of death; however, this is no longer a recognised cause of death. Explain why senility may have been replaced as a cause of death.

2 Identify one similarity between the leading causes of death for males in 1907 and 2016.

3 Identify three differences between the leading causes of death for males in 1907 and 2016.

4 Identify and explain possible reasons for these differences.

5 Identify one similarity between the leading causes of death for females in 1907 and 2016.

6 Identify three differences between the leading causes of death for females in 1907 and 2016.

7 Identify and explain possible reasons for these differences.

TABLE 4.2 Leading causes of death 1907 and 2016 (%)

	1907		2016	
Male	Organic heart disease	8.3	Coronary heart disease	13.3
	Tuberculosis	8.2	Lung cancer	6.1
	Diarrhoea	71	Dementia and Alzheimer's disease	5.7
	Senility	6.6	Cerebrovascular disease	5.2
	Congenital	6.1	COPD	4.8

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TABLE 4.2 *(Continued)*

	1907		2016	
	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	3.1	Cancer, unknown	2.5
Female	Tuberculosis	8.9	Dementia and Alzheimer's disease	11.0
	Organic heart disease	8.5	Coronary heart disease	10.7
	Diarrhoea	79	Cerebrovascular disease	8.1
	Senility	7.3	Lung cancer	4.4
	Congenital	6.5	COPD	4.3
	Bronchitis	4.8	Breast cancer	3.9
	Cerebrovascular disease	4.3	Diabetes	2.9
	Nephritis	4.1	Colorectal cancer	2.6
	Pneumonia	3.8	Influenza and pneumonia	2.5
	Puerperal	3.1	Heart failure	2.5

SOURCES: Adapted from AIHW (2018), Australia's Health 2016, p. 64 and AIHW (2005), Mortality Over the Twentieth Century in Australia, p. 44

More recent changes in health status

We can also notice improvements in health more recently (over the last 10–20 years). Life expectancy increased from 75.9 years for males born in 1998 to 79.9 years for males born in 2012 and 80.4 years for males born in 2016. Life expectancy for women also increased from 81.5 years for females born in 1998 to 84.3 years in 2012 and 84.6 years for those born in 2016.

A similar trend was also evident for increases in health life expectancy. Males born in 1998 could expect to live for 17.9 years with some form of disability and 58 years free of disability. Females born in 1998 could expect to live 19.4 years with disability and 62.1 years free of disability. The number of years spent with disability increased slightly for females and decreased slightly for males in 2012; however, both genders experienced more significant gains in the number of years spent free of disability.



FIGURE 4.6 A baby born in Australia today can expect to live for more than 60 years of healthy life, free from disability.

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Males born in 2012 could expect to live 17.5 years with some form of disability, and 62.4 years free from disability, while females born in 2012 could expect to live 19.8 years with disability and 64.5 years free of disability.

Premature death rates (the risk of dying before the age of 75) have also declined. In 1997, 43 per cent of deaths were considered premature and by 2013 this had declined to 34 per cent.

Changes in death rates by age

Today in Australia, we are living longer and healthier lives, so it makes sense that most deaths occur among the elderly. This has not always been the case. In the early 1900s, there was a significantly higher death rate among children aged from birth to 4 years. This led to a lower death rate among the elderly and contributed to Australians having a much shorter life expectancy than they enjoy today.

Infant mortality

Infant mortality includes all deaths from birth and in the first year of life. It is typically represented as a rate, calculated by dividing the number of deaths among those under 1 year of age by the number of live births for the same year. Infant mortality rates for both males and females have declined significantly over the last 100 years. The infant mortality rate in 1912 was 80 per 1000 live births for males and 63 for females. In 2015, the infant mortality rate was 3.3 per 1000 live births for males and 2.7 for females.

In 1907, deaths in the 0–4 age group accounted for 26 per cent of all deaths compared with less than 1 per cent in 2013.

DISEASES EXPLAINED

Coronary heart disease (also known as ischaemic heart disease): The most common type of cardiovascular disease. It is caused by the gradual build-up of plaque on the inner walls of the arteries. There are two main types: heart attack and angina.

Diarrhoea: Refers to the frequent passing of loose, watery faeces.

Injuries: Consist of physical damage to the body and can refer to either intentional harm, such as suicide, or unintentional harm, such as falls, poisoning, drowning, burns or transport-related injuries.

Nephritis: Inflammation of the kidneys.

Pneumonia: Inflammation of the lungs in response to infection from bacteria or viruses.

Puerperal: Postpartum infections (any bacterial infection of the female reproductive tract following childbirth or miscarriage).

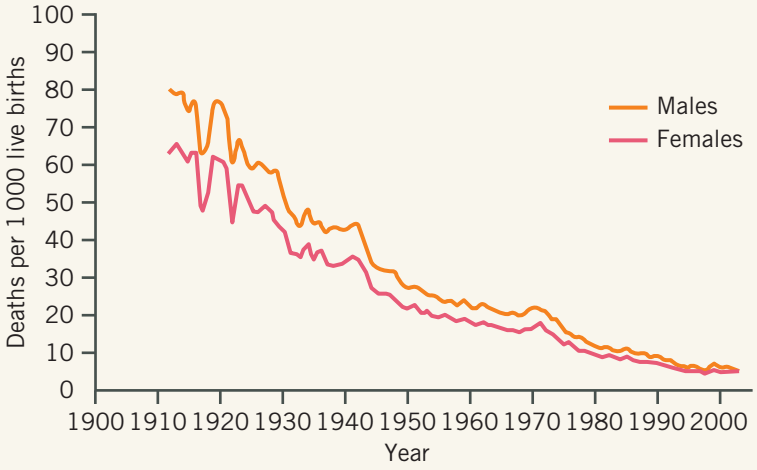
Senility: Disease group referred to physical or mental infirmity that was caused by advanced age.

Suicide: Deliberate ending of one's own life.

Tuberculosis: Infectious bacterial disease characterised by the growth of nodules or tubercules in body tissues, usually in the lungs. It can, however, involve the kidneys, brain, spine and other parts of the body.

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ACTIVITY 4.3: INFANT AND CHILD MORTALITY OVER TIME



SOURCE: AIHW, General Record of Incidence of Mortality (GRIM)

FIGURE 4.7 Infant mortality rates 1912–2002; in 2016 the infant mortality rate was 3.4 per 1000 for males and 2.8 per 1000 for females

1 Identify one similarity and one difference in the male and female infant mortality rates in Figure 4.7.
2 Identify three causes of child mortality for children aged 0–4 years in 1907.
3 Identify three leading causes of child mortality for children aged 0–4 years in the year 2000.
4 Outline two factors that may have contributed to these differences.

The decline in infant deaths is partly due to improved access to neonatal care, improvements in the quality of neonatal healthcare, increased community awareness, improved sanitation and hygiene, and reductions in vaccine-preventable diseases due to **immunisation** programs.

The reduction in infant and child mortality has resulted in an increase in deaths among those aged over 75 years.

immunisation: Making someone immune to infection, typically by vaccination.

Child and youth mortality

Deaths among those aged 0–4 years have been consistently higher among males than females, and have experienced a dramatic decline over the last century, from 2604 male deaths and 2214 female deaths per 100 000 population in 1907 to just 90.9 for males and 81.4 for females per 100 000 population in 2013.

In 1907, the two largest causes of death for those aged 0–4 years were diarrhoea and perinatal conditions, both accounting for more than 25 per cent of deaths in this age group. Other leading causes of death were infections and respiratory conditions. By 2017, perinatal conditions were the leading cause of death followed by congenital conditions, injury and poisoning, and SIDS, with deaths from diarrhoea now very uncommon.

In 1907, the death rate for youth aged 15–24 years was 316 for males and 297 for females per 100 000 population. A century later, in 2007, data were collected for youth aged 12–24 years and, even though the age range was larger, death rates had fallen to 51 for males and 23 for females per 100 000. In 1907, the leading causes of death in this age group were infectious disease, injury and poisoning, and circulatory disease. In recent years, the leading causes were suicide, land transport accidents and accidental poisoning.

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Adult mortality

People aged 25–44 years have traditionally experienced good health, and this trend has increased over the past century.

In 2012, deaths for males aged 25–44 years were 104 per 100 000 population and for women the rate was 54 per 100 000. Despite making up 29 per cent of the population, adults aged 25–44 years made up only 3.5 per cent of all deaths, with men being twice as likely to die as women. This represents a significant decrease from 1907, where the rates were 578 per 100 000 for males and 555 for females.

The main reasons for the decline in death rates for this age group are the fall in deaths from circulatory diseases and respiratory conditions. Tuberculosis rates also fell from 135 deaths per 100 000 for males and females early last century to zero deaths by the year 2000.

Since 1907, the death rate for males aged 45–64 years has declined from 1718 deaths per 100 000 population to 433.8 per 100 000 in 2012. For females of the same age, the death rate has decreased from 1241 per 100 000 population in 1907 to 266.5 per 100 000 in 2012. Since the 1970s, there has been a dramatic decline in death rates for adults aged 45–64, due largely to a decline in death rates from circulatory disease, infectious disease and respiratory disease.

The proportion of people aged over 85 years is increasing, and in 2016 there were 486 700 people aged 85 years and over. This represents 2 per cent of the population and is expected to double by 2036. Due to increasing life expectancy and improvements in health, this population group now has the highest death rate.

ACTIVITY 4.4: CHANGES IN LEADING CAUSES OF DEATH

TABLE 4.3 Leading causes of death

LEADING CAUSES OF DEATH BY SEX, 1907 AND 2015–17 (%)		
AGED 25–44 YEARS	1907	2015–17
Men	Infectious 33.8 Injury and poisoning 19.7 Circulatory 11.8	Suicide 24.9 Accidental poisoning 14.1 Land transport accidents 8.9
Women	Infectious 31.0 Circulatory 11.9 Respiratory 9.0	Suicide 14.2 Accidental poisoning 9.2 Breast cancer 8.6

LEADING CAUSES OF DEATH BY SEX, 1907 AND 2015–17 (%)		
AGED 45–64 YEARS	1907	2015–17
Men	Circulatory 22.1 Infectious 16.7 Respiratory 12.4	Coronary heart disease 13.4 Lung cancer 8.1 Suicide 5.6
Women	Circulatory 25.2 Cancer 19.7 Infectious 12.3	Breast cancer 11.4 Lung cancer 10.0 Colorectal cancer 5.2

SOURCE: Adapted from AIHW (2019) Data tables: male and female health supplementary tables (Table S15)

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1 Identify two similarities in the leading causes of adult death between 1907 and 2015–17.
2 Identify three differences in the leading causes of adult death between 1907 and 2015–17.
3 Outline one biological, one sociocultural and one environmental factor that may have contributed to the differences you have identified in Question 2.

ACTIVITY 4.5: CHANGES IN ADULT MORTALITY

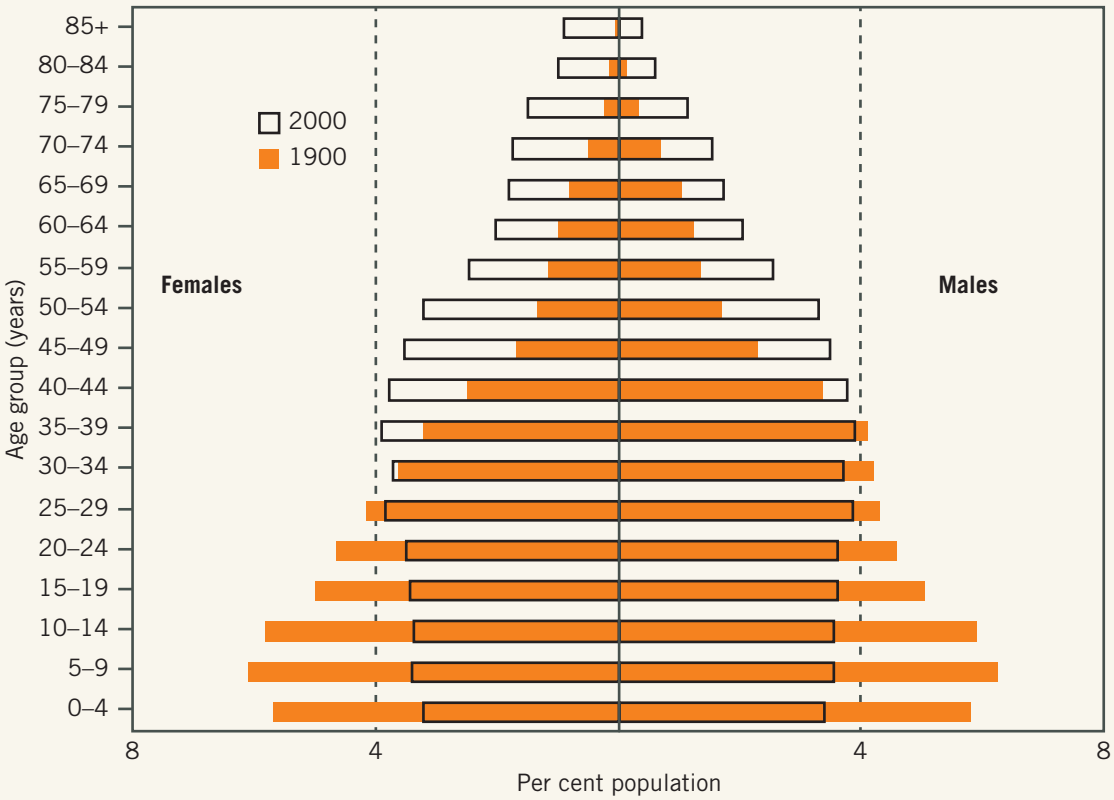


FIGURE 4.8 Contribution to total deaths by age group, 1900 and 2000

1 Compare and contrast the changes in the proportion of males and females living to the age of 85+ between 1900 and 2000.
2 Identify reasons that might explain your responses in Question 1.
3 Identify the changes in proportion of people aged between 0 and 4 years in 1900 compared with 2000.
4 Outline two factors that may have contributed to these differences outlined in Question 3.

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Potential years of life lost

Premature deaths can be summarised in terms of potential years of life lost (PYLLs) and used to estimate the burden of premature mortality.

public health: The organised response by society to protect and promote health, and to prevent illness, injury or disability.

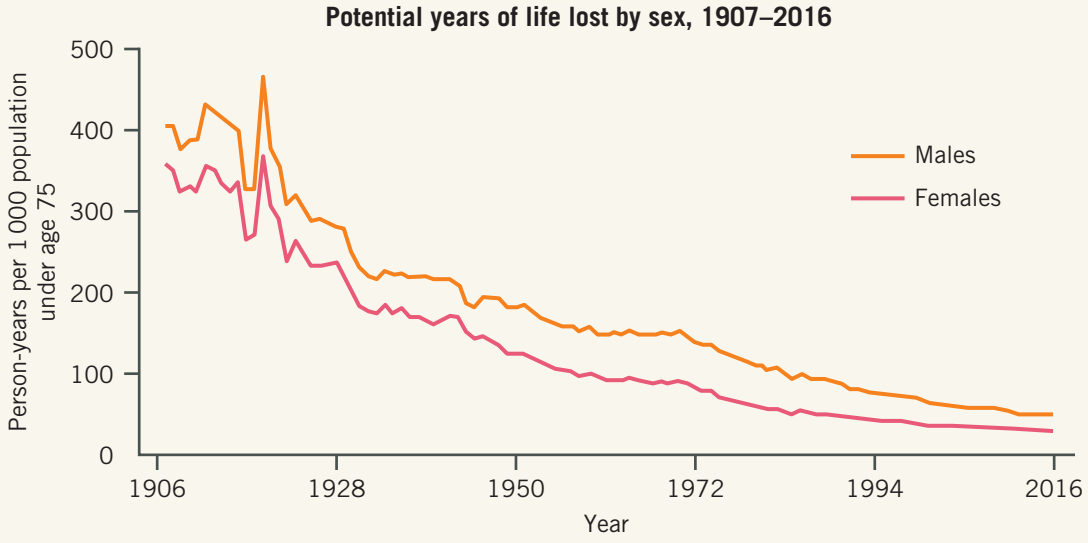
This measure only takes into account the deaths that occur before a certain age. For example, if dying before the age of 75 is considered premature, then a person dying at age 45 would have lost 30 potential years of life (AIHW, 2017).

Using the age of 75 as the cut-off, there were 883 157 PYLLs in Australia in 2016. This was the result of approximately one in three people dying prematurely (under the age of 75 years). When compared with data from 1907, it can be seen that the number of PYLLs has almost halved from 1 576 383 PYLLs. To take into account the increase in population, the rate of PYLLs per 1000 population can be used. In 1907 in Australia, there were 382 PYLLs per 1000 population and in 2016 there were 39 PYLLs per 1000 population.

AOS 2

4.2 DEFINING PUBLIC HEALTH

Public health is the organised response by society to protect and promote health, and to prevent illness, injury and disability. It involves identifying public health issues, problems and priorities, and designing and implementing interventions targeted at the population as a whole, or population sub-groups rather than individuals. These efforts typically target the factors that cause illness rather than treating their consequences, with the aim of promoting health and preventing illness. Public health initiatives are important to health status and wellbeing in



SOURCE: AIHW (2017)

FIGURE 4.9 Potential years of life lost categorised by sex, 1907–2016

ACTIVITY 4.6: SUMMARY OF IMPROVEMENTS IN HEALTH STATUS

Using information in this chapter, and your own research, create a newspaper style report or video news item to summarise the changes in Australia's health status since 1900. Include information about:

- changes in life expectancy
- changes in infant, child and youth mortality
- changes in adult mortality
- causes of burden of disease.

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FIGURE 4.10 Public health efforts work towards promoting health and preventing illness.

Australia. Improving them has many benefits (social and economic) and can reduce the demand on health services in the future.

Examples of action to improve public health in Australia include the government acting to:

- improve and protect the quality of the water we drink
- improve sanitation, sewerage systems and waste management
- improve the level of immunisation of the population
- plan and implement campaigns to stop the spread of HIV/AIDS or to encourage healthy eating or physical exercise
- implement screening programs for diseases such as breast cancer
- implement anti-smoking education campaigns.

The AIHW defines public health as 'activities aimed at benefiting a population, with an emphasis on prevention, protection and health promotion as distinct from treatment tailored to individuals with symptoms' (AIHW, 2016).

Public health activities and process include:

- **public health intelligence:** information that identifies trends of ill-health and health in the population and information about the factors
- **public health programs:** development of policy and the planning of strategies that aim to prevent, protect and promote health

EXTENSION QUESTION 4.2



Explain the term 'public health' in your own words, and outline how it may have led to improvements in Australia's life expectancy since 1900.

- **public health infrastructure:** includes administrative, legislative, information, research and program-delivery systems, and the workforce to implement them.

4.3 'OLD' PUBLIC HEALTH

The history of the 'old' public health in Australia dates back as far as British colonisation. Due to Australia's geographical isolation, there were very few infectious diseases in Australia prior to British colonisation. When the first arrivals settled in Australia in 1788, their living conditions were poor and they lacked clean water and sanitation. This, combined with the fact that the people arriving on Australian soil were already malnourished, after experiencing the overcrowding and lack of sanitation that came with a three-month journey at sea, led to the spread of diseases such as tuberculosis and smallpox.

British colonisation resulted in the establishment of the public hospital system in New South Wales, where a few basic hospitals were established to treat the new settlers. In the 1830s, in order to address the hazardous living conditions of residents, the government introduced a period of sanitary reform. From the late 1800s, a number of Public Health Acts were implemented as each new state came into existence, to try to ensure that citizens

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EXTENSION QUESTION 4.3



Explain how 'old' public health has contributed to the changes in the causes of morbidity and mortality in Australia since 1900.

FIGURE 4.11 Slums in Fitzroy, Melbourne in the early twentieth century

AOS 2

had access to adequate sanitation, a reliable and clean water supply and sufficient housing, as well as vaccinations against smallpox, and quarantine and control of infectious diseases.

To understand the old public health, it is important to look at the meaning of public health, which is about society taking an organised approach to promote health and prevent illness, injury or disability.

The old public health in Australia began with public health workers trying to address the environmental issues and public hygiene that were contributing to ill-health. Their organised approach was to improve access to toilets, sanitation, access to clean water and generally improve living conditions. These factors were seen as essential for preventing illness. The old public health was focused on specific medical interventions to treat illness and on narrowly defined public health initiatives with the aim of preventing a specific illness. According to Baum (2008), one of Australia's leading researchers on the social and economic determinants of health, the following eras in public health formed part of the old public health in Australia:

- **Colonial era (British colonisation up to 1890s):** During this time, the focus was on controlling infectious disease and sanitary measures. This was the time when Public Health Acts were introduced.
- **Nation-building era (1890–1940):** During this time, the focus was on improving the health of the nation by aiming to 'improve the race'. This was the period where the Commonwealth Department of Health was first formed and programs such as the medical inspection of children, provision of hygiene advice and exercise programs to improve national health were implemented.
- **Affluence, medicine and infrastructure era (1950s to early 1970s):** During this time, there was a strong reliance on the biomedical model. This was due partly to it being a period of economic affluence, but there were also significant developments in the medical industry at this time. There was a public belief that medicine would overcome disease. There was a growth in health services such as hospitals and the introduction of new and technologically advanced treatments such as organ transplants.
- **Lifestyle era (mid-1960s to mid-1980s):** This era forms the boundary between the old and new public health. During this time, the impact of the period of affluence had been recognised and there was a new focus on disease prevention. The main difference between this era and the new public health is that the approach to prevention was very much focused on the individual and their behaviours. It was at this time that the 'Life. Be in it' campaign, featuring the cartoon character Norm, was introduced. This style of health promotion had a victim-blaming message and focused on the behaviours of individuals rather than populations.

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4.4 BIOMEDICAL APPROACH TO HEALTH

The **biomedical model of health** focuses on the physical or biological aspects of disease and illness. It is a medical model of care practised by doctors and health professionals, and is associated with the diagnosis, cure and treatment of disease.

Diagnosis is when a doctor identifies a disease or illness through the use of tests. Cure and treatment refer to intervention or the steps that are taken to control illness. Some examples of biomedical healthcare include blood tests to diagnose illness, x-rays to diagnose fractures, bypass surgery for a patient with heart disease and chemotherapy to treat cancer.

The biomedical model grew in response to an improved understanding of the causes of disease. This understanding led to a greater dependence on medical science and its role in preventing, diagnosing and treating illness. By the early 1900s, state governments had taken over the major responsibility for public healthcare, with a focus on public hospitals. The role of the doctor was to identify the cause of disease or illness and treat the symptoms. With more and more scientific discoveries in the early 1900s, more opportunities for disease control emerged. These discoveries became the markers between the understandings of the old and new public health. The biomedical model at this time viewed the body in isolation from the environment, and focused on the role of bacteria and symptoms of the individual.

biomedical model of health: Focuses on the physical or biological aspects of disease and illness. It is a medical model of care practised by doctors and health professionals, and is associated with the diagnosis, cure and treatment of disease.

The biomedical model does not place significant emphasis on the relationship between mental and physical health. According to this model, good health is about freedom from disease, pain and disability. The focus is on the physical process that affects health, such as biochemistry and pathology. These understandings of bacteria and disease led to a reduction in infectious disease and took the focus away from the environment, sanitation and the water supply.

The outcome of the biomedical model was an increased reliance on hospitals and the medical profession. Vaccines and antibiotics were central to healthcare on the basis that an illness had a cure. Such medications led to improvements in survival rates and protected against many infectious diseases that were still a problem, including poliomyelitis, whooping cough, tuberculosis, smallpox and diphtheria. The expectation of the community came to be that there was a 'fix it' solution to all health problems.

The biomedical model approach to health continued to gain importance into the 1950s. As a result of a high standard of living being experienced by many Australians in the post-World War II period, there was an increase in the rates of heart disease, cancer and smoking.



FIGURE 4.12 The biomedical model approach to healthcare is based on the prevention, diagnosis and treatment of illness.

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DISCUSS



Discuss the role that the biomedical approach has played in the increase in life expectancy in Australia.

The government was focused on finding cures for diseases such as cancer, which led to the development of new and sophisticated medical technologies (such as new drugs, organ transplants and diagnostic procedures) and the growth of hospitals. The belief was that, as a result of the advances being made in medicine, Australians would continue to experience improvements in health and life expectancy.

Today, while the notion of a stand-alone biomedical model has changed, biomedical healthcare and the biomedical approach still have an important role to play as part of the new public health, which acknowledges the role of the medical sector in improving public health.

Advances in medical technology

Advances in health technology can be preventative, promotive, curative and rehabilitative. Medical technology includes a broad range of diagnostic tools and equipment, pharmaceuticals, medical devices and equipment, new medical procedures, and improved knowledge and administrative support systems. Advances or improvements in medical technology cost the Australian Government a significant amount of money and, along with the ageing population, are one of the main reasons for increasing healthcare costs. The fact that advances in medical technology are commonly associated with improved health treatment, and often increase the number of people able to be treated, makes this high cost seem worthwhile.

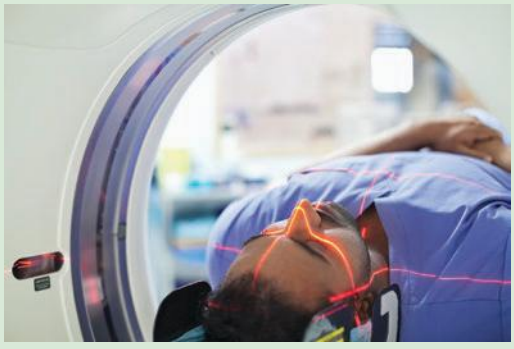
There is no doubt that medical technology can improve health and increase life expectancy; however, whether it saves money in the long term is unclear. For example, new drugs to treat cholesterol have fewer side-effects and appear to be more effective. As a result, these drugs are very popular and one of the most common (and expensive) prescription items on the Pharmaceutical Benefits Scheme (PBS). As so many people are now taking these drugs, it is likely that they have reduced heart disease and fewer strokes; however, whether or not this cost offsets the high costs of developing the new drug is not clear.

Examples of medical technology

Diagnostic tools and equipment

Diagnostic imaging involves the use of electromagnetic radiation and includes examples such as x-ray, ultrasound, radioactive isotopes

EXTENSION QUESTION 4.4



Explain, using specific examples, how medical technology might contribute to differences in health status between people living within and outside of Australia's major cities.

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and magnetic resonance imagery (MRI) that produce a visual image of the internal structures of the human body with the purpose of accurately diagnosing illness. As with other aspects of medical care, it is not only the technology that is important; having trained medical staff is also vital for success. Imaging for medical purposes incorporates the work of radiologists, radiographers, medical physicists and biomedical engineers working together as a team. Diagnostics is important in public health and preventative medicine, as well as in curative medicine, because effective decisions rely on correct diagnosis.

Examples include the following:

- **MRI scanning:** MRI is a medical imaging procedure that uses a magnetic field and radio waves to take images inside the body. It is used to display images of soft tissue (organs and muscles) that are not visible on x-rays.
- **CT scanning:** Computed tomography scan makes use of computer-generated combinations of several x-ray images taken from different angles to produce cross sectional images of areas of a scanned part of the body.
- **Genetic screening for disease** (also known as genetic testing): Involves the study of deoxyribonucleic acid (DNA) to identify an individual's risk of developing or passing on a genetic disorder, disease or abnormality.

Pharmaceuticals

New pharmaceuticals and vaccines are developed every year in Australia and elsewhere in the world. Some are brand new medications and vaccines to treat or prevent conditions when previously there may have been no options. Others are simply new drugs that are more effective or have fewer side-effects.

The following are some recent developments:

- **ACE inhibitors:** An angiotensin-converting-enzyme inhibitor (ACE inhibitor) is a pharmaceutical drug used for the treatment of hypertension.
- **Tamoxifen:** This medication is used to prevent and treat breast cancer.
- **Statins:** To reduce cholesterol plaque build-up.



FIGURE 4.13 Vaccines form an important preventative aspect of the Australian healthcare system.

- **Selective serotonin reuptake inhibitors (SSRI):** These are antidepressant medications. Serotonin is a neurotransmitter, which means it is a chemical involved in sending signals between the cells in your brain. SSRIs aim to block serotonin from going back into the brain and increase the amount of serotonin in the brain available for transmitting signals, therefore reducing the risk of depression.
- **Advances in vaccines:** These include the cervical cancer vaccine.

Medical procedures

The area of medical procedures is developing rapidly with the help of technology. Examples include:

- organ transplants – the transfer of human cells, tissues or organs from a donor to a recipient with the aim of restoring function(s) in the body
- hip and knee replacements
- laparoscopic surgery (also known as keyhole surgery) – a surgical technique in which operations are performed through small incisions (usually 0.5–1.5 cm), from outside the body

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- phaco cataract removal (phacoemulsification) – a modern form of cataract surgery
- robotic surgery
- the development of artificial organs
- gene therapy
- tissue engineering, such as spray-on skin
- reproductive technology, such as IVF.

Further advances in knowledge and understanding are occurring in the area of the human genome, xenotransplantation, nanomedicine and stem cells, and are set to lead to more technological advances in the future. Xenotransplantation is the transfer of cells, tissues or organs from a donor of a different species to a recipient with the aim of restoring function(s) in the body.

Apart from improvements in health and life expectancy, other advantages of medical technology include improved availability of treatments, a wider range of alternative treatment options, earlier diagnosis of disease, more common and more accurate diagnosis, and therefore earlier and more specific treatment. This may also lead to increased survival rates from diseases such as cancer, reduction of comorbidity when diseases like diabetes are controlled, and reduced reliance on pharmaceuticals. It may also reduce treatment costs (when illness is detected early) and provide additional employment opportunities.



FIGURE 4.14 Robotic surgery can reduce recovery time for patients.

Some of the obvious limitations include cost, equity with regard to availability, the fact that the advances are often being driven by pharmaceutical industries and technology companies rather than the healthcare industry, and ethical considerations.

ACTIVITY 4.7: MEDICAL TECHNOLOGY INNOVATIONS

1 **Lymphedema in cancer patients.** L-Dex, an Impedimed product, is a non-invasive tool used to diagnose patients who are at risk of, or in the early stages of, lymphedema – that is, a swelling that occurs in the limbs of people who have been treated for cancer. Since L-Dex can diagnose and assess extracellular fluid up to 10 months before there is evidence of any swelling, this new system helps prevent the further progression of the disease and may even reverse it.

2 **Organ bioprinting.** Across the world, research is under way to generate human tissue and organs, using bioprinting, a process similar to 3D printing except that live cell suspensions are used. As it is difficult to keep the cells alive while they are being printed, current successes are 'organoids' that mimic organs at a tiny scale and can be used for research. Success stories are cartilage tissue, human skin as well as liver and kidney tissue.

3 **Pocketsize ultrasound.** Since they were first used towards the middle of last century, ultrasound machines have steadily shrunk in size. In recent years, handheld devices weighing approximately 400 g were released by a number of companies, assisting medical staff who work away from hospitals and surgeries to make quicker and more accurate diagnoses.

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4 **Virtual reality applications.** In Russia, scientists at Tomsk Polytechnic University and Siberian State Medical University are working to develop an early diagnosis system for neurodegenerative disorders such as Parkinson's disease and multiple sclerosis. At the Walk Again Project in Sao Paulo, Brazil, patients with severe spinal cord injuries managed to regain partial neurological control over their lower bodies after an extensive 12-month training program that incorporated the use of VR-based simulation as well as a brain-wave controlled robotic suit. A Belgian-based company, Oncomfort, created virtual reality apps that help cancer patients undergoing chemotherapy to manage their anxiety.

5 **Bio-sensing contact lens.** Most people with diabetes use the prick-and-test method to monitor their blood glucose levels and reduce the risk of diabetes-related health problems. A more efficient means of control is continuous glucose monitoring where a number of electrodes are planted under the skin; however, this approach is unsightly, can cause skin irritations or infections, and can be painful. Bio-sensing contact lenses are being developed that can transmit health information to smartphones and other devices. Their current focus is the glucose concentrations in tears, but the further applications could be tracking drug use and detecting cancers at an early stage.

6 **Wearable health technologies.** In 2017, a company called Neogia announced 'the first wearable medical device that prevents, diagnoses and monitors sleep apnoea' – a dangerous condition where sufferers stop breathing periodically during the night. Sleep apnoea could lead to hypertension, heart disease and diabetes. Another company, QardioCore, produced a discrete health monitor in the form of a chest strap without patches and wires that clinically recorded accurate continuous ECG, heart rate variability, respiratory rate, and skin temperature that can be shared with medical professionals.

7 **Point of care testing.** POCT refers to the testing of a sample from a patient, performed in the surgery or clinic in the course of a consultation, which enables the doctor to make an urgent clinical decision and assist the patient in the most effective way. A wide range of devices is available in this category, from relatively simple (e.g. a pregnancy testing device) to highly complex (e.g. benchtop blood gas analysers).

8 **Assistance from AI.** The Medical Sieve, developed by IBM Watson, assists radiologists in making accurate patient diagnoses fast and accurately. Medical professionals daily access a range of information to diagnose patients – from viewing images to checking health records and screening research publications – making it virtually impossible for them to keep up. Now radiologists will be able to draw on more than a decade of development work to create a single-view, compact summary report based on current and relevant data.

9 **Food scanning solutions.** To date, three innovative companies – Finland's Spectral Engines, Israel's SCiO and Canada's Tellspec – have developed affordable and non-invasive digital food scanners that will enable users to better monitor their food intake and improve their health and wellbeing. This is of particular importance to people with food-related health problems such as obesity, cardiovascular diseases, diabetes and food allergies. These scanners can be used to determine more than just the nutritional value of food, and can be applied across food and drink supply chains – from paddock to plate – as well as to determine the contents of over-the-counter drugs.



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Select one of the advances in medical technology described previously and complete the following.

1 Explain the role of technology and the healthcare industry in the development of this advancement.
2 Identify some strengths of using the medical technology.
3 Identify the limitations of using the medical technology.
4 Explain how this advance in medical technology aims to promote health status.

4.5 'NEW' PUBLIC HEALTH

The new public health is also referred to as the second revolution in public health. The new public health era refers to a period in public health that began in the mid-1970s and advances in this era and the global new public health period are still relevant today. The new public health evolved as a result of an increased awareness (during the lifestyle era of the 1960s–80s) about the role that lifestyle factors play in influencing our health.

It had become clear that while recent decades had seen an increase in life expectancy and a decline in death rates (especially from infectious disease), many deaths were now occurring from preventable causes. These causes were labelled 'lifestyle factors', and the health issues they were causing included an increase in cancer and cardiovascular disease. This understanding and the approach that it led to in the 1980s is known as the new public health.

A distinction has been made in the health-promotion literature between the old public health and a new public health as a result of the change in understanding of the description and analysis of the factors of health, and the approach to and methods of solving public health problems. The new public health is



FIGURE 4.15 New public health was introduced due to increased rates of morbidity and mortality from 'lifestyle factors'.

The New Public Health was innovative because:

- It put the pursuit of equity at the centre of public health endeavours.
- It was based on the assumption (supported by considerable evidence) that social and environmental factors were responsible for much ill-health.
- It argued for health-promoting health services that were based on a strong system of primary health care.
- It stressed the importance of participation and involvement in all new public health endeavours.

SOURCE: Baum (2008)

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distinguished by its extensive understanding of the ways in which lifestyles and living conditions determine health status, and a recognition of the need to have equity in access to resources and make well-planned investments in policies, programs and services that create and protect health by supporting healthy lifestyles.

The global new public health era (mid-1990s to twenty-first century) has continued to build on this understanding, but acknowledges the impact of global economic and social factors. According to the World Health Organization (WHO), the role of public health is to promote health, prevent disease and prolong life through the organised efforts of a society.

Through strategies that have since been developed by government and health-related organisations, individuals are encouraged to take more responsibility for their own health through adopting healthier lifestyles. In addition to this, society has a role to play in working to reduce inequities and recognising that inter-sectoral action is vital because the medical profession is only one profession contributing to improvements in health.

EXTENSION QUESTION 4.5



Describe 'new' public health and explain the change in understanding that led to its development.

The biomedical approach was still important, but with this new understanding came the introduction of a range of preventative and health-promotion strategies. It was understood that a wide range of factors influenced an individual's health, including access to healthcare, work, diet, physical activity, housing and socioeconomic status. Some of these factors were the choices and responsibilities of the individual, while others were the responsibility of society.

Since 1970, the WHO has played a leading role in the development and promotion of the new public health, and current public health practice in Australia reflects the WHO's Health for All policy. The WHO adopted the Global Strategy for Health for All by the Year 2000 in 1981, and this was the turning point in the way the world looked at healthcare and understood health and its factors. The knowledge that environmental factors can influence health was not new (in fact, it was the basis for the period of sanitary reform in the early 1800s). It was the recognition of the influence of social factors, and the need for inter-sectoral action to address them, that was innovative.

As a result, a new era in public health had begun. The label 'new public health' refers to an organised response by society to protect and promote health and to prevent injury, illness and disability. It demonstrates an understanding of how lifestyle and living conditions influence health status, and aims to improve the quality of life. This approach involves directing funds towards implementing policies and programs, and providing services that protect and promote health and equity

While the new public health has a very different focus, it does not turn its back on the important role of the medical sector. In fact, both the Ottawa Charter and Social Model of Health that are key developments of the new public health highlight the importance of achieving equity in relation to access to healthcare.

One focus of public health in Australia relates to ensuring universal access to healthcare. To help achieve this, a national tax-funded healthcare system known as Medibank was introduced in 1975.

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This was replaced by Medicare in 1984, after a change of government (discussed further in Chapter 5). The Commonwealth Government has played an important role in the development of policy initiatives to improve public health, as well as providing substantial funding to implement them.

As part of Australia's response to the WHO's Health for All by the Year 2000 strategy, greater attention was given to public health strategies.

This saw the development of many national initiatives, including the National Drug Strategy, the National HIV/AIDS strategy, BreastScreen Australia and the National Cervical Screening program.



FIGURE 4.16 New public health focuses on improving social, economic and physical environments in order to improve health and wellbeing.

> The New Public Health is the totality of the activities organised by societies collectively (primarily led by governments) to protect people from disease and to promote their health. It seeks to do this in a way that promotes equity between different groups in society. They will also ensure that social, physical, economic and natural environments promote health. The new public health is based on a belief that the participation of communities in activities to promote health is as essential to the success of those activities as is the participation of experts. The new public health works to ensure that practices of the government and private sector (including the health sector) do not detract from health and where ever possible promote health.
>
> **SOURCE:** Baum (2002)

TABLE 4.4 Old public health versus new public health

OLD PUBLIC HEALTH	NEW PUBLIC HEALTH (SOCIAL MODEL)
Focus on improving infrastructure, especially to provide adequate shelter, clean water and sanitation	Focus on physical infrastructure, but also on social support, behaviour and lifestyles
Medical profession has a central place	Recognition of inter-sectoral action as vital and understanding that medicine is only one of many professions contributing
Focus on the prevention and treatment of disease	Focus on disease prevention and health promotion
Health is seen as absence of illness	Focus on a positive definition of health
Primary concern is with the prevention of infectious and contagious diseases that pose a threat to health	Concerned with all threats to health, but also growing concern with sustainability and viability of physical environment
Concern with improving conditions of poor and special-needs groups	Equity is an explicit aim of the new public health

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The Heart Foundation, Cancer Council and other non-government organisations have also played an important role in health promotion and in educating the public about the prevention of major health concerns.

The main difference between the 'old public health' and the 'new public health' is that the old public health focused on specific medical interventions to treat illness and on narrowly defined public health initiatives with the aim of preventing a specific illness. These interventions focus on individuals and their behaviours, and the physical environment. The new public health recognises that health is complex, and that a broader range of social factors impact on health, requiring inter-sectorial action and policy change to address them.

4.6 SOCIAL MODEL OF HEALTH

With the rethinking of public health, the social model of health evolved in the 1970s and was significantly influenced by the Alma–Ata Declaration in 1978. Despite improvements in biomedical healthcare and health outcomes since the early 1900s, it was recognised that many people in Australia and the world still suffered poor health, largely due to lifestyle diseases. The **social model of health** aims to move beyond a biomedical view that focuses on symptoms, disease and patients, and address the factors that lead to ill-health and health inequality within the community.

It is a conceptual framework within which improvements in health and wellbeing are achieved by directing effort towards addressing the social, economic and environmental factors that impact on health rather than focusing just on the biological factors. The model is based on the understanding that, in order for health gains to occur, social (education, socioeconomic status, employment, culture and social connectedness) and environmental determinants (shelter, food and water supply) must be addressed.

social model of health: A conceptual framework within which improvements in health and wellbeing are achieved by directing effort towards addressing the social, economic and environmental determinants of health. The model is based on the understanding that in order for health gains to occur, social, economic and environmental determinants must be addressed.

It is important to note that the social model of health does not work in isolation, nor does it replace other approaches such as the biomedical and preventative approach; rather, it works in conjunction with these. The social model of health is based on a positive definition of health and aims to improve health.

Guiding principles of the social model of health

The following are viewed as the guiding principles (A.R.E.A.S.) of the social model of health:

Addresses the broader determinants of health

The social model of health is about addressing all the determinants of health, including biological factors (genetics, body weight, blood pressure and cholesterol levels), sociocultural factors (level of education, employment status, cultural background, social networks, social expectations and attitudes, cultural traditions and the media) and environmental factors (geographic location, quality of air and water, safe workplaces, community safety and access to physical resources in the community), rather than focusing on the actions or behaviours of individuals (diet, smoking

EXTENSION QUESTION 4.6



Identify and explain factors that led to the development of the social model of health.

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DISCUSS



Discuss how the creation of bike paths reflects guiding principles of the social model of health.

and physical activity). The focus of the social model is specifically to reduce the impact of sociocultural and environmental determinants that can contribute to inequalities in health and wellbeing. By taking the focus off the behaviours of an individual, society is able to share responsibility for health and promote health among the most vulnerable, implementing policies and changes to the environment that promote their health.

Acts to Reduce social inequities

The social model of health is about reducing the inequities that exist in relation to the health status and provision of health services that can be attributed to a range of factors such as gender, age, race, socioeconomic status, location and physical environment. This means society needs to ensure equality in terms of access to services, and equity in terms of ensuring that those who are disadvantaged due to income, age, race, gender or location have these inequities removed. For example, when we look at health-promotion messages such as promoting immunisation, we promote equality by making vaccines available to all Australians at little or no cost. However, some people may still not receive vaccinations due to some form of social injustice – for example, their parents may not understand the benefits due to a lack of education; they may not be able to read or understand the health-promotion materials; or they may have difficulty accessing health services due to location or issues with transport. Reducing social inequities means addressing these factors and providing extra support to those who need it most.

Empowers individuals and communities

The social model of health is about providing individuals and communities with the resources and skill base they need to address the factors that influence their health and enable them to participate in decisions about their health. For the community, this is about providing information and resources to enable individuals to work collectively to address the determinants that impact on health, and therefore benefit the broader community group. For individuals, this can include empowering them with the knowledge, confidence, skills and resources to enable them to make decisions and take action to promote their own health.

Acts to enable Access to healthcare

The social model of health is about improving access to healthcare. Services and information should be readily available and based on need, affordability, appropriateness and accessibility to all. Healthcare services and information should also address the barriers to access, such as location, culture, language, transport, discrimination, accessibility of buildings, cost and knowledge.

Involves inter-Sectorial collaboration

The sociocultural and environmental determinants that impact on health status cannot be addressed by the healthcare and medical sector alone. The social model of health embraces the need for integrated action between government departments (including employment, education, social welfare and transport), the private sector (including manufacturers and service providers) and the health sector. For example, in the 1980s, as part of its efforts to reduce smoking rates, the Victorian Government set up VicHealth to replace tobacco advertising at sporting events and raise funds to support the QUIT program.

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ACTIVITY 4.8: THE SOCIAL MODEL OF HEALTH IN ACTION

Walking Football: A new type of football to suit everyone

Walking Football is a slower version of football designed to get older Victorians active. It promotes social interactions among participants, fostering a sense of inclusion.

As the name suggests, the game involves walking instead of running. The ball is kept below hip height and minimal tackling is allowed. The rules of the game are adaptable, so all players are kept safe.

The Walking Football program was developed by City in the Community (CITC) which is a not-for-profit extension of Melbourne City A-League Football. Seed funding was granted to CITC through the VicHealth Innovation Challenge: Physical Activity.

Walking Football is a low-impact game, with modified rules. It provides opportunities for participants to form social connections, providing mental health benefits. Facilitators are trained to be able to cater to participants with different needs, including those with mobility challenges and culturally linguistic backgrounds.

Currently, Walking Football has several partners, including University of the Third Age, City of Whittlesea, City of Darebin, Hume City Council, Knox City Council, City of Maroondah and Maccabi FC Caulfield.

SOURCE: VicHealth (2019)

1 Outline three guiding principles of the social model of health and explain how each one of them is relevant to the Walking Football program.
2 Describe how the program could promote health and wellbeing.

A number of changes in policy took place to reduce the amount of smoking in public places and increase the age at which individuals can purchase tobacco. Tobacco manufacturers had to make changes to their packaging, private industry and pharmaceutical companies were involved in the development of products to help people quit smoking, and doctors and schools were involved in spreading the QUIT message. Various sectors have been involved in successfully reducing the number of smokers in Victoria.

Social model of health in action

Using the social model of health to increase immunisation rates:

- **empowers individuals and communities:** when individuals and communities are educated about the advantages and disadvantages of childhood immunisation, they can be empowered to make their own decisions. Making these services available at no cost removes one barrier for those who decide to vaccinate their children.
- **acts to enable access to healthcare:** ensuring immunisations are available at no cost through local GPs or health clinics can improve both financial and geographical access to healthcare.
- **acts to reduce social inequities:** ensuring that all childhood immunisations are free and available in local areas reduces inequities in relation to access and cost. Providing advertising material in a range of languages and formats (such as posters with mainly pictures), including ones that require minimal literacy skills to be understood, can remove inequities associated with language barriers and illiteracy.
- **addresses the broader determinants of health:** conducting free immunisation clinics on a regular basis in the local community reduces the need for people to pay for, or travel to attend, medical appointments.

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This addresses the social, economic and environmental factors that might act as barriers to healthcare.

- **involves inter-sectorial collaboration:** government works with schools, local doctors and the media to develop and promote a program to promote childhood immunisation. Doctors, local health centres and local governments work together to run immunisation clinics.

AOS 2

HEALTH STAR RATING SYSTEM



FIGURE 4.17 Health Star Rating system

The Health Star Rating system was developed by the Australian state and territory governments in collaboration with industry, public health and consumer groups. It was implemented from June 2014 over a five-year period on a voluntary basis. It is a labelling system that rates the overall nutritional profile of packaged food and assigns it a rating from half a star to five stars, and is visible on the front of food packaging. It provides a quick, easy, standardised method to compare packaged foods from the same group – for example, comparing one type of breakfast cereal with another. The more stars a product has, the healthier the choice. The Health Star Ratings are developed to make it easier to read labels by taking away the guesswork. It aims to help Australians to quickly and easily compare similar packaged foods and make healthier choices. The nutrition labels will still appear on packaged foods, and these are a good source of additional information for those who want to make more informed choices. The calculation takes into account the number of ingredients in each product that are linked to increased risk of developing chronic diseases as well as the quantity of healthier ingredients.

Health Star Ratings are based on:

- total energy (kilojoules) of the product, keeping in mind that 8,700 kJ a day is the recommended energy intake for an average Australian adult
- saturated fat, sodium (salt) and sugar content
- fibre, protein, fruit, vegetable, nut and legume content.

A high Health Star Rating does not mean the food is healthy; it is simply a tool to help individuals to follow a healthy diet, and consideration should be given to other information such as the Australian Dietary Guidelines. The focus of the Health Star Rating system is processed and packaged foods, and the system is not intended to be used on fresh fruit and vegetables. Consumers are encouraged to always purchase fresh foods where possible.

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CASE STUDY: HEALTH STAR RATING SYSTEM

Health Stars help tackle obesity

20 January 2017

The Coalition Government today announced a new national public awareness campaign to promote the front-of-pack health stars on packaged foods in an effort to help tackle Australia's obesity epidemic.

SOURCE: Department of Health (2017)

1. Watch the video *How to Use Health Star Ratings – CHOICE* on YouTube and read the case study.
2. Outline the advantages and disadvantages of the Health Star Rating to individuals and the community.
3. Explain, using examples, how the Health Star Rating reflects the principles of the social model of health.

From the mid-1980s, a number of sociocultural factors were highlighted during the peak of the health-promotion movement. As discussed in Chapter 1, at the first international conference on health promotion in Ottawa, Canada, a number of key prerequisites for health were identified: peace; shelter; education; food; income; a stable ecosystem; sustainable resources; and social justice and equity. It was understood that these factors could not be addressed by the health sector alone, but would need a collaborative effort between government departments, non-government organisations and the media. In this way, the social model of health had a strong influence on the Ottawa Charter for Health Promotion.

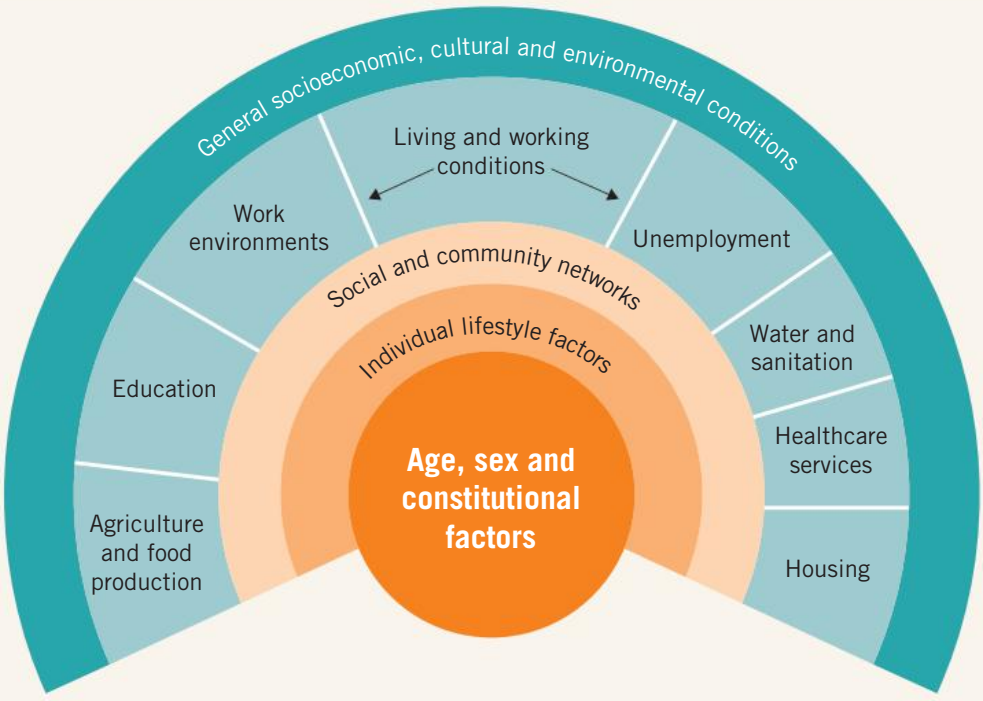


FIGURE 4.18 A social model of health considers a range of determinants of health.

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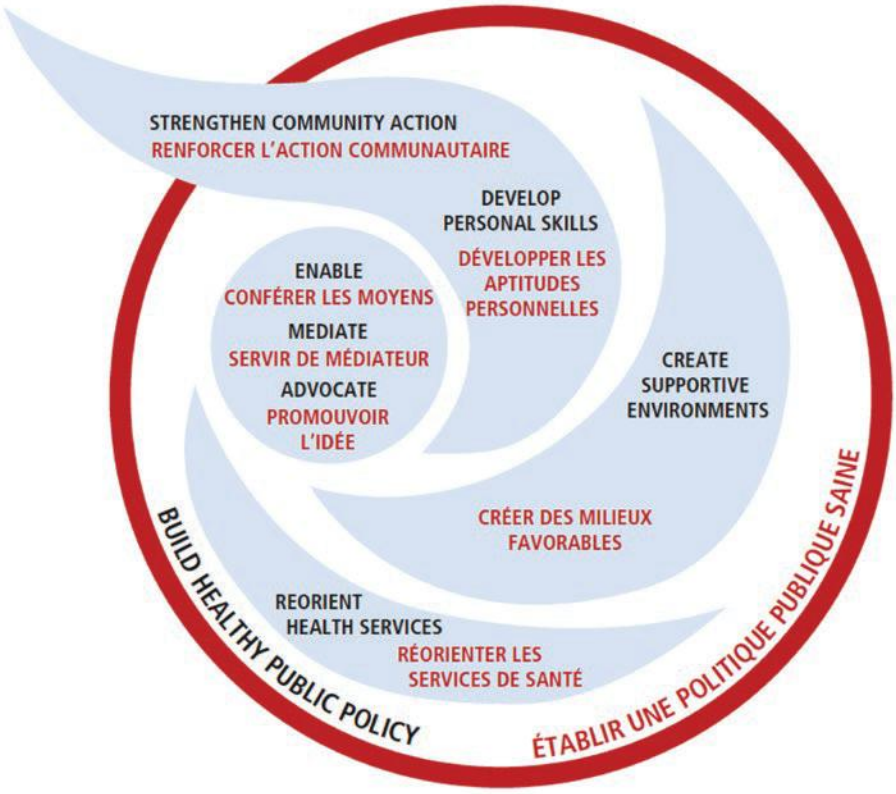


FIGURE 4.19 The Ottawa Charter for Health Promotion emblem

Ottawa Charter for Health Promotion: An approach to health-promotion development by the World Health Organization that attempts to reduce inequalities in health. The Ottawa Charter for Health Promotion was developed from the social model of health and defines health promotion as 'the process of enabling people to increase control over, and to improve, their health' (WHO, 1998). The Ottawa Charter identifies three basic strategies for health promotion: enabling, mediating and advocacy.

health promotion: 'The process of enabling people to increase control over and improve their health' (WHO, 1998).

4.7 OTTAWA CHARTER FOR HEALTH PROMOTION

On 21 November 1986, at the international health conference in Ottawa, Canada, the **Ottawa Charter for Health Promotion** was produced with the aim of taking action to achieve health for all by the year 2000 and beyond through **health promotion** and reducing inequalities in health. The focus of the conference was to respond to expectations for a New Public Health movement throughout the world and to achieve an acceptable level of health for all people in the world by the year 2000.

The Ottawa Charter for Health Promotion is based on the understandings gained in the social model of health, and integrates a number of different perspectives on health promotion that have formed the foundation for the new public health. Part of the success of the Ottawa Charter is due to the fact that it integrated many of the different perspectives of health promotion that existed at the time. It did not reject understandings gained in the earlier lifestyle era, but it built upon these understandings.

As can be seen in Figure 4.19, the Ottawa Charter identifies three basic strategies for health promotion:

1 **Enable.** To enable means to support people with the information, opportunities, resources and skills that they need to make choices that support good health.
2 **Mediate.** Optimal health cannot be ensured by the health sector alone, and health promotion requires coordinated action by all levels of government, the health sector, non-government organisations, industry and the media.

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3 **Advocate.** Health promotion aims to make the necessary political, economic, social, cultural, environmental, behavioural and biological factors favourable to support good health and wellbeing. It is about promoting and supporting initiatives that promote health on behalf of the whole community, and protecting health as a resource and important determinant in relation to the quality of life.

Within these three basic strategies for health promotion, the Ottawa Charter for Health Promotion also outlines five elements or action areas that are deemed important in achieving health for all:

1 Build healthy public policy.
2 Create supportive environments.
3 Strengthen community action.
4 Develop personal skills.
5 Reorient health services.

Action areas of the Ottawa Charter for Health Promotion

Build healthy public policy

The first element of the Ottawa Charter for Health Promotion directly relates to the decisions that are made by governments and organisations in relation to healthcare policy, legislation, taxation, rules and regulations. Building healthy public policy includes changes in policy that will help to make healthier choices easier and contribute to healthier, safer, cleaner and more enjoyable services and environments. This kind of change requires coordination and communication between sectors to identify the obstacles to the adoption of health policy and plan ways to remove those barriers. When successful, it tends to promote equity. The changes in policy can take various forms – for example, legislation to ban smoking in public places, banning the use of commercial sun-tanning beds, reducing speed limits on roads near schools during school hours and increased taxation on cigarettes.

DISCUSS



Discuss how shaded playgrounds reflect the action areas of the Ottawa Charter.

Create supportive environments

The creation of supportive environments involves building links between individuals and their environments (economic, physical and social) through taking care of one another, communities and natural resources. Creating supportive environments also involves promoting environments that encourage safe, stimulating and enjoyable living and working conditions so individuals can reach their full potential. Regular assessment of the impact of the environment is essential (especially in rapidly changing areas such as technology, work, energy production and urbanisation) as is the protection of the environment. The conservation of the natural environment must be addressed in all health-promotion strategies.

The key feature of this element is that it encourages individuals to support and help each other to make healthy choices, both now and in the future – for example, ensuring children's playgrounds are free from hazards, are safe, and provide adequate shade to allow children to play in a safe and stimulating environment; ensuring roads are safe; and providing social support groups such as new mothers' groups.

Strengthen community action

As outlined in the Ottawa Charter for Health Promotion, strengthening community action requires communities working together to set priorities, make decisions, and plan and implement strategies that will help them to achieve better health. Each community will

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EXTENSION QUESTION 4.7



Referring to the action areas of the Ottawa Charter, discuss how local park runs can improve health status.

AOS 2

use the resources that it has available to assist in developing health-promotion strategies that are relevant to it. Health-promotion strategies that focus on community action lead to empowerment of that community and improved outcomes as a result of the ownership of their strategies, the social support and public participation. To be successful, this action area requires the availability of up-to-date and reliable health information, learning opportunities and financial support in terms of funding.

'Communities' can include large community settings, such as the total Australian community, or much smaller settings, such as an individual school or workplace community. Strengthening community action is about a combined effort between key stakeholders – for example, the QUIT campaign involves the action of VicHealth, the Cancer Council and the use of the media and GPs to promote its messages. Many of the road safety initiatives in Victoria are a joint effort between the state government, VicRoads and the Transport Accident Commission (TAC), which uses the media and even schools in some cases to promote the road safety message.

Develop personal skills

The development of personal skills involves an individual gaining life skills and information through health promotion and education, and is the desired outcome of many health-promotion programs. Such skills and knowledge should be gained and supported at home, in school, at work and in other community settings to enable the individual to make choices that will enhance their health and to take control over their own health. This action area needs to be facilitated in schools, home, work and community settings, and requires action through educational, commercial and voluntary organisations. Examples of developing personal skills may include an individual learning how to protect themselves from cyber-bullying, how to check for skin cancer, women learning how to check their breasts for signs of breast cancer and how to follow a healthy and nutritious diet.

Reorient health services

As with the other action areas, reorienting health services involves individuals, community groups, health professionals and the government working together to achieve a healthcare system that promotes health. The idea is for groups to work together to support healthcare professionals in moving beyond providing biomedical services to treat and cure illness, and place a stronger emphasis on health promotion. Detailed research is required, and practitioners require changes in their professional training and education. The aim is to change the attitude of health services and ensure that health promotion is culturally sensitive, directed at specific target groups and meets the needs of the whole person.

In order to successfully achieve a shift from biomedical healthcare, changes in the training of healthcare professionals need to take place and healthcare services need to focus their care

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on the requirements of the whole person. Some examples may include a doctor discussing the benefits of stopping smoking with a patient who presents with asthma, strategies for losing weight for a patient at risk of type 2 diabetes mellitus or encouraging women to have a Cervical Screening Test to detect if there are early signs of cervical cancer. Another example might include having a medical professional discuss the importance of physical activity and healthy eating with a group of overweight adults in an attempt to reduce the risk of obesity, type 2 diabetes mellitus and heart disease.

LIVELIGHTER

The LiveLighter® campaign was launched in Victoria in 2014, with mass media advertising. The program engages with the community through social media, online and printed resources, advocacy and retailers. The television and print advertisements are graphic and confronting as a way of helping adults realise that achieving and maintaining a healthy weight should be a priority.

LiveLighter® is an initiative of the Western Australian Government. In Victoria, LiveLighter® is a shared initiative between Cancer Council Victoria and the Heart Foundation.

LiveLighter® is targeted at Australian adults and aims to:

- Increase awareness of the link between being overweight and chronic disease, while promoting healthy eating and regular physical activity.
- Increase understanding of the risks associated with poor lifestyle choices.
- Support the trial, adoption and maintenance of healthy eating, physical activity and healthy weight.
- Encourage public debate about obesity and the need for changes in the community to support healthy eating and physical activity. We need to make sure the healthy choice is also the easy choice.

In addition to the media campaign, LiveLighter® has an informative website that provides meal planners, recipes, risk calculators, fact sheets and nutrition guides. There are about 350 healthy recipes to suit all tastes on the LiveLighter website that are consistent with the Australian Guide to Healthy Eating and all contain a nutrition information panel. The focus of the recipes is on including plenty of vegetables, whole grains and lean meats and alternatives. LiveLighter® showcases ways of making tasty food that doesn't include buckets of sugar, butter and salt. Signing up to the LiveLighter® online program is free and enables people all over Australia to access the support they need to improve their diet and lifestyle. Signing up includes access to flexible meal plans that can be tailored for women, men, those who need extra food, and families; a shopping list that can be edited, guidelines for healthy lunches, breakfasts and snacks; and a tracker for exercise and weight loss. They also have a section on the website for health professionals who can access campaign materials and presentations to use as health promotion tools in their clinics.

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TABLE 4.5 How LiveLighter® reflects the Ottawa Charter for Health Promotion

Create supportive environments	Through having access to the information Victorians need via an informative website, the LiveLighter® program aims to create a supportive social environment that provides many resources to help people to make healthier choices.
Strengthen community action	This program promotes interaction between the Cancer Council, the Heart Foundation and the Victorian Government, but it also requires action and support from the food industry and health practitioners to promote the program and its resources.
Develop personal skills	Through providing an informative public awareness campaign and a range of factsheets and advice on its website, LiveLighter® aims to develop personal skills by helping adults realise that achieving and maintaining a healthy weight should be a priority and helping them to learn how to achieve this.
Reorient health services	Through the 'health professionals' section on its website, LiveLighter® provides access to campaign materials and presentations so that health professionals can provide health-promotion messages to their clients and reduce the risk of illness.



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ACTIVITY 4.9: OTTAWA CHARTER IN ACTION



FIGURE 4.20 Example of the Ottawa Charter in action

1 Explain how the social model of health influenced the development of the Ottawa Charter for Health Promotion

2 Refer to Figure 4.20 and use each action area of the Ottawa Charter to address bullying in schools.

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ACTIVITY 4.10: TIMELINE IN HEALTH CARE

1 Create a timeline, concept map or video of the major milestones in public health including:
- the 'old' public health
- the biomedical approach to health (including improvements in medical technology)
- development of the 'new' public health
- the social model of health
- the Ottawa Charter for Health Promotion.

2 For each milestone, discuss the possible impact on health status in Australia.

AOS 2

4.8 RELATIONSHIP BETWEEN THE BIOMEDICAL AND SOCIAL MODELS OF HEALTH

As mentioned earlier, there is a place for both a biomedical approach to health and the social model of health in the modern healthcare system. It is not a case of one being more important than the other; they both have different yet important roles to play. Over the past 100 years, both models have played an important role in improving health status in Australia.

Immunisation has been one of the most successful and effective health-prevention strategies and is a social model of health. The success can be attributed to the Immunise Australia Program (which funds the purchase of vaccinations to protect Australians from vaccine-preventable diseases), the Australian Childhood Immunisation Register and the government 'No Jab, No Pay' policy (which requires children of all ages to meet immunisation requirements to be eligible to receive the Family Tax Benefit Part A and childcare payments from 1 January 2016).

The success of this program has resulted in a 90 per cent immunisation rate by the time children start school, but would not have been possible without the involvement of the biomedical approach to health, which played an important role in researching disease, developing an effective antigen for each one and creating the vaccine. It has also been important in the testing of the vaccine, and in the role played by health professionals in administering the vaccine.

The social model has the important role of ensuring that the vaccine is provided to as many people as possible by reducing the number of barriers faced in terms of accessing the vaccine. This is achieved through ensuring that immunisations are available at little or no cost through local GPs and health clinics, ensuring both financial and geographical access, and reducing inequities. It also

EXTENSION QUESTION 4.8



FIGURE 4.21 Campaign image from STI testing week, a Victorian government effort

Analyse aspects of the biomedical approach and the social model of health featured in sexual health awareness campaigns that aim to reduce incidence and prevalence of sexually transmitted infections.

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ACTIVITY 4.11: THE BIOMEDICAL AND SOCIAL APPROACH TO HEALTH

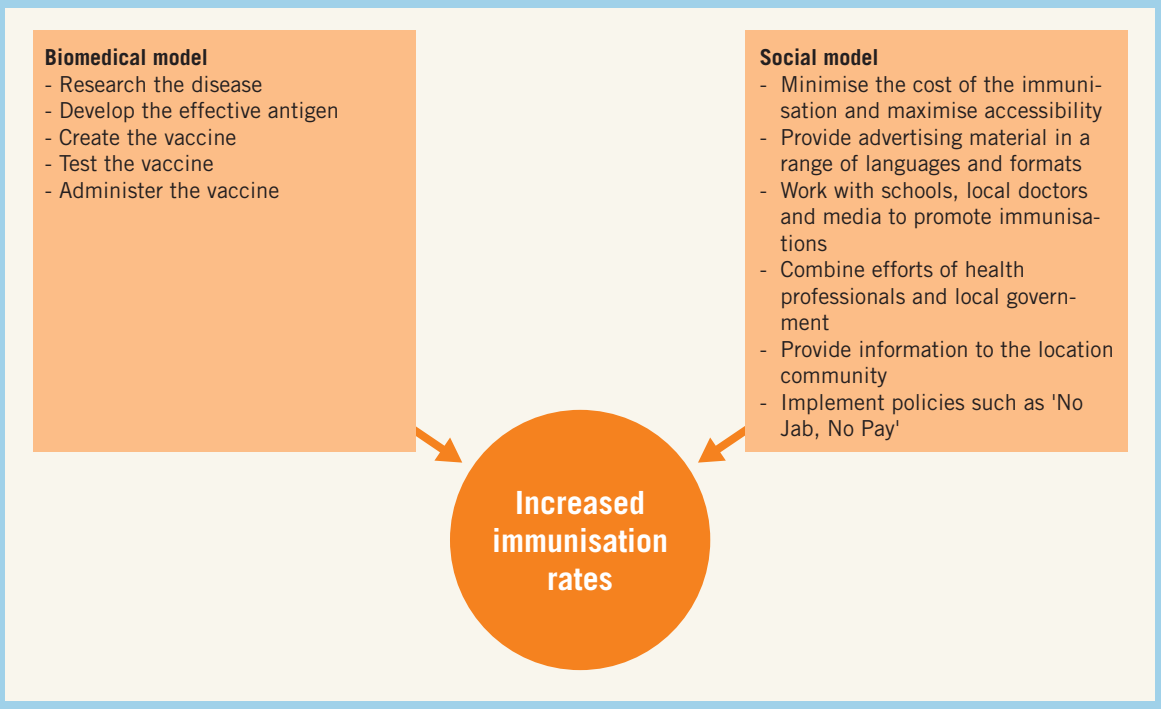


FIGURE 4.22 Relationship between the biomedical approach to health and the social model of health to increase vaccination rates

1 Using Figure 4.22 to assist you, create a similar diagram to outline the relationship between the biomedical approach to health and the social model of health with regard to reducing the number of people dying from cardiovascular disease.
2 Explain how the relationship between the biomedical approach to health and the social model of health has led to improvements in health.

involves providing all advertising material in a range of languages and formats to remove inequities associated with language barriers and illiteracy; the government working with schools, local doctors and the media to develop and promote a program to promote childhood immunisation; doctors, local health centres and local governments working together to run immunisation clinics; providing information to the community about the importance of childhood immunisations to address the fact that some people may not be aware of the importance of child vaccinations; and, finally, policies such as 'No Jab, No Pay' to increase the number of people immunised.

Cancer screening is another successful health-prevention strategy, leading to more than 3.8 million people participating in the National Cervical Screening program in 2015–16. The success of this program has also relied on a good balance of both the biomedical and social models of health. Other success stories over the past 100 years have been sanitation, safe birthing practices, improved maternal and child health services, workplace safety, and a better food and water supply.

Strengths and limitations of the biomedical approach to health and the social model of health

Both the biomedical approach to health and the social model of health have a wide range of advantages and strengths.

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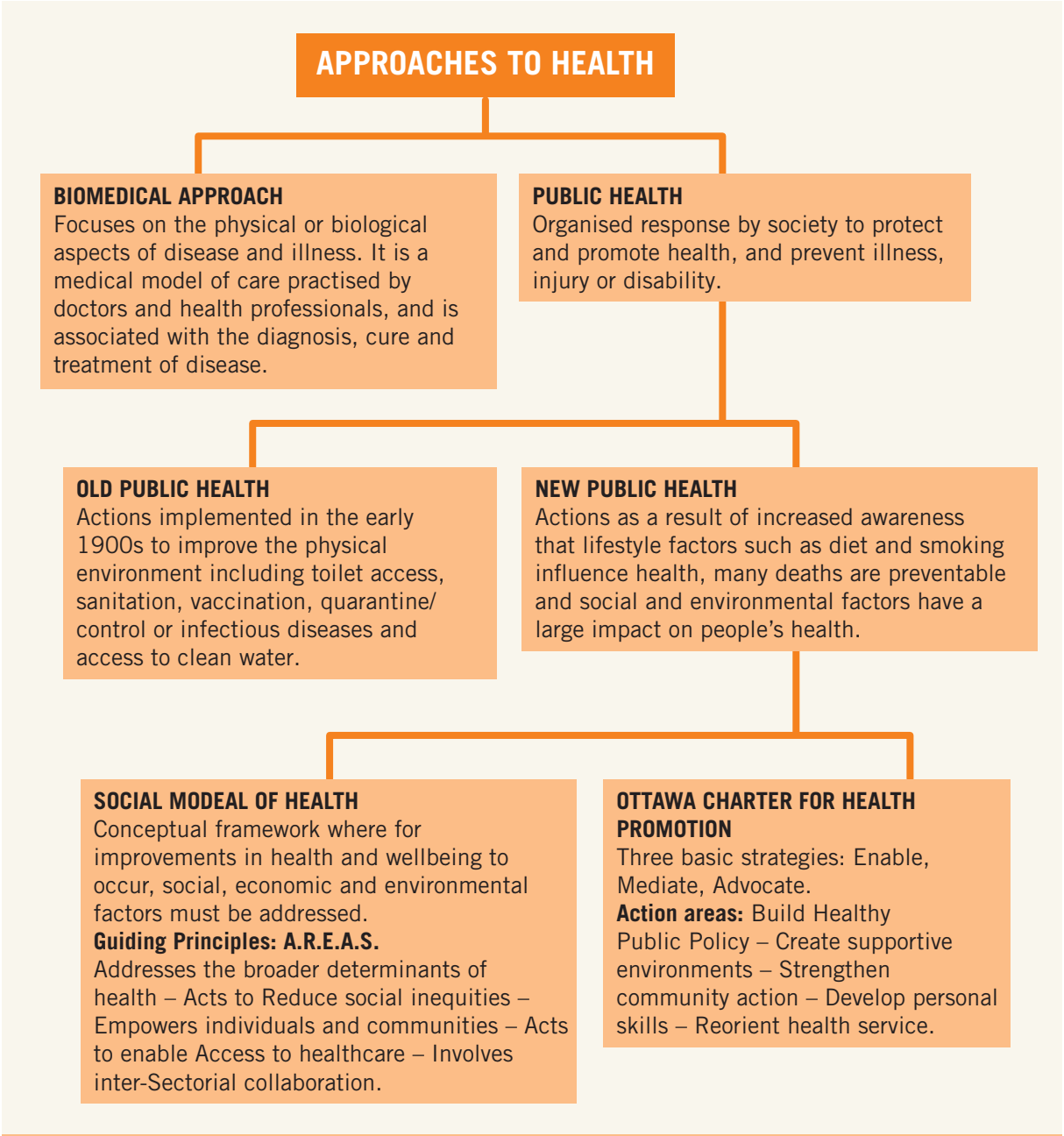


FIGURE 4.23 Summary of approaches to health in Australia

Biomedical approach to health

The biomedical approach aims to assist the individual without the individual having a significant responsibility. It has a specific focus on treating those who are experiencing illness or disability, and thus improving their lives.

Strengths of this model include:

- **It provides treatment for many medical conditions.** This provides reassurance for people and creates trust in our healthcare system because they are able to access a range of services to treat and diagnose illness, ranging from x-rays and blood tests to medications and surgery.
- **It helps us to learn more about disease and illness.** Through ongoing medical research, the biomedical approach helps us to learn about the causes of and treatments for a range of conditions, and can sometimes

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lead to measures such as vaccines that can prevent illness.

- **It can enable us to improve the health status of the population.** Through improvements in diagnostic measures and treatments, the biomedical approach can enable us to reduce the burden of disease associated with some conditions, and can therefore lead to increased life expectancy.
- **It can reduce the amount of time people spend experiencing ill-health.** Again, through improvements in diagnostic tools and treatments, illness such as cancer can be detected earlier and treated in the early stages of the disease. This can lead to shorter and more effective treatments, and reduce the amount of time that people spend in poor health.

There are also limitations of the biomedical approach to health, including the following:

- **It can be expensive.** The technology, treatments and research required for the biomedical model incur ongoing expenses, and are expensive.
- **It does not always promote equity.** Because of the high costs of the biomedical model, some treatments and medications that are not government funded may not be accessible to all people.

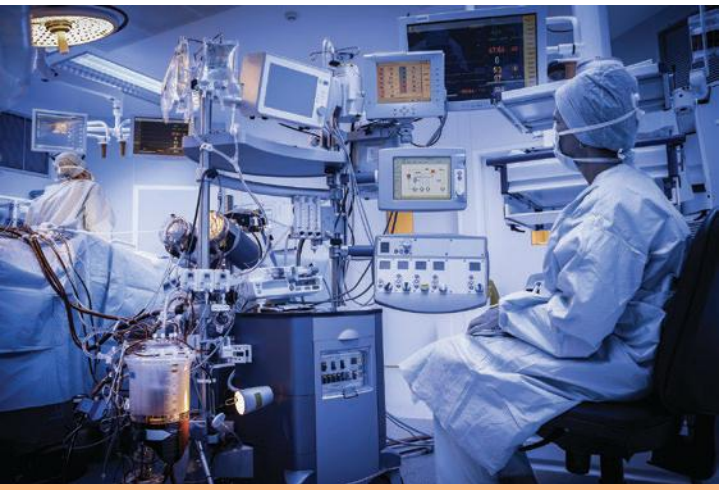


FIGURE 4.24 The biomedical approach can be very expensive and the high costs of non-government funded treatments may reduce people's access to healthcare.

- **It does not encourage or promote good health.** The reliance on the biomedical approach to fix health problems does not promote the individual taking responsibility to improve their health and prevent any further illness, and in this way it does not promote good health.
- **It treats the body and illness in isolation to the environment.** By not looking at the many social factors that may cause illness, disease may recur due to social factors.
- **There is not a cure or treatment for every illness or disease.** The most significant limitation is the fact that there is not a biomedical cure for every illness.

Social model of health

The social model of health is not able to exist in isolation from the biomedical approach because people who are ill will always require treatment. As with the biomedical approach, though, it has a range of strengths and limitations.

Some of the strengths of the social model include:

- **It aims to improve the situation before illness occurs.** Its goal is to improve health by preventing illness rather than treating it.
- **It focuses on populations rather than individuals.** The social model does not view the body in isolation from its environment, which means that when changes are made to the physical or social environment, it has the opportunity to improve the health of many.
- **It focuses on collaboration to improve effectiveness.** Through involving a range of sectors, including the health sector, health-promotion agencies and the government, the social model of health is better understood and meets the needs of the community.
- **It focuses on promoting good health.** As the social model aims to prevent illness before it occurs, it focuses on addressing the factors or broader determinants that contribute to poor health in an attempt to promote good health.
- **It is sustainable.** Many of the initiatives that reflect the social model of health have a focus on education. The knowledge gained from

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these initiatives can be passed on to future generations to help them meet their needs, meaning that the social model of health is socially and economically sustainable.

- **It is more cost-effective than the biomedical approach.** As the social model does not rely on expensive equipment and technology, it typically is more cost-effective than the biomedical approach.
- **Individuals and communities are empowered to promote their own health.** While the biomedical approach relies on health professionals, and individuals are often not involved in the treatment of their condition, the social model provides information and resources to individuals and the community, and encourages them to make choices that promote health and wellbeing.
- **It promotes equity.** By focusing on the most vulnerable population groups, such as Aboriginal and Torres Strait Islander peoples, those living in rural and remote areas, Australians from low-SES backgrounds, men and the elderly, and developing initiatives to reduce ill-health in these groups, the social model of health promotes equity.

As with the biomedical approach, though, there are also limitations of the social model of health. These include the following:

- **It may be less effective for some people.** While the social model aims to address the needs of the most vulnerable, not all people will benefit from these initiatives. The social model of health often requires individuals to take some responsibility for their own health, and not all people will make choices that promote health. For example, despite numerous public health initiatives to reduce smoking rates, some people in Australia continue to smoke cigarettes. While the social model aims to reduce inequities such as age, gender, race, location and income, these factors do exist, and may reduce the opportunities for some people to make choices that promote good health.
- **Not all illnesses or conditions can be prevented.** There are conditions that are more difficult to prevent, such as asthma, type 1 diabetes mellitus and some genetic conditions, so while the social model of health can work to reduce the impact of these conditions, the biomedical approach is still needed to treat them.
- **It relies on individuals making good choices.** While one strength of the social model is that it empowers individuals, some people may ignore health-promotion messages, making the model less effective.
- **It does not address the needs of individuals.** Another strength of the social model is that it focuses on population health; however, this means that initiatives focus less on meeting the needs of specific individuals. For people who are already sick, the social model may have little to offer to help them.

ACTIVITY 4.12: AUSTRALIA ON TRACK TO ELIMINATE CERVICAL CANCER THANKS TO HPV VACCINE AND SCREENING PROGRAMS

Population-based screening for cancer is a systematic approach to testing for signs of cancer or pre-cancerous conditions in members of the population without obvious symptoms. Such screening is run through partnerships between the Australian Commonwealth Government and state and territory governments, and relies on the support of GPs. The National Cervical Cancer Screening Program was implemented in 1991, updated in 2017 and targets women aged 25–75 years of age for a five-yearly pap smear. The higher number of women being screened means more cervical abnormalities are detected early, leading to a reduction in cervical cancer mortality rates.



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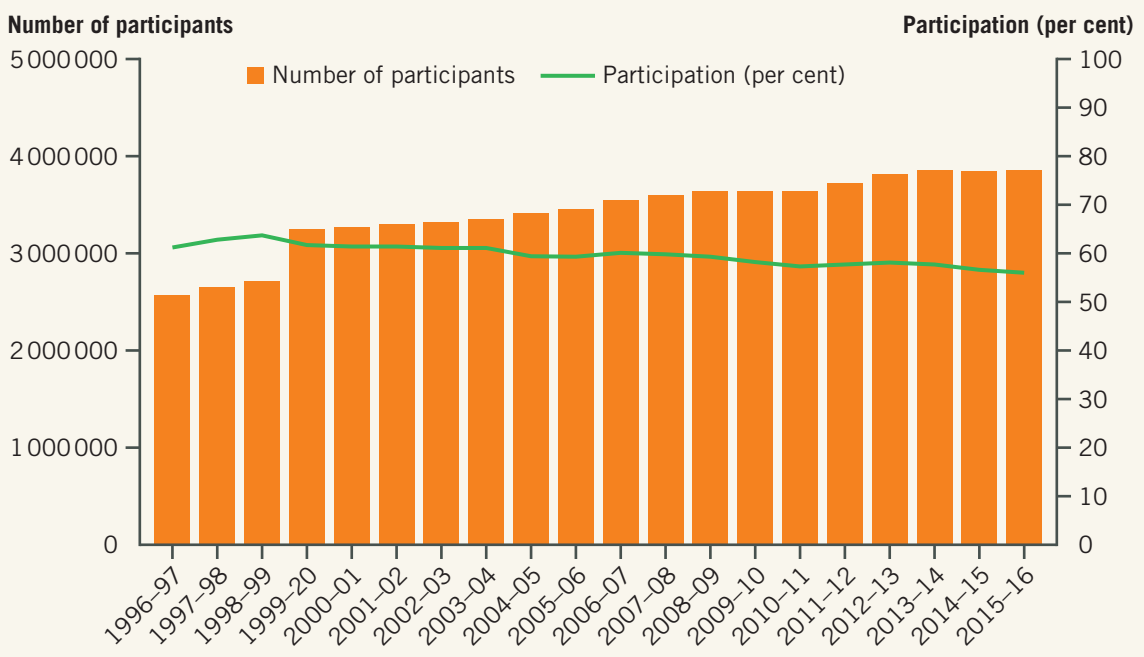


FIGURE 4.25 Number of women screened and age-standardised participation rate, National Cervical Screening Program, Australia between 1996–97 and 2015–16

A separate immunisation program in Victoria provides free HPV vaccines for Year 7 students. It protects against HPV viruses that account for 90 per cent of cervical cancers in women.

TABLE 4.6 Rates of HPV vaccine coverage, 2012–17, female adolescents turning 15 years of age

YEAR	COVERAGE DOSE 1	COVERAGE DOSE 2	COVERAGE DOSE 3
2012	82.7	79.2	71.5
2013	82.1	78.4	71.7
2014	83.7	80.3	74.1
2015	86.4	83.7	78.0
2016	86.5	83.8	78.6
2017	88.9	86.6	80.2

Notes:

1. Coverage is calculated as doses administered and reported to the HPV Register/Estimated Resident Population, expressed as a percentage.
2. Year is the year in which females turn 15 years of age; 15 years of age is used as the age for routine review of vaccination coverage that provides the best comparison to allow for these varying ages in administration, as per World Health Organization recommendations.

SOURCES: National HPV Vaccination Register 2018; Victorian Cytology Service 2018

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1 Outline one trend from Figure 4.25 and one trend from Table 4.6.
2 Identifying examples of both approaches in your answer, explain the relationship between the biomedical approach to health and the social model of health in reducing rates of cervical cancer through the National Cervical Screening Program and the National Immunisation Program.
3 Identify strengths and limitations of both the biomedical approach to health and the social model of health.

ACTIVITY 4.13: USING THE BIOMEDICAL APPROACH TO HEALTH AND THE SOCIAL MODEL OF HEALTH TO IMPROVE HEALTH STATUS

AOS 2

1 Outline the role of the biomedical approach to health in addressing mental illness.
2 Outline the role of the social model of health in addressing mental illness.
3 Discuss the strengths and weaknesses of both the biomedical approach to health and the social model of health in addressing mental illness.
4 Explain why it is important for the government to invest in both the biomedical and social models of health.

TABLE 4.7 Summary of the biomedical approach to health and social model of health approach to addressing broad disease groups

	BIOMEDICAL APPROACH TO HEALTH	SOCIAL MODEL OF HEALTH
Diabetes	- Personal blood glucose meters - Insulin injections or tablets - GP consultations to diagnose type 2 diabetes mellitus - Blood test to diagnose type 2 diabetes mellitus - Medical treatment or medication to treat comorbidities associated with type 2 diabetes mellitus, such as high blood pressure	- Health Star Rating system to help people make healthier food choices and prevent or manage type 2 diabetes mellitus - Australian Guide to Healthy Eating to help people learn about healthy diet and prevent or manage type 2 diabetes mellitus - Life! Program aimed at educating people and prevent them from developing type 2 diabetes mellitus - Including insulin on the Pharmaceutical Benefits Scheme
Cancer	- Improvements in surgery to treat some cancers - Improvements in specialised treatment, such as radiation therapy and chemotherapy - Improved diagnostic tools and tests to help diagnose cancer	- Promoting early detection programs - Banning solariums in Victoria from January 2015 - Increasing taxation on tobacco - Media campaigns for SunSmart and QUIT - Banning smoking in public places - Increasing the legal age to purchase tobacco to 18 years - Banning point-of-sale advertising for cigarettes - SunSmart schools program
Infectious diseases	- Development of new vaccines such as the HPV vaccine - Development of new treatments to treat infectious disease - GP consultations to diagnose conditions - Development of tests to help diagnose disease	- Free vaccinations as part of the Immunise Australia Program - Immunisation Register to keep records of childhood vaccinations - Changes to the social welfare system requiring children to be fully vaccinated

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TABLE 4.7 *(Continued)*

	BIOMEDICAL APPROACH TO HEALTH	SOCIAL MODEL OF HEALTH
Injury and poisoning	- Surgical procedures to treat people who have been injured - Research into the best ways to treat brain injuries - Rehabilitation for people suffering from road trauma - Paramedics providing emergency treatment for a child for poisoning	- Legislation to fence swimming pools - Safer roads - Introducing new graduated licensing system - Safer driveways media campaigns - Introducing compulsory wearing of seatbelts - Establishing .05 blood alcohol limits - Random breath testing - Reducing speed limits to 50 km/h in residential streets; to 40 km/h in school zones - Creating safer roads and addressing accident black spots - Developing safer vehicles - Changing rules for P-plate drivers, such as the one peer passenger (aged 16 to less than 22) rule for P1 new drivers - Changing the requirements for learner drivers, such as requiring 120 hours' practice with a licensed driver with some hours at night - Campaigns such as 'Remove the risk' providing information that assists parents to poison-proof their homes



FIGURE 4.26 Mental illness is a significant contributor to burden of disease in Australia.



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CHAPTER SUMMARY

- Australia's health status has improved significantly since 1900, with life expectancy over 20 years higher, and the under-5 mortality rate considerably lower.
- Reasons for these improvements relate to a range of interventions.
- 'Old' public health refers to changes to the physical environment, including waste removal, safe housing and improved access to safe water. These changes improved health at a population level and had a significant impact on incidence and prevalence of infectious diseases such as measles, smallpox, diarrhoea and cholera.
- The biomedical approach relates to the implementation of traditional medicine and focuses on the diagnosis, treatment and cure of disease and illness. Technological developments such as x-rays, chemotherapy and CT scans have led to further improvements in health status in Australia and around the world.
- 'New' public health was introduced during the 1970s as a result of an increase in the prevalence of lifestyle-related diseases, such as cardiovascular disease and cancers.
- The social model of health:
  - › Addresses the broader determinants of health
  - › Acts to reduce social inequities
  - › Empowers individuals and communities
  - › Acts to enable access to healthcare
  - › Involves inter-sectorial collaboration.
- Ottawa Charter for Health Promotion:
  - › Build health public policy
  - › Develop personal skills
  - › Strengthen community action
  - › Create supportive environments
  - › Reorient health services.
- The relationship between biomedical and social models of health:
  - › Both models are needed in order for health status to improve; neither can stand alone.



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KEY QUESTIONS

SUMMARY QUESTIONS

1 Explain how the leading causes of mortality in Australia have changed since 1900.
2 Explain the difference between 'old' public health and 'new' public health.
3 Describe the biomedical approach to health.
4 Provide three examples of the biomedical approach to health.
5 Explain how improvements in technology have resulted in improvements in health status in Australia.
6 Explain the reasons why the social model of health was introduced.
7 Providing an example of each, explain the five guiding principles of the social model of health.
8 Identify and briefly describe the five action areas of the Ottawa Charter for Health Promotion.
9 Name and briefly describe the three basic strategies for health promotion identified in the Ottawa Charter for Health Promotion.
10 Explain how the Ottawa Charter represents the principles of the social model of health.
11 Copy and complete the following table, identifying two strengths and two weaknesses of both the biomedical approach and social model of health.

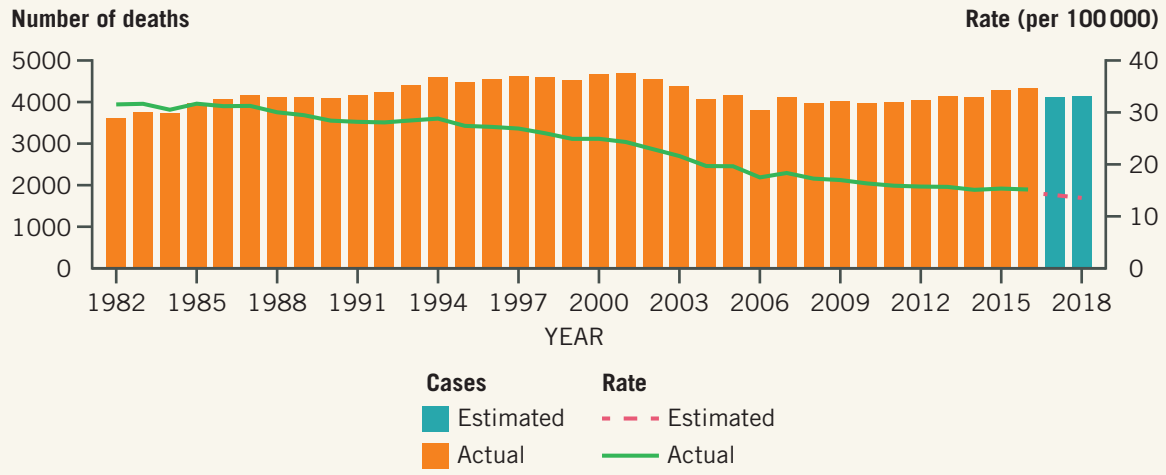
	STRENGTHS	LIMITATIONS
BIOMEDICAL APPROACH		
SOCIAL MODEL		

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EXTENDED RESPONSE QUESTION

Consider the following sources of information:

SOURCE 1



SOURCE: AIHW (2018); Table A2.2

FIGURE 4.27 Number of deaths from colorectal cancer and death rate from colorectal cancer (bowel cancer), 1982–2018

SOURCE 2

The National Bowel Cancer Screening Program aims to reduce illness and death from bowel cancer through early detection or prevention of the disease.

The NBCSP is inviting eligible people aged between 50 and 74 years to screen for bowel cancer. Participants are sent a free, clean, easy to use test kit to complete at home.

To be invited to take part in the Program, your name will be drawn from either Medicare or Department of Veterans' Affairs enrolment records.

By 2020, all eligible Australians aged between 50 and 74 years of age will be invited to screen every two years (around four million Australians a year). This could save up to 500 lives annually, and significantly reduce the burden of bowel cancer on Australians and their families.

SOURCE: National Bowel Cancer Screening Program



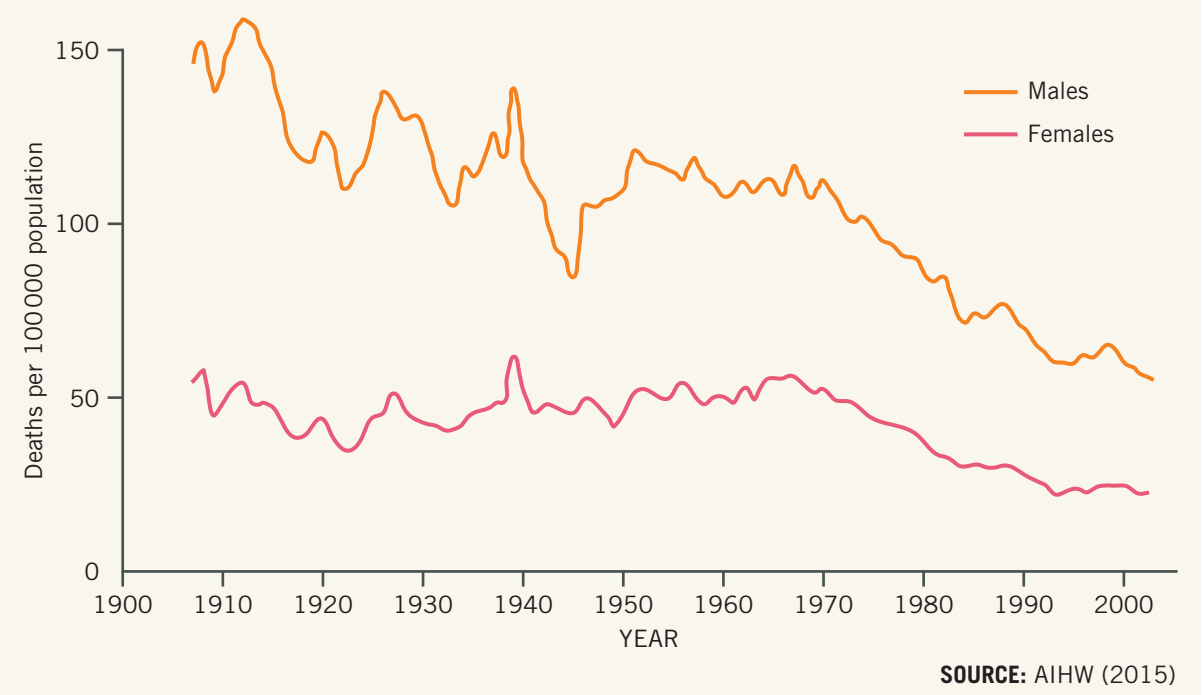
FIGURE 4.28 National Bowel Cancer Screening program

QUESTION

Referring to Sources 1 and 2, explain how the relationship between the biomedical approach and social model of health has addressed the mortality rates of bowel cancer in Australia. (8 marks)

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EXAMINATION PREPARATION QUESTIONS



SOURCE: AIHW (2015)

FIGURE 4.29 Death rates per 100 000 population for injury and poisoning, 1907–2010

A Identify two trends in the data. (2 marks)

B Identify and explain the possible impact of one biological and one sociocultural factor on one of the trends identified in Question A. (2 marks)

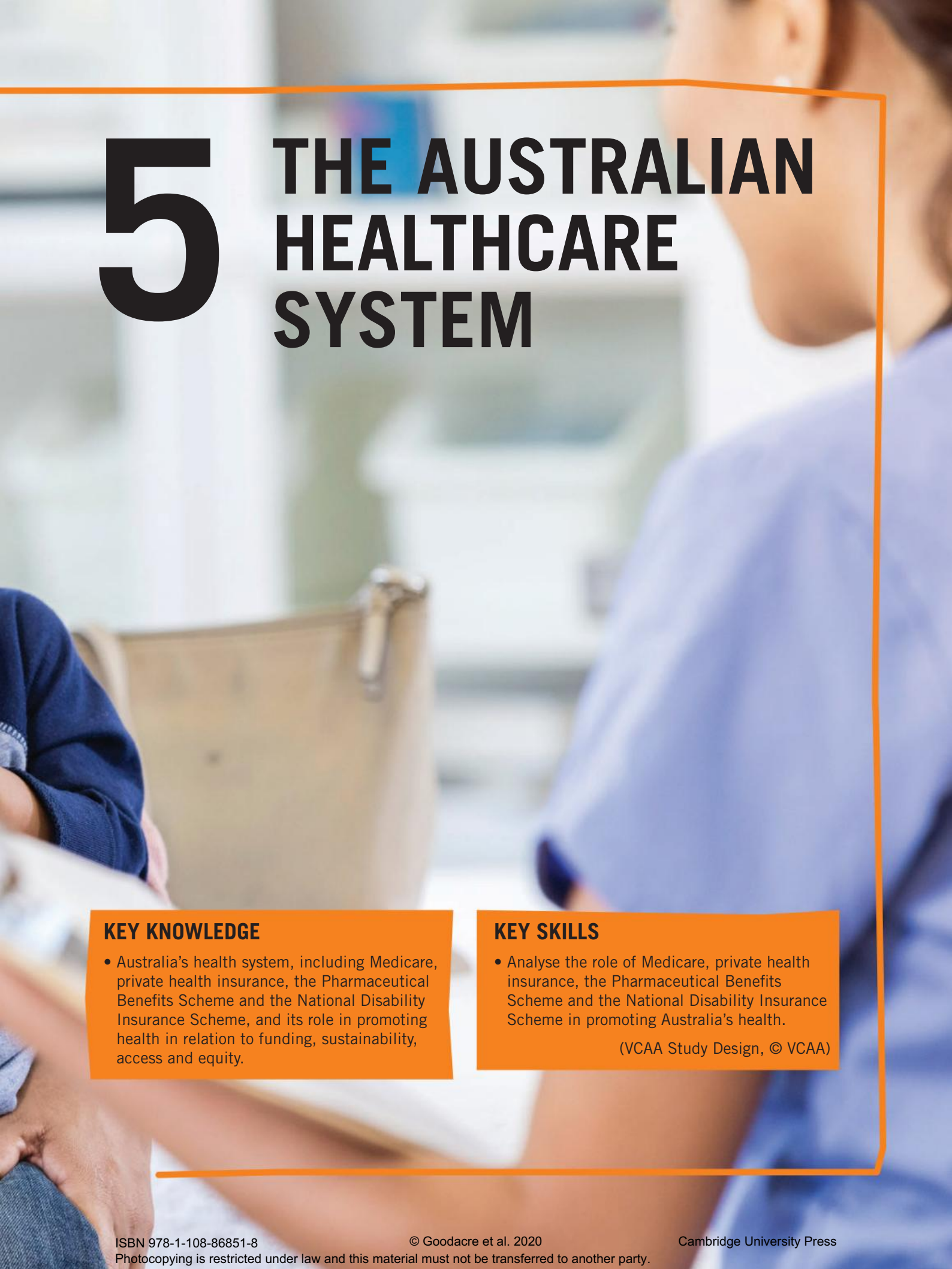
C Explain, using one example, how the biomedical approach to health might address the death rate of injuries and poisonings. (2 marks)

D Explain, using one example, how the social model of health might be able to address the death rate of injuries and poisonings. (2 marks)

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5 THE AUSTRALIAN HEALTHCARE SYSTEM

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.

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INTRODUCTION

This chapter looks at the various features of the healthcare system in Australia, including Medicare, private health insurance, the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme. You are required to have an understanding of the structure, goals and methods of funding of each of these aspects of the healthcare system as well as the ways in which each one promotes health through sustainability, access and equity. Sustainability refers to meeting the needs of the current generation without diminishing the ability of future generations to meet their own needs. Access relates to people being able to obtain healthcare regardless of their socioeconomic status, location, gender, cultural background or any other factor. A health system that promotes equity means that the people who need healthcare the most receive additional assistance so that everyone is treated fairly.

AOS 2

What you need to know

- Details of key elements of Australia's health system, including:
  - Medicare
  - private health insurance, including the incentive schemes
  - the Pharmaceutical Benefits Scheme
  - the National Disability Insurance Scheme.
- The ways in which each aspect of the health care system is funded.
- The way the Australian healthcare system promotes health in relation to funding, sustainability, access and equity.

What you need to be able to do

- Analyse the role of Medicare, private health insurance, the Pharmaceutical Benefits Scheme and the National Disability Insurance Scheme in promoting Australia's health.
- Explain the way in which the Australian healthcare system is funded.
- Explain the way in which the health system promotes health in relation to funding, sustainability, access and equity.

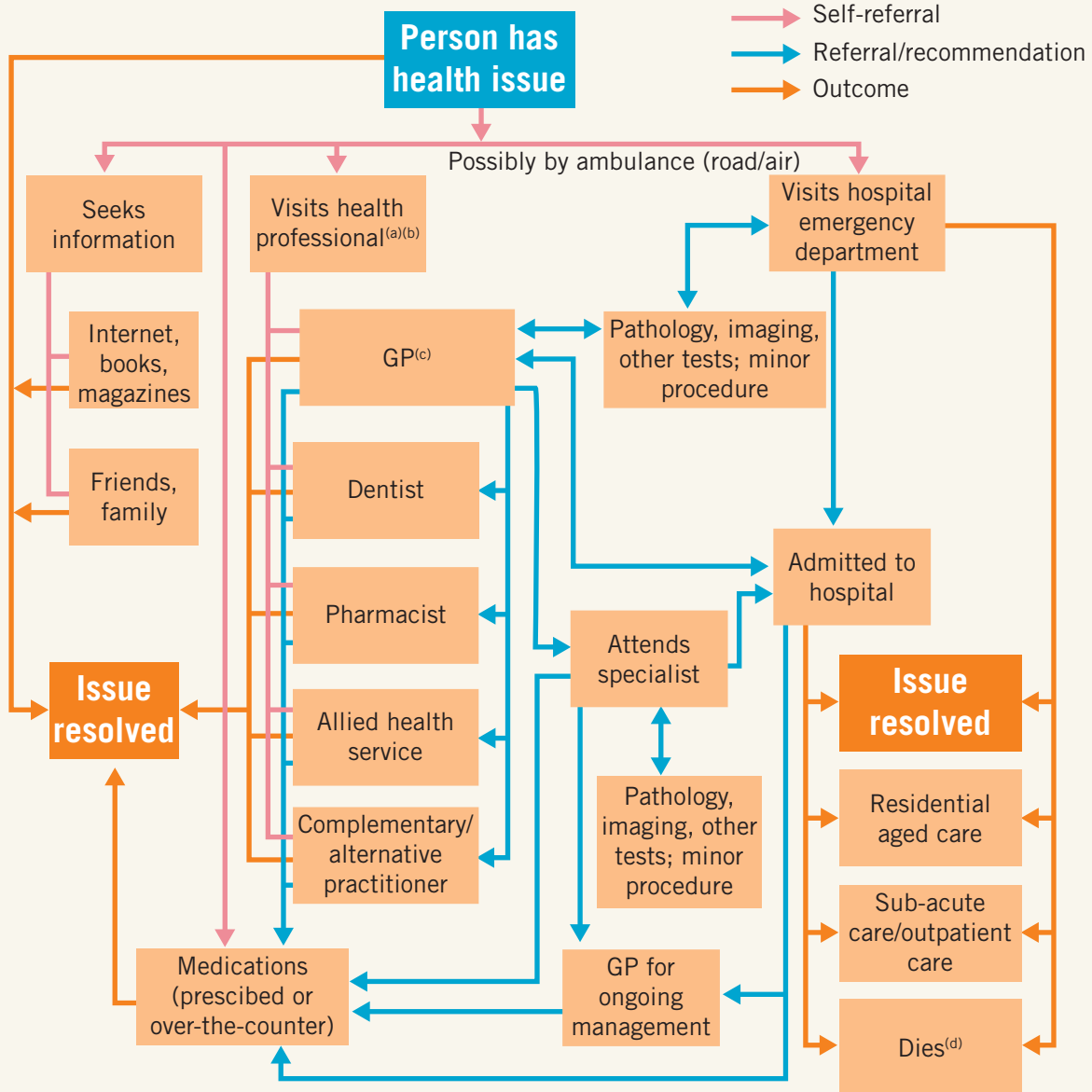
5.1 OVERVIEW OF THE AUSTRALIAN HEALTHCARE SYSTEM

Australia's healthcare system is regarded as one of the best in the world. It includes all the service providers, such as doctors, nurses, specialists, other health professionals, hospitals, clinics, preventative health programs, research centres, pharmaceutical companies and private health insurance companies. The World Health Organization (WHO) defines a **health system** as 'all the activities whose primary purpose is to promote, restore and/or maintain health', and identifies that an effective healthcare system is one that is able to deliver quality healthcare services to all people when and where they are required.

health system: Activities whose primary purpose is to promote, restore and/or maintain health.

As can be seen in Figure 5.1, the Australian healthcare system is highly complex and incorporates a wide variety of private and government-funded service providers. Members of the Australian public generally have a range of available options regarding the services they use as healthcare consumers. For many issues, an individual's first contact with the healthcare

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(a) This can include a telephone call to a health advice and referral service.
(b) The sub-categories shown here are not complete, and may include community health services and clinics, and other services for which a referral is not required.
(c) This includes GP-like clinics provided by hospitals and community health services.
(d) The majority of deaths in Australia occur in hospital, although death can be an outcome anywhere in the patient's path through the system, or before any contact with the health system (such as in a motor vehicle accident).

FIGURE 5.1 Possible pathways through the healthcare system in Australia

system is through their general practitioner (GP); however, depending on the particular issue, the individual may also decide to visit their dentist, a pharmacist, an allied health service or a hospital emergency department for treatment.

The provision of a range of appropriate services to those in need is also a key responsibility with regard to the provision of healthcare, and the provision of many services is often shared between different levels of government. The funding for some services is

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also shared between the levels of government and private sources. As a result, it is not always easy to determine exactly who is responsible for each healthcare service. All three levels of government play important roles in the provision of healthcare.

As can be seen from the inner circle in Figure 5.2, the provision of public hospitals is the responsibility of state/territory governments; however, funding for public hospitals is shared between the state/territory governments and the Australian Commonwealth Government (as shown in the outer circle). Private hospitals are the responsibility of the non-government or private sector, and funding is largely from non-government or private sources.

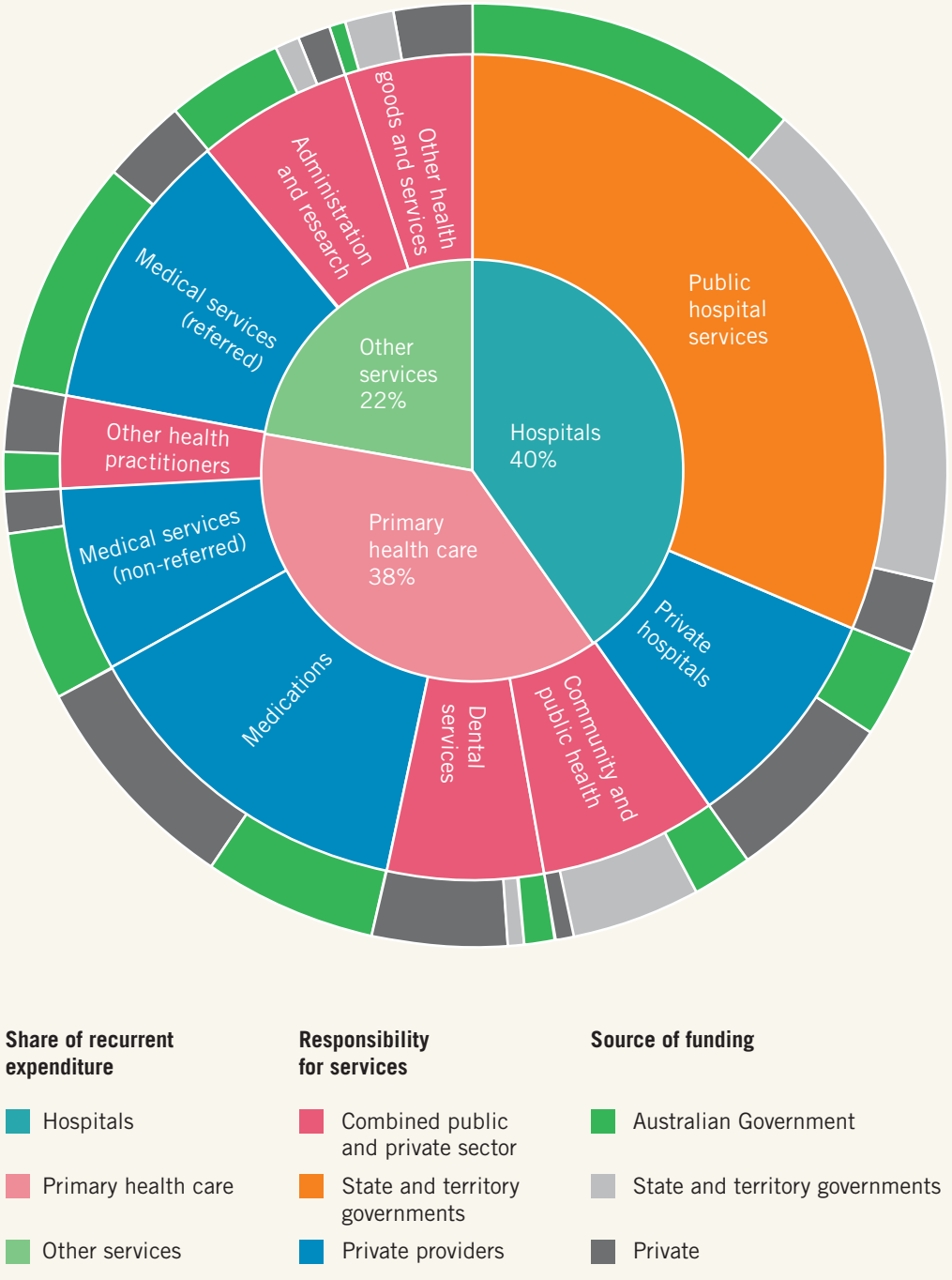


FIGURE 5.2 Health services – funding and responsibilities, 2013–14

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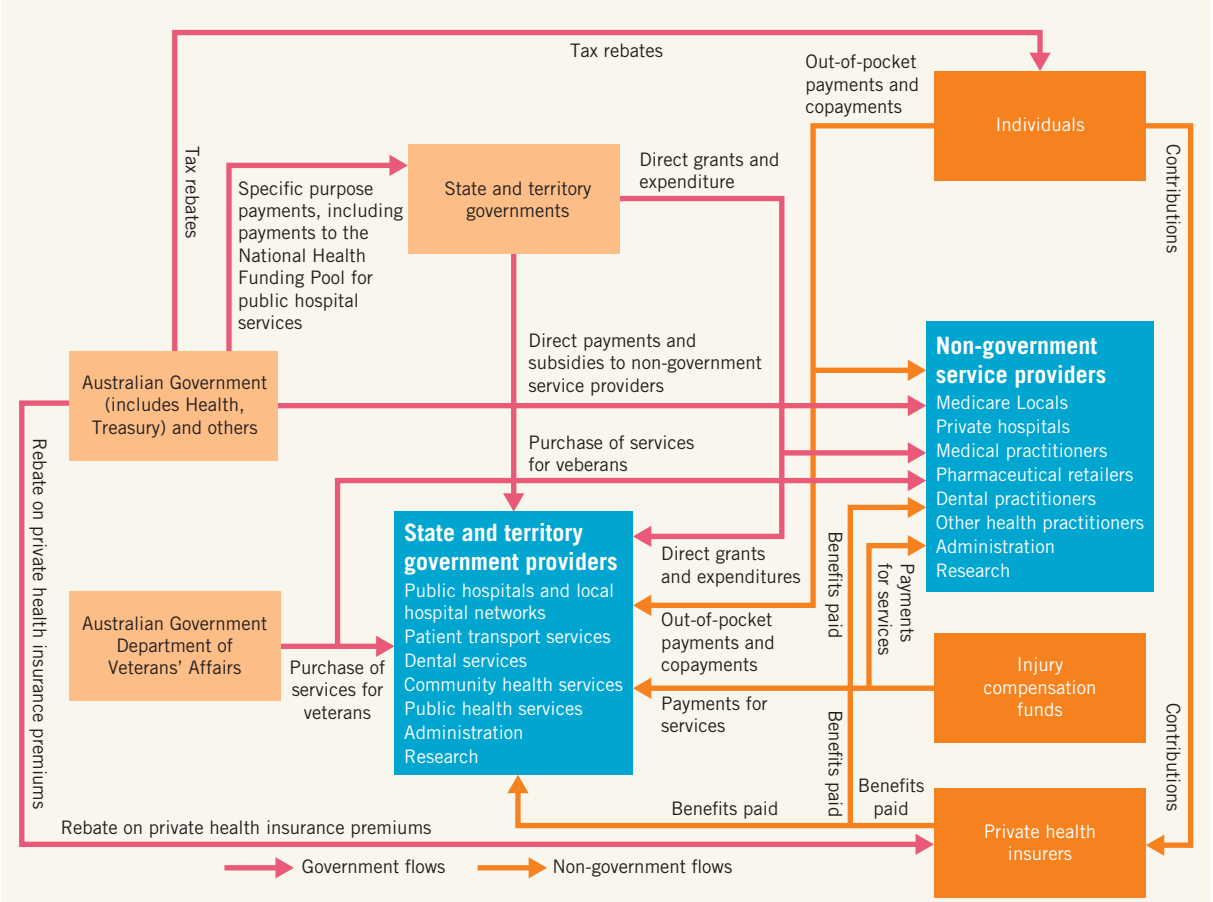


FIGURE 5.3 Structure of the Australian healthcare system and the flow of funds

Primary healthcare

Primary healthcare refers to an individual's first contact with the healthcare system, often seen as the gateway to the health system. This category can include services such as health promotion, prevention initiatives, early detection, early intervention, treatment of illness and management of chronic conditions such as diabetes. Primary healthcare is not typically related to hospital care; rather, it is delivered in services such as local clinics or community health centres by health professionals such as GPs, nurses, allied health professionals, Aboriginal and Torres Strait Islander health workers, dentists, midwives and pharmacists. A primary healthcare system does not operate in isolation; it is part of a bigger system, including **secondary care** such as those offered by specialists or in hospitals. Primary healthcare services can include a range of health-promotion and prevention strategies that reflect the social model of health described in Chapter 4. They also tend to provide patient-centred care that is community based, which is the ideal setting for preventing and managing chronic conditions.

primary healthcare: Refers to an individual's first contact with the healthcare system.

secondary care: Includes health services and medical care provided by specialists after a referral from a primary healthcare professional.

EXTENSION QUESTION 5.1



Explain the term 'primary health care' and discuss why it is an important component of Australia's health system

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AOS 2

CASE STUDY: PRIMARY HEALTH NETWORKS

The Australian Government is committed to delivering an efficient and effective primary health care system through the establishment of Primary Health Networks (PHNs). Evidence indicates that health systems with strong integrated primary health care at their core are both effective in improving patient outcomes and experiences and efficient at delivering appropriate services where they are needed most.

On 1 July 2015, 31 PHNs were established to increase the efficiency and effectiveness of medical services for patients, particularly those at risk of poor health outcomes, and to improve coordination of care to ensure patients receive the right care in the right place at the right time. PHNs will achieve these objectives by working directly with general practitioners, other primary health care providers, secondary care providers and hospitals to facilitate improved outcomes for patients.

The Government has agreed to seven key priorities for targeted work by PHNs. These are mental health, Aboriginal and Torres Strait Islander health, population health, health workforce, digital health, aged care, and alcohol and other drugs.

SOURCE: Primary Health Networks

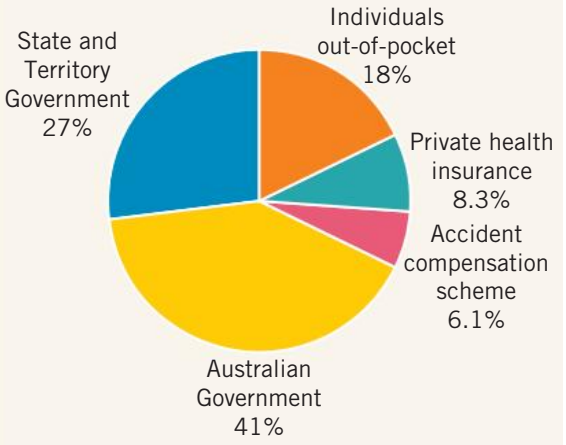
1 Explain how the Primary Health Networks can improve the health of Australians.
2 Explain how the Primary Health Networks initiative reflects the principles of the social model of health.

Funding the healthcare system

The health expenditure in Australia in 2016–17 was estimated to be 10.3 per cent of Gross Domestic Product (GDP), or $180 billion, and almost 68 per cent ($122 billion) of this expenditure was funded by governments. As can be seen from Figure 5.4, 41 per cent of the health expenditure was contributed by the Commonwealth Government, almost 27 per cent by the state and territory governments, 18 per cent by individuals through out-of-pocket expenses, 8.3 per cent by private health insurance and 6.1 per cent by accident compensation schemes.

Most funding for medical services is provided by the Commonwealth Government, which in 2016–17 spent $24 billion on medical services (or 78 per cent of medical services expenditure) with the remaining amount paid by the non-government sector, including private health insurance and individual out-of-pocket costs.

Health expenditure on community and public health services has been declining since 2007–08, with $11 billion being spent in these areas in 2015–16. Public health services cover both health prevention and health promotion (excluding non-health sectors such as road safety, the environment and schools), while community health services cater to those in the local community, including maternal and child services, home care and refugee health services.



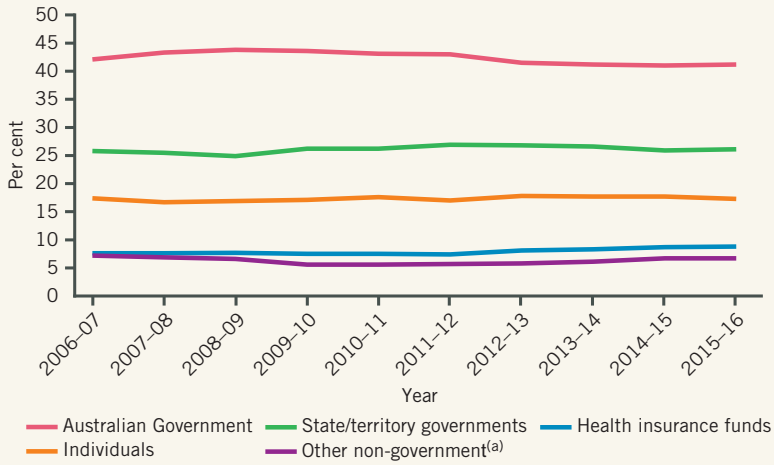
SOURCE: AIHW (2018)

FIGURE 5.4 Health expenditure by source

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Of the $170 billion spent on healthcare in 2015–16, most went to hospitals ($66 billion) followed by primary healthcare ($62 billion).

The funding of public hospitals is shared between Commonwealth, state and territory governments with the Commonwealth Government providing $22 billion (40.6 per cent) of recurrent expenditure in public hospitals in 2016–17. The state and territory governments are responsible primarily for the operation and regulation of public hospitals, and contributed $27 billion (51 per cent) of recurrent expenditure in public hospitals in 2016–17.



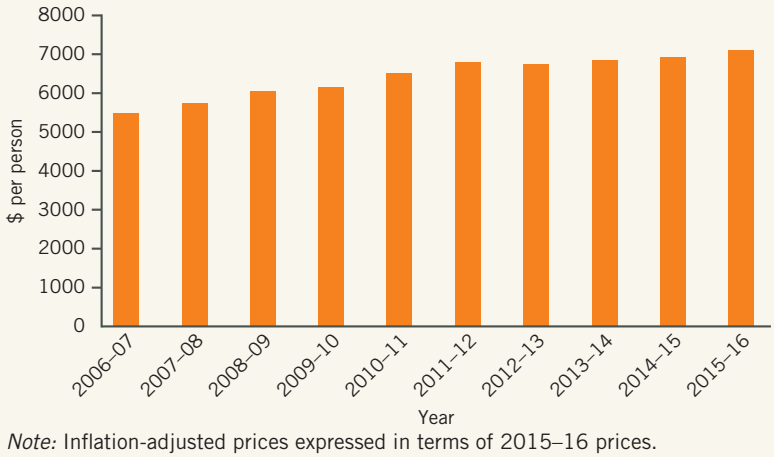
Note: (a) 'Other non-government' includes workers' compensation and third-party insurance.
SOURCE: AIHW health expenditure database; Table S2.2.8

FIGURE 5.5 Total expenditure by source of funds, from 2006–07 to 2015–16

The amount spent on primary healthcare includes un-referred medical services such as GP services, which cost $10.6 billion (19.3 per cent), most of which ($10.2 billion) was funded by the Commonwealth Government. Expenditure on primary healthcare also includes medications covered by the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS), which cost $10.1 billion in 2013–14; $8.4 billion of this (84 per cent) was paid by the Commonwealth Government.

The total non-government expenditure in 2016–17 was approximately 31 per cent ($56 billion) of the total health expenditure. Individuals contributed $30 billion (53 per cent) towards the non-government expenditure.

ACTIVITY 5.1: HEALTH EXPENDITURE



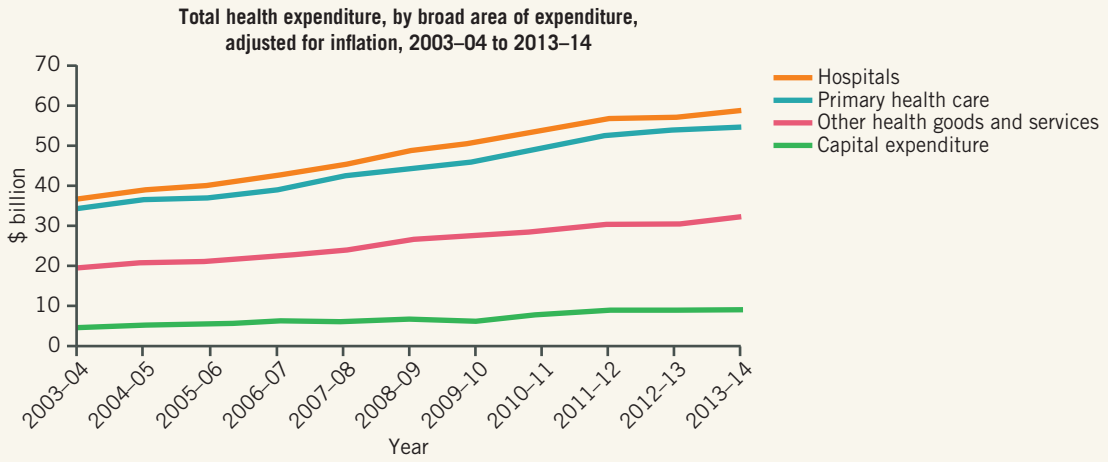
Note: Inflation-adjusted prices expressed in terms of 2015–16 prices.
SOURCE: AIHW health expenditure database; Table S2.2.2

FIGURE 5.6 Health expenditure over time

'Spending on health care in Australia has increased at a faster rate than population growth over the same period. Between 2006 and 2016, the population grew by 17%, while health expenditure increased by 50%' (AIHW, *Australia's Health 2018*).

1 Identify a trend in the data above.
2 Select two factors (biological, sociocultural or physical environment) and explain how they might contribute to the trend in Question 1.

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Note: Inflation-adjusted prices expressed in terms of 2013–14 prices.

SOURCE: AIHW health expenditure database

FIGURE 5.7 Broad area of expenditure over time

AOS 2

ACTIVITY 5.2: HEALTH EXPENDITURE BY AREA AND SOURCE

1 Outline a trend shown in Figure 5.5.
2 Suggest possible reasons for this trend.
3 Describe two trends shown in Figure 5.7.
4 Outline a reason for each trend.
5 Outline the services that would be included under 'primary healthcare' expenditure.

EXTENSION QUESTION 5.2



Outline the impact of Australia's ageing population on the healthcare system.

5.2 MEDICARE

The federal government introduced the current system of healthcare in February 1984 as a universal healthcare system. Medicare's aim was to improve the access to healthcare for all Australians, and to provide access to adequate healthcare at little or no cost to all Australians in need of treatment, regardless of age or income.

Medicare: Australia's universal healthcare system, which aims to improve the access to healthcare for all Australians and to provide access to adequate healthcare at little or no cost to all Australians in need of treatment, regardless of age or income.

The introduction of **Medicare** in 1984 (as well as the original introduction of the public health system of Medibank in 1975) was an early example of the new public health in Australia, as well as an example of major social reform that was focused on providing a health system that was simple, fair and affordable. The notion of universal cover makes Medicare

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equitable, and in this way reflects the social model of health.

The Medicare system has three main objectives:

- to make healthcare more affordable for all Australians
- to give all Australians access to healthcare services with priority according to clinical need
- to provide a high quality of care.

Medicare is funded by the Commonwealth Government partly through contributions made to the healthcare system through a 2 per cent Medicare levy, which is paid by most taxpayers who earn over a certain amount and based on taxable income.

How does Medicare work?

Medicare covers both in-hospital and out-of-hospital services. It provides free or subsidised treatment by general practitioners and optometrists, as well as certain diagnostic tests. For out-of-hospital services, patients can choose to be treated by their own GP, and are reimbursed all or part of the doctor's fee by Medicare, depending on the billing options of the doctor.

The coverage of healthcare services by Medicare is based on the Medicare Benefits Schedule (MBS), which is a schedule of fees for a range of services that is set by the federal government. Medicare will pay 100 per cent of the schedule fee for a visit to a GP and 85 per cent of the schedule fee for a specialist.

Practitioners may elect to charge more than the **schedule fee**, which will mean that the patient will have to pay the difference as an out-of-pocket amount. If the doctor bills Medicare directly, this is known as 'bulk-billing' and indicates that the doctor accepts the Medicare payment as full payment for the service. This means there is no cost to the patient. Bulk-billing rates are seen as an indicator of the affordability of healthcare, because they remove cost as an obstacle to seeking care.

Under Medicare, patients who are referred for treatment by a medical practitioner and are admitted into a public hospital as a public patient pay nothing for their treatment, food and accommodation while in hospital. Emergency and outpatient treatment is also free. A suitably qualified doctor will be appointed by the hospital, and public patients do not have a choice about which doctor treats them; they may also not have a choice about when they are admitted to hospital. Individuals can choose to be treated as a public patient even if they are privately insured. Those who choose to be treated in a private hospital or as a private patient in a public hospital can select the doctor or specialist of their choice. Medicare will pay 75 per cent of the Medicare Benefits Schedule (MBS) or schedule fee for the services performed by the doctor and some or all of the balance will be covered by private health insurance. The patient may have to pay for any additional cost if the doctor charges more than the schedule fee. Charges the hospital imposes for accommodation, theatre fees, diagnostic tests, food and medication are usually not covered by Medicare, and the individual will be charged for any gap between what the hospital charges and what the private health insurance policy covers. Everyone who lives in Australia and is an Australian or New Zealand citizen, or who has a permanent visa, is entitled to use Medicare services. Anyone over the age of 15 years may be enrolled on their own Medicare card.

schedule fee: A fee set for a service by the Commonwealth Government.

EXTENSION QUESTION 5.3



Explain three ways that Medicare aims to make healthcare accessible for all Australians.

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AOS 2

ACTIVITY 5.3: ACCESSING MEDICARE



1 At what age can individuals get their own Medicare card?
2 What are the advantages of young people having access to their own card?
3 Explain the following terms:
   a Medicare schedule fee
   b Medicare safety net
4 Explain the difference between a gap payment and an out-of-pocket expense.



FIGURE 5.8 When individuals or families have considerable health expenses in a calendar year, 100 per cent of the Medicare schedule will be covered.

Medicare safety net

The **Medicare safety net** is a protective measure designed to avoid patients having to pay high medical costs. It covers a range of out-of-hospital costs including doctor and specialists' consultations, ultrasounds, blood tests and x-rays. When a patient's expenses reach $477.90 (from 1 January 2020) in any calendar year, they are eligible for the safety net, which will increase their Medicare benefit to 100 per cent coverage of the Medicare schedule fee for any further out-of-hospital services for that year. If a doctor charges more than the schedule fee, the extra cost does not count towards the safety net, and once the patient has qualified for the safety net, only the **gap amount** is covered; any out-of-pocket cost is not covered by Medicare.

The extended safety net was implemented for families and singles who incur **out-of-pocket costs** for eligible out-of-hospital Medicare services. Under the extended safety net, Medicare will pay 80 per cent of the out-of-pocket costs once a threshold of $2169.20 is reached for families or individuals, or $692.20 for concession card holders or families who receive Family Tax Benefit Part A. The threshold amounts are updated on 1 January each year.

Medicare safety net: An additional rebate scheme introduced by the federal government for the benefit of patients, covering a range of doctor's visits and tests received out of hospital. It provides for reimbursement of 100 per cent of the MBS fee for out-of-hospital services once the relevant threshold has been reached.

gap amount: The difference between the Medicare benefit and the schedule fee.

out-of-pocket costs: The difference between the Medicare benefit and what the doctor charges.

What is covered by Medicare?

Medicare covers a range of essential or necessary services provided by doctors and hospitals. The following out-of-hospital services are covered by Medicare:

- free or subsidised treatment by health professionals such as doctors' consultation fees as often as needed (including some specialists)
- tests and examinations that are needed to treat illness, including x-rays and pathology tests
- optometrists' eye tests
- most procedures performed by GPs.

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FIGURE 5.9 Eye tests are one of the essential services covered by Medicare.

DISCUSS



Discuss factors that might influence the decision of Australians to get ambulance cover.

The following in-hospital services are also covered by Medicare:

- treatment and accommodation as a public patient in a public hospital by a doctor appointed by the hospital as a result of an emergency or after referral from a doctor
- 75 per cent of the Medicare schedule fee for services and procedures for a private patient in a public or private hospital (which does not include accommodation in hospital or items such as theatre fees or medication).

What is not covered by Medicare?

While Medicare covers the fees for most services provided by doctors and hospitals that are viewed as necessary, other services that are not seen as necessary are not usually covered.

The following are not covered by Medicare:

- general/most dental examinations and treatments (except under specific circumstances – see details below)
- ambulance services
- home nursing
- most allied health services, such as physiotherapy, speech pathology, occupational therapy, chiropractic services, podiatry or psychology services (except under specific circumstances – see details below)
- hearing aids, contact lenses and glasses
- medicines (except those covered by the PBS)
- medical costs incurred overseas
- medical examinations for employment purposes, life insurance or superannuation
- medical services that are not clinically necessary
- private hospital costs other than treatment, such as accommodation in hospital or items such as theatre fees and medicines
- acupuncture (unless part of a doctor's consultation).

It is not always clear whether a service is covered or is not covered by Medicare. For example, typically dental costs are not covered by Medicare; however, in specific circumstances they may be. For example, children aged from 2–17 years who are covered by Medicare and receive certain government benefits (such as Family Tax Benefit Part A for at least part of the calendar year) receive basic dental services through the Child Dental Benefits Schedule.

Allied health services such as treatment from physiotherapists, speech pathologists, occupational therapists, chiropractors, podiatrists and psychologists are typically not covered by Medicare; however, people with a **chronic medical condition** may be entitled to receive a Medicare benefit to help manage

chronic medical condition: A condition that has been present for at least six months, is likely to be present for six months or is terminal.

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FIGURE 5.10 The cost of Medicare to the Federal Government is one of its main disadvantages.

their condition under specific circumstances. For example, a doctor may suggest that an individual with a chronic disease be placed on a GP Management Plan and if the individual requires treatment from at least two or more health professionals, the doctor may put in place a Team Care Arrangement Plan, which might enable the individual to access Medicare rebates for specific allied health services.

Medicare is not available to cover the medical treatment an individual receives overseas; however, Australia has reciprocal healthcare agreements with a number of countries, including New Zealand, the United Kingdom, the Republic of Ireland, Sweden, the Netherlands, Finland, Italy, Belgium, Malta, Slovenia and Norway. This means that some of the cost of essential treatment may be covered for Australians visiting these countries. It also means that when residents of these countries visit Australia, some of the costs of the essential medical treatment they receive here may be covered by Medicare.

Advantages and disadvantages of Medicare

Medicare has a range of advantages for patients, including being able to access essential healthcare as a public patient in a public hospital at little or no cost, being able to receive treatment by a GP of an individual's own choice at little or no cost and being able to receive a range of tests at a subsidised cost. It is available to all Australian citizens, regardless of their age or income, and due to the reciprocal arrangements Australians may be able to access free or subsidised healthcare in a range of other countries.

Disadvantages of Medicare include the fact that it places a significant financial burden on the Commonwealth Government; there may be long waiting lists – especially for less essential treatments; it generally does not cover the cost of allied health services; there are often gap amounts or out-of-pocket costs to the individual; and individuals do not have their choice of doctor or often their choice of timing for in-hospital treatment.

Funding Medicare

Medicare is funded by the federal government, which raises revenue from taxpayers. General income taxes are paid to the government and may be used to pay for a range of government services such as healthcare. Medicare is also funded partly through contributions made to the healthcare system through a 2 per cent Medicare levy. This levy is paid by most taxpayers, is based on taxable income and is paid in addition to general income tax. Medicare is also funded by a Medicare Levy Surcharge, which is an additional amount paid by individuals and families who do not have a certain level of private hospital cover. As of January 2020, the surcharge was set between 1 and 1.5 per cent of total income for a single taxpayer who earns above $90 000 and for families who earn over $180 000 a year. Raising revenue to fund Medicare through a range of taxes means that in Australia we do not have to rely on a user-pays system. This means that

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ACTIVITY 5.4: EXPLORING MEDICARE

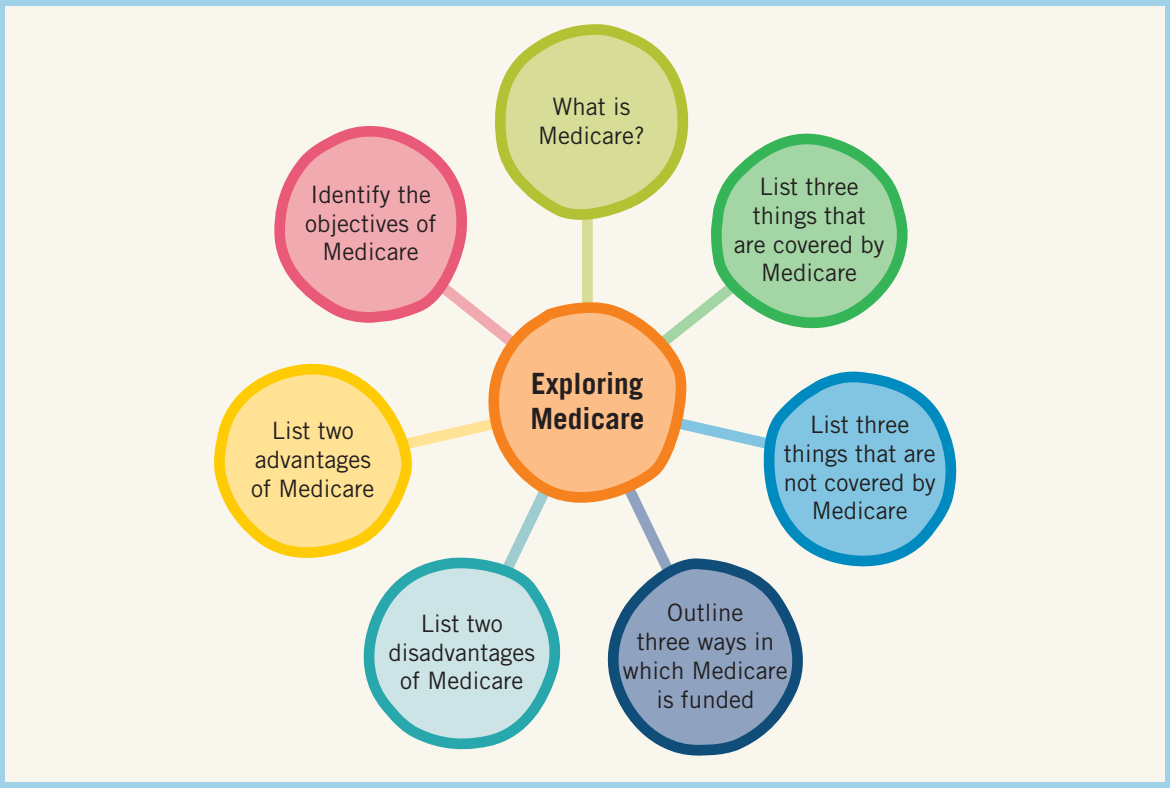


FIGURE 5.11 Exploring Medicare

1 Using the questions in Figure 5.11 as guidance, create a summary of Medicare.
2 Explain how Medicare reflects the guiding principles of the social model of health.

those who need healthcare the most can access the care they need without an excessive financial burden. This can promote health because it removes the stress or anxiety associated with worrying about the cost of healthcare and therefore promotes mental health. Removing cost as a barrier to healthcare may also increase the chance of individuals seeking care early, which can improve physical health, as earlier diagnosis can lead to better health outcomes.

5.3 PHARMACEUTICAL BENEFITS SCHEME

The **Pharmaceutical Benefits Scheme (PBS)** was introduced in 1948 (before Medicare was implemented) as a limited scheme that provided free medication for pensioners; 139 essential medicines were also made free to other members of the community. Today the PBS provides timely, reliable and affordable access to necessary medicines for Australians. The PBS is part of the Commonwealth Government's broader National Medicines Policy, and is an integral part of Australia's healthcare system that plays an important role in improving the wellbeing of all Australians. The aim of the PBS is to subsidise the cost of a wide range of prescription medications, providing Australians with vital medications at affordable prices to ensure that optimal health outcomes and economic objectives are achieved.

The effectiveness of the drug, its safety and its cost-effectiveness compared with other treatments are all considered before it is included on the PBS. Listing every medicine on the PBS, such as expensive medications with only minimal benefits compared with other treatments, would not be cost-effective and would

Pharmaceutical Benefits Scheme (PBS): An Australian Government program that provides subsidised prescription medication to Australian residents, as well as foreign visitors covered by a Reciprocal Health Care Agreement.

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very quickly make this scheme economically unsustainable. It is intended that investment in spending on the PBS may contribute to reducing the cost of the wider health system by preventing the development of serious conditions and therefore reducing the need for hospital stays or other demands on the healthcare system.

The price an individual pays for a medication covered by the PBS is called a co-payment, and it depends on their situation. From 1 January 2020, general patients pay up to $41.00 for medication covered by the PBS and concession card-holders pay $6.60, with the Commonwealth Government paying the balance. This figure is updated on 1 January each year. If a medication is not listed on the PBS, then the individual needs to pay the full price of the medication. In some cases the cost of medication not covered by the PBS may be reimbursed by an individual's private health insurer. If an individual is provided with medications as a public patient in a public hospital, these are usually provided to the patient free of charge as part of their hospital treatment. As of 1 January 2016, pharmacists have been able to choose to discount the PBS co-payment by up to $1; this discount is totally at the discretion of the pharmacist.

Individuals and families are protected from large expenses for medications listed on the PBS through the PBS safety net. Once a family or individual categorised as a general patient has spent $1486.80 on medications in any year, they will only need to pay $6.60 per prescription. For individuals and families who are concession cardholders, once they spend over $316.50 on prescription medications covered by the PBS they will receive further medications covered by the PBS at no cost.

The Repatriation Pharmaceutical Benefits Scheme (RPBS) is also available to provide subsidised medication to war veterans and their dependants. It provides similar coverage to the PBS; however, it covers a wider range of pharmaceuticals.

The PBS has a range of advantages for patients:

- It provides access to essential medication at a subsidised rate or in some cases no cost.
- It enables access to medications from local pharmacies and does not require medications to be purchased from specialised services.
- It includes the PBS safety net and the RPBS that further protect people from the high cost of medication.

EXTENSION QUESTION 5.4



Explain ways that the PBS may promote the health status of Australians from lower socioeconomic backgrounds.

ACTIVITY 5.5: UNDERSTANDING THE PBS

Visit the Medicare website, then copy and complete the following table with the updated information for the current year.

COST OF PBS MEDICATIONS AND THE PBS SAFETY NET THRESHOLD		
	General patients	Concession
Cost of medication on PBS		
PBS safety net threshold		
Cost of medication once threshold is met		

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- It is available to all Australian citizens, regardless of their age or income.
- It provides additional support to those with concession cards by having lower co-payments.

Disadvantages of the PBS might include the following:

- It places a significant financial burden on the Commonwealth Government.
- It does not generally cover all medications.
- For most Australians, there is still a co-payment of $41.00.

Funding the Pharmaceutical Benefits Scheme

The PBS is funded by the Commonwealth Government through taxes. When a doctor prescribes a PBS-approved medication, patients pay the subsidised amount and the government pays for the remaining cost of the drug.

The number of subsidised prescriptions dispensed under the PBS and RPBS schemes increased by 40 million (21 per cent) in the decade between 2004–05 and 2014–15. In 2014–15, nearly 225 million subsidised prescriptions were dispensed under the PBS and RPBS schemes, priced over the maximum co-payment limit. At the same time, Australia's population growth was 16 per cent. The expenditure on PBS and RPBS has also increased over the past decade (except for a slight decline between 2011–12 and 2013–14 due to changes in the arrangements for generic medications) and is expected to continue to increase. There are a number of reasons for these increases, including an increase in the number of PBS-listed medications, an increase in the incidence of chronic conditions and Australia's ageing population.

In 2013–14, government spending on medications on the PBS and RPBS totalled $10.1 billion for the 223 million subsidised medications dispensed. Through funding some essential medications, the PBS aims to improve health by giving people with long-term chronic conditions access to the medication they need. This can reduce the stress and anxiety associated with having to cover the high cost of medication and therefore improve mental health. Improving access to essential medication can also improve physical health because the medication can play an important role in the treatment and control of illness.



FIGURE 5.12 The PBS is funded through general taxation, while patients pay a co-payment to cover the cost of individual prescribed medication.

5.4 PRIVATE HEALTH INSURANCE

Private health insurance contributes significantly to the healthcare system by covering some of the costs associated with private hospital treatment and a range of extra or ancillary health services such as physiotherapy. Private health insurance is a subscription or policy for which a person pays to provide them with different levels of cover. Private health insurance can provide individuals with additional healthcare services to those provided by Medicare. At June 2019, 11.2 million Australians (44.2 per cent) had some form of private hospital cover, and 13.6 million (53 per cent) had some form of general treatment cover through private health insurance. The reasons why some people may choose to pay for private health insurance might include:

- to give them the choice of being treated in a private hospital
- to enable them to choose the hospital in which they are treated
- to enable them to choose the doctor that treats them in hospital
- to possibly entitle them to their own room in hospital
- to reduce the waiting period for some non-emergency procedures in private hospitals

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- to give them more choice about the timing of non-emergency procedures in hospital
- because it covers a wider range of services than Medicare
- because it has the option of extras cover to subsidise a broader range of out-of-hospital services.

The types of additional services that are available depend greatly on the type of private health insurance and the level of cover. If a patient pays for private hospital insurance cover, this enables them to have access to public or private hospitals with a choice of their own doctor or specialist. They may also have more choice about the timing of the treatment and may experience shorter waiting times.

Any additional charges the hospital has for accommodation, theatre fees, diagnostic tests, food and medication are usually covered by private insurance, but the individual will be charged for any gap between what the hospital charges and what the private health insurance policy covers. Medicare still contributes 75 per cent of the schedule fee for in-hospital services covered by the MBS; the remainder of the schedule fee (the gap amount) is paid by the private health insurance company. Many private hospitals will charge more than the schedule fee, however, and this means that the patient will need to pay the balance (the amount between the schedule fee and what the hospital charges) as an out-of-pocket cost. Many private health insurance companies are working with hospitals to make arrangements to reduce the out-of-pocket costs for patients.

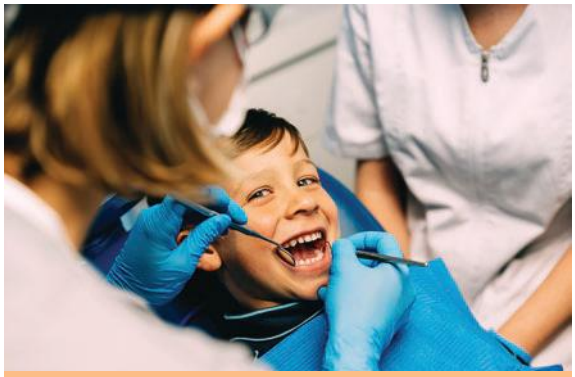


FIGURE 5.13 Australians with private health insurance may be covered for a range of services that Medicare does not cover.

Depending on the level of cover, there will be some in-hospital services that are not covered or not covered fully by the private health insurance fund. These may include:

- specific services that are not covered at all (exclusions)
- services that are covered to a limited extent, meaning the individual will have greater out-of-pocket expenses (restrictions)
- cosmetic or elective surgery for which Medicare will not pay a benefit.

As with home or car insurance, individuals can choose comprehensive cover, which has higher premiums, or pay lower premiums for reduced cover. Premiums can also be reduced by opting to pay some of the costs through an excess.

In addition, private insurance can be taken out to provide rebates on a wide range of out-of-hospital healthcare services that are not covered by Medicare. These services may include dentistry; podiatry; occupational, speech and eye therapy; and physiotherapy, as well as aids and appliances such as glasses and contact lenses. Individuals can purchase extras cover on its own or together with hospital cover. Again, the amount and type of cover will determine exactly what services are covered and the amount of money that is covered.

Nearly all services are covered only to a limited extent, and there are limits that may apply per service or per year, while some services may not be covered at all.

Changes to private health insurance legislation in 2007 now enable private health insurance to cover medical treatments that substitute for, or prevent hospitalisation. Separate private health insurance may also be taken out to cover ambulance services in Victoria, where ambulance travel is not a free service, and is very expensive if the patient has to pay for it out of pocket.

There are advantages of private health insurance to both individuals and the Australian healthcare system. These include the following:

- It enables individuals to have access to private hospital care.
- It helps the government to address the increasing costs of Medicare.

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WHY WE NEED PRIVATE HEALTH INSURANCE

- **To support the public health system.** One of the important ways in which private health insurance supports the public system is through payments made on behalf of insured patients. Another way is by funding elective admissions involving surgery through private hospitals. This contributes to shorter waiting times in the public system and less demand for public hospital beds.
- **To support all Australians.** More than 13 million Australians are currently covered by private health insurance and they are not only the wealthiest Australians. At June 2015, 11.3 million Australians (47 per cent) had some form of private hospital cover. Almost half of these had an annual income of $50 000 or less and many had an income of $35 000 or less.
- **To support an ageing Australia.** As discussed in Chapter 4, Australians are living longer than ever before, and it is important that they have access to the care and support they need to live long and healthy lives. Between now and 2050, the number of older people (aged 65–84) is expected to more than double, and the number of very old people (aged 85 and over) is expected to more than quadruple. As our population ages, there will be more pressure on our health system to deliver more medical services, and it is important that the Australian healthcare system is able to adapt to the increased demands that an ageing Australia will bring. Fortunately, approximately 50 per cent of older Australians (aged over 65) have private health insurance, which will help to ease the extra demand.

- If extras or ancillary policies are purchased, an individual can access a wider range of services not covered by Medicare.
- It may result in shorter waiting times for some procedures, and can allow patients to select their own doctor in a public or private hospital.

Disadvantages of private health insurance may include the following:

- It is costly for individuals and families to pay for private health cover.
- There can be out-of-pocket costs for some services in some policies.
- There may be a qualifying or waiting period for some procedures.
- Individuals may feel that they are paying for a service they don't use.

Hospital cover tiers

From 2019, a new system was introduced to make private health insurance policies easier for individuals to understand. Previously, insurers named their various policies themselves, and these names reflected the level of cover that was provided. Policies included such names as 'Top', 'Mid', 'Essential' and 'Basic' and each insurer could include their own choice of services as part of each level of cover. For example, individuals may have moved from a policy with Mid Hospital Cover at one insurance company, to a policy with Mid Hospital Cover at a different insurance company, and found that they were not covered for the same treatment services. Now, all hospital insurance policies must be classified as either Gold, Silver, Bronze or Basic. The various tiers are based on the inclusion of standard categories – such as ear, nose and throat, or assisted reproductive services - that *must* include particular treatments. If a health cover tier includes a category of treatment, then all services that are included in that category must be covered, not just those determined by individual private health insurance companies.

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Private health insurance incentive schemes

As a result of the declining number of people taking out or renewing private health insurance and the extra pressure this places on the public healthcare system, the federal government has introduced and updated a number of incentive schemes through the *Fairer Private Health Insurance Incentives Act 2012*. The purpose of these schemes is to reduce the cost of private health insurance to make it more affordable, and also to lighten the load on public hospitals.

Private health insurance rebate

In 1999, the Commonwealth Government introduced the Private Health Insurance Rebate scheme. Under this scheme, most Australians with private insurance receive a rebate from the government to help cover the cost of their premiums. Australians who have private health insurance can opt to pay a reduced premium and the government will pay the balance or they can pay the total and then claim the rebate through their tax return. Since 1 July 2012, this rebate has been means tested. This means that the rebate is reduced or no rebate is paid if individuals earn more than a certain amount. Singles aged under 65 who earn $90 000 or less and families who earn $180 000 or less get a 26.791 per cent rebate; however, those who earn more will receive a smaller rebate, or no rebate. For example, singles aged under 65 who earn between $105 001 and $140 000 only receive an 8.930 per cent rebate, and those earning over $140 001 do not receive any rebate. The amount of rebate may also vary depending on age.

Medicare levy surcharge

As discussed earlier, from 1984 the government introduced a Medicare levy, which is currently set at 2 per cent of taxable income to help cover the cost of Medicare services. Since 1997, an additional surcharge of between 1 and 1.5 per cent has been charged for higher-income earners who do not have private hospital health insurance. This surcharge is another of the measures designed to encourage people to retain or take up private health insurance and reduce demands on the Medicare system. The surcharge was amended in July 2012 and currently includes three tiers. The surcharge is calculated at a rate of 1–1.5 per cent of annual income, and is in addition to the 2 per cent Medicare levy. This means that an individual who earns between $105 001 and $140 000 (or $210 001–$280 000 for families) will be in Tier 2, and will have to pay a surcharge of 1.25 per cent of their income if they do not have suitable private health insurance.

This is equal to an individual in Tier 2 paying a surcharge of up to $2100, which may be more than the cost of private hospital insurance for

TABLE 5.1 Private health insurance rebates, 1 April 2020 to 31 March 2021

	BASE TIER	TIER 1	TIER 2	TIER 3
Single income	<$90 000	$90 001–$105 000	$105 001–$140 000	>$140 001
Families income	<$180 000	$180 001–$210 000	$210 001–$280 000	>$280 000
Rebates (%)				
Aged under 65	24.808	16.539	8.268	0
Aged 65–69	28.944	20.674	12.404	0
Aged 70 or over	33.079	24.808	16.539	0
Medicare Levy Surcharge				
All ages	0.0	1.0	1.25	1.5

SOURCE: Commonwealth Government Private Health Insurance Rebate

Notes:

1. Single parents and couples (including de facto couples) are subject to family tiers.
2. Thresholds change annually on 1 April.

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FIGURE 5.14 Lifetime health cover encourages people to take out private health insurance at an earlier age.

a single person, especially after they deduct the rebate of 8.930 per cent offered under the Private Health Insurance Rebate scheme.

Lifetime health cover

The government also implemented the lifetime coverage scheme in July 2000 to encourage people with private health insurance to continue their cover throughout their lives. Under this scheme, anyone who does not have private hospital insurance with a registered health fund in Australia before 1 July following their 31st birthday, and then decides to take out cover later in life, will pay an additional 2 per cent loading on their premium for each year over the age of 30 when they join, with a maximum loading of 70 per cent. This means that if an individual takes out private hospital insurance at age 45, they will pay an additional 30 per cent more each year than someone who first took out hospital cover before they turned 30. Those people who already had private insurance by July 2000, regardless of the age they were when they joined, are exempt from the loading, as are those who were aged 65 years or more in July 1999. Changes to the lifetime health cover scheme in 2006 meant that anyone who had retained their private health insurance for 10 continuous years became exempt from the loading. Changes to this scheme in 2013 mean that for Australians who pay the lifetime health cover loading, the Private Health Insurance Rebate does not apply to the loading component of their premium. They are still able to receive the rebate for the standard cost of their private hospital premium.

Age-based discount

Since 2019, insurers now have the option to offer young people who are aged between 18 and 29 years a discount of up to 10 per cent from their private health insurance hospital premiums. The same discount will apply until they turn 41, when it reduces by two per cent per year until it reaches zero. The potential discount will be 2 per cent for each year that a person is aged under 30, up to a maximum of 10 per cent. For example, a person taking out private health insurance for the first time at the age of 28 might be offered a 4 per cent discount, while a person taking out a policy at the age of 21 would be offered a 10 per cent discount. This incentive aims to make private health insurance more attractive to young people who are less likely to use it and might otherwise not see the benefit.

NATURAL THERAPIES

From 1 April 2019 private health insurers are no longer able to offer benefits for some natural therapies as part of a health insurance policy.

The affected natural therapies are Alexander technique, aromatherapy, Bowen therapy, Buteyko, Feldenkrais, western herbalism, homeopathy, iridology, kinesiology, naturopathy, Pilates, reflexology, Rolfing, shiatsu, tai chi, and yoga.

A review of natural therapies chaired by the former Commonwealth Chief Medical Officer found there is no clear, scientific evidence that these natural therapies are effective.

SOURCE: Private Health Insurance Changes (2019)

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AOS 2

EXTENSION QUESTION 5.5

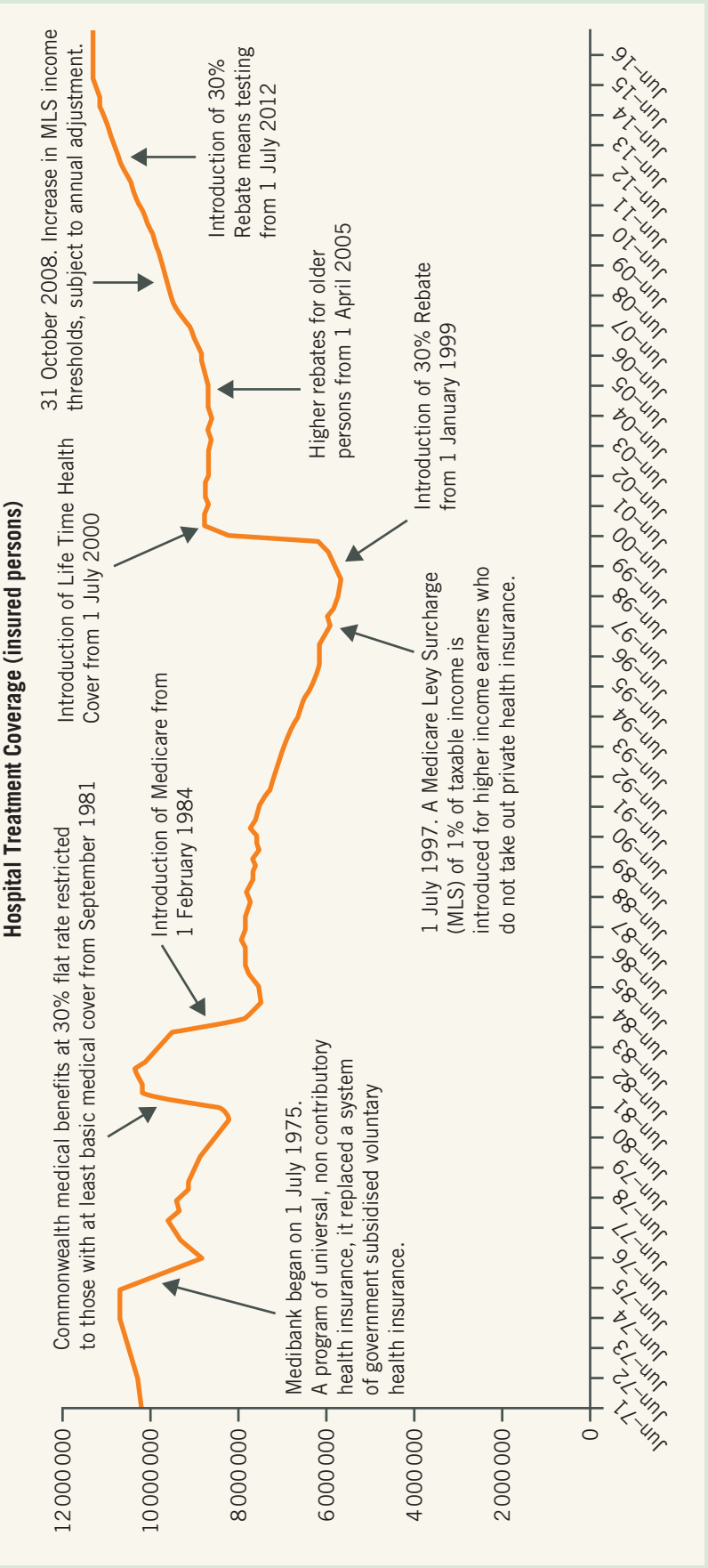


FIGURE 5.15 Changes in private health insurance membership over time

Explain how the Private Health Insurance Incentive Schemes help to ease the burden on the healthcare system.

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ACTIVITY 5.6: PRIVATE HEALTH INSURANCE INCENTIVES

1 Describe each of the private health insurance incentives.

2 Explain why the Commonwealth Government implemented the private health insurance incentive schemes.

3 Refer to Figure 5.15 and explain the impact that the private health insurance incentive schemes have had on the percentage of people covered by private hospital insurance.

4 Outline the advantages to individuals of having private health insurance.

ACTIVITY 5.7: PRIVATE HEALTH INSURANCE

Visit the Commonwealth Government's Private Health Insurance website. Click on the 'Health funds' tab, then select one of the private health insurers listed in the drop-down menu. Locate answers to the following.

1 Hospital cover:

- **a** What is the cost for singles Gold hospital cover (adult)?
- **b** What is the cost for singles Silver hospital cover (adult)?
- **c** What is the cost for singles Bronze cover (adult)?
- **d** Identify five services that are covered by the Gold policy that are not covered by the Silver policy.
- **e** Identify five services that are covered by the Silver policy that are not covered by the Bronze policy.
- **f** Identify some of the waiting periods that may apply.
- **g** Is there an excess for the policy?

2 Extras cover:

- **a** What is the cost of extras cover (general treatment) for singles (adult)?
- **b** Identify any waiting periods that apply.
- **c** Identify the percentage of the cost of each service that is covered. Are there limits?

3 Now that you are aware of the services that are covered by Medicare and private health insurance, and those that are not, do you feel that private health insurance is a worthwhile investment in your own health?

4 Will the government incentives influence your decision to take out private health insurance or remain in a private health insurance fund in the future?



Funding private health insurance

Private health insurance is generally funded by members through the premiums that they pay. The cost of private hospital treatment is covered by Medicare (which pays 75 per cent of the schedule fee), private health insurance companies (which pay the gap between what Medicare pays and the balance of the schedule fee) and individuals (who pay the difference between what the hospital charges and the schedule fee as an out-of-pocket expense).

Changes to private health insurance rebate thresholds have reduced the funding from the Commonwealth Government through the Private Health Insurance Rebate scheme.

Private health insurance funds provided $13 billion of total health expenditure in 2013–14, most of it ($7.3 billion) for private hospital services.

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DISCUSS

Discuss two similarities and two differences between Medicare and private health insurance.

5.5 NATIONAL DISABILITY INSURANCE SCHEME

The National Disability Insurance Scheme (NDIS) was launched in July 2013 and is the Commonwealth Government's new way of providing support for Australians with disability, their families and carers. The NDIS is dedicated to the vision of a community that values people with disabilities by ensuring that people with a disability and their carers receive full access to the support they need.

The NDIS will provide about 460 000 Australians (aged under 65 years with a permanent and significant disability) with the support they need to improve the quality of their lives.

The NDIS began in a number of trial sites around Australia from July 2013, and from 1 July 2016 it was introduced around Australia in stages over a three-year period, to ensure that it would be successful and sustainable. In some states and territories, the NDIS was rolled out by area, while in other states individuals entered the scheme based on age.

As an insurance scheme, the NDIS takes a lifetime approach, investing in people with disability early to improve their outcomes later in life. It will provide all Australians with some assurance that they can get the reasonable and necessary support they need if a child or family member is born with, or acquires, a significant and permanent disability.

The NDIS helps people with disability to:

- access mainstream services and supports, including healthcare, education, public housing, aged care and the justice system
- access community services and supports, including sporting clubs, libraries, charities and community groups
- maintain informal support arrangements, including the unpaid help they get from family and friends that is part of most people's lives
- receive reasonable and necessary funded support, such as the financial support the NDIS will offer that is related to their disability and required for them to improve the quality of their life.

Financial support from the NDIS is not means-tested, and does not impact on other income support such as the Disability Support Pension and Carer's Allowance.

Funding the National Disability Insurance Scheme

The NDIS is a nationally based scheme with governance, funding and decision-making shared among all levels of government in Australia.

The Commonwealth Government agreed to provide $19.3 billion over seven years from 2012–13 to roll out the NDIS across the country, bringing its total new investment in the NDIS to $14.3 billion over the period. In 2019–20, the first full year after the National rollout, the Commonwealth Government will provide funding of $11.7 billion to the NDIS. This is 53 per cent of the $22.2 billion total cost of running the NDIS, with the states and territories providing the remaining funding.

DISCUSS



Discuss the purpose of the NDIS and how it promotes the health and wellbeing of Australians.

AOS 2

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ACTIVITY 5.8: NATIONAL DISABILITY INSURANCE SCHEME

1 Watch the video *About the NDIS* on YouTube.
2 Outline features or advantages of the NDIS.
3 Outline how the NDIS aims to promote the health and wellbeing of Australians.

5.6 HOW AUSTRALIA'S HEALTH SYSTEM PROMOTES HEALTH IN RELATION TO SUSTAINABILITY, ACCESS AND EQUITY

Sustainability

According to the United Nations, sustainability refers to meeting the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainability will be discussed further in Chapter 8.

Medicare

- The scheme is expensive to fund; however, it is hoped that by reducing or removing the cost of healthcare for individuals, they will access healthcare sooner, which will lead to improved health outcomes and reduce the cost of treatment in the long term.
- Medicare only covers essential healthcare services, and does not cover other treatments such as elective surgery or most allied health services. It thus aims to provide the care that is deemed medically necessary without incurring additional expenses. This will help to meet the health needs of the current generation but also ensure that Australia will be able to financially support the health needs of future generations.

Pharmaceutical Benefits Scheme

- Only medications that are more efficient at treating conditions than existing treatments are added to the PBS. The intent is that investing in spending on the PBS may contribute to reducing the cost of the wider health system by preventing the development of serious conditions and therefore reducing the need for hospital stays or other demands on the healthcare system.
- Ensuring that only reliable medications are added to the PBS promotes sustainability because reliable medications are trialled and tested to ensure they work effectively in treating the condition. This helps to meet the needs of the current generation, and improving the health of the current generation will also help improve health in the future because people will be less likely to need ongoing treatment.
- The PBS includes a Prescription Shopping Programme (PSP) to protect its integrity. Prescription shopping is when a patient unknowingly or knowingly gets more medicine than they medically need by visiting many doctors without telling them about their other consultations. The PSP helps health professionals identify and reduce the number of patients who get more PBS-subsidised medicines than they need. This ensures the financial sustainability of the program by people not spending more on medications than necessary.

EXTENSION QUESTION 5.6



Explain how a wide range of affordable medication promotes sustainability of the Australian health care system.

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In turn, this means the government is still able to meet the health needs of the current generation but will also be more able to provide medications for future generations to help them treat illness.

Private health insurance

- Private health insurance is economically sustainable because it helps to meet the healthcare needs of the current generation (both those with private health insurance and those without) through placing less burden on the public system. It aims to meet the needs of future generations by implementing incentive schemes to make access to private health insurance more affordable, therefore decreasing the demand on the public system as our ageing population continues to grow. Less demand on the public system means that more people are able to be treated sooner, leading to better health outcomes.

National Disability Insurance Scheme

- The NDIS was introduced in stages around Australia over three years, rather than all at once, in order to ensure that it was successful and sustainable. This will assist in promoting the health of those with a disability over the long term because they will have the support they need over the duration of their life.

Access

Access refers to an individual being able to make use of particular services without barriers such as location, knowledge, time or cost.

Medicare

- Medicare is accessible because rebates are provided for a range of healthcare services including GP visits, eye tests performed by an optometrist and some diagnostic tests such as x-rays. This makes these services more financially accessible, which can improve health as people are more likely to have their condition diagnosed and treated earlier if they can access these services at a reduced cost, which can help to reduce the impact of the condition and promote health.

EXTENSION QUESTION 5.7



Outline the ways in which the Australian health care system promotes health in relation to access.

- Medicare improves access to healthcare in an emergency situation by treating patients based on need. For example, if someone arrives at hospital having had a heart attack, they can be assured of receiving prompt treatment without having to worry about waitlists or cost.
- Medicare provides rebates for a range of in-hospital and out-of-hospital services across the country (including those in remote areas). Being able to access health services in the local area improves physical access, which means that people will be able to get treatment sooner; this can lead to better health outcomes.
- Medicare allows an individual to be able to select their own doctor for out-of-hospital services, which makes such services more accessible because people will have the ability to select a doctor in their local area and will also be able to select a doctor who meets their social or cultural needs. This will help people to feel more comfortable in seeking healthcare, which again can lead to improved health outcomes.

Pharmaceutical Benefits Scheme

- The PBS provides timely access to medication at local pharmacies at a reduced cost, which can promote access because individuals are able to get the medication they need without having to travel. This means that individuals can access medication quickly to enable them to treat their condition. This should reduce the impact of the condition and reduce the amount of time spent in ill-health.

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- The PBS also aims to make medications more affordable, which in turn helps to make them more financially accessible.

Private health insurance

- Through implementing incentives such as the private health insurance rebate scheme, the government has tried to make private health insurance more financially accessible, with the aim of increasing the number of people who can afford to access private health insurance. This increases the number of people who will receive subsidised access to a wider range of services, which may contribute to improvements in health because people will have access to a wider range of treatment options with shorter waiting times.
- Private health insurance also improves financial access to a wider range of services that people might not otherwise be able to afford.
- Private health insurance promotes social access to healthcare because people are able to select their own doctor for treatment in either a public or private hospital. This means that people are able to choose the doctor who best meets their needs.
- Private health insurance also improves access for patients who rely on the public system. By treating some people in private hospitals, it reduces the waiting times in public hospitals, meaning people can access the treatment they need sooner.

National Disability Insurance Scheme

- The NDIS aims to ensure that Australians with a disability receive the reasonable and necessary funded support required for them to financially access all the services they need to live their life and to achieve their goals and promote health.

Equity

Equity is closely linked to fairness and social justice. It is about ensuring that we are all on an even playing field by providing extra support for people in need so that they can have the same opportunities in life as everyone else. It means that the needs of people should guide the distribution of support.

Medicare

- Medicare includes a safety net to protect those who experience higher costs of healthcare, those who have concession cards and big families from large out-of-pocket costs for healthcare services, thus providing extra support to those who need it most.
- Some children who receive certain government benefits (such as Family Tax Benefit Part A) for at least part of the calendar year receive basic dental services through the Child Dental Benefits Schedule. This ensures that those who may not be able to afford dental services, can receive treatment
- Medicare is equitable because it is available to all Australian citizens, providing additional measures so that people can be provided with healthcare regardless of their age, gender, race, location, income or health status. This makes it equitable because those who most need to access the health services (the elderly, people from low-socioeconomic groups, people in rural and remote areas and Aboriginal and Torres Strait Islander peoples) are provided with the additional resources they require to be able to seek the care they need.

Pharmaceutical Benefits Scheme

- The government introduced the Closing the Gap PBS Co-payment Program in 2010 as one of 14 measures in the Indigenous Chronic Disease Package. This was aimed at reducing the cost of PBS medicines for eligible Aboriginal and Torres Strait Islander peoples living with, or at risk of, chronic disease. Under this program, eligible Aboriginal and Torres Strait Islander peoples who would normally have to pay the full PBS price for medication ($41.00 as of January 2020) only have to pay the concession rate of $6.60. Those who would normally pay the concession price receive their PBS medicine without having to make a co-payment. This program promotes equity by providing additional support for one of the most disadvantaged population groups in Australia. This might mean that Aboriginal and Torres Strait Islander peoples are more likely to get the medication they need, such as insulin to treat diabetes, which can reduce the impact of the condition and lead to improvements in health status.

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- The PBS also includes a safety net to protect those who suffer chronic illness, those who need many medications or expensive medications, those who have concessions cards and large families from large out-of-pocket costs for PBS medications, thus providing extra support to those who need it most.
- Finally, the PBS is available to all Australian citizens by providing additional means for people to purchase medication regardless of gender, race, location, income or health status. This makes it equitable because those who most need the medication listed on the PBS are able to obtain it without any barrier.

Private health insurance

- Private health insurance promotes equity through private health insurance incentives. Those who earn more pay more for their private health insurance because they receive a lower, or no rebate on their policies while those who earn less receive bigger rebates.
- The Medicare levy surcharge protects those who earn less from paying a levy if they cannot afford private health insurance. This means that higher income earners are encouraged to take out private health insurance, which reduces the burden on the public hospital system, meaning that those who cannot afford private health insurance have better access to the public hospital system.
- Older Australians are among the biggest users of the healthcare system and often have lower incomes, making private health insurance less affordable. The Private Health Insurance Rebate scheme promotes equity for older Australians by increasing the rebate to which a person is entitled in order to make it more affordable. The Lifetime Health Cover scheme also promotes equity by ruling that those who were aged 65 years or more in July 1999 are exempt from having to pay the additional loading when they join a private health insurance fund. Both these initiatives are designed to increase the number of elderly Australians who can afford private health insurance and access the advantages this brings.

National Disability Insurance Scheme

- Through ensuring that people with a disability and their carers receive full access to the support they need, the NDIS promotes equity because more resources are being provided to support those who need help the most.

EXTENSION QUESTION 5.8

Describe two examples of ways in which various aspects of Australia's healthcare system promote health through equity.

ACTIVITY 5.9: HOW THE AUSTRALIAN HEALTHCARE SYSTEM PROMOTES HEALTH

Work individually or in small groups to complete the following table, summarising the ways in which the Australian healthcare system promotes health through sustainability, access and equity.

HOW THE AUSTRALIAN HEALTHCARE SYSTEM PROMOTES HEALTH			
	Sustainability	Access	Equity
Medicare			
Pharmaceutical Benefits Scheme			
Private health insurance			
National Disability Insurance Scheme			



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CHAPTER SUMMARY

- Australia's healthcare system includes a broad range of service providers, such as doctors, nurses, specialists, other health professionals, hospitals, clinics, preventative health programs, research centres, pharmaceutical companies and private health insurance companies.
- Medicare is Australia's universal healthcare system.
  - › It aims to provide access to adequate healthcare at little or no cost to all Australians in need of treatment, regardless of age or income.
  - › Medicare is funded by the federal government, partly through contributions made to the healthcare system through a 2 per cent Medicare levy, but also from general taxes and the Medicare levy surcharge.
- The Pharmaceutical Benefits Scheme (PBS) aims to subsidise the cost of a wide range of prescription medications.
  - › The PBS provides Australians with vital medications at affordable prices to ensure that optimal health outcomes and economic objectives are achieved.
- Private health insurance contributes significantly to the healthcare system by covering some of the costs associated with private hospital treatment.
  - › Additional services not covered by Medicare, such as dental care and physiotherapy, may be covered by private health insurance.
  - › The government has introduced a range of incentives to encourage people to take out private health insurance.
- The National Disability Insurance Scheme (NDIS) is the Commonwealth Government's way of providing support for Australians with disability, their families and carers.
- The Australian health system promotes health in various ways through:
  - › Sustainability – through meeting the needs of the current generation without compromising the ability of future generations to meet their own needs. For example, by only covering particular services and medications to try to keep costs down so that the health system can be funded for future years.
  - › Access – by ensuring healthcare services are financially, socially and geographically accessible. Bulk billing is an example of health services being provided at no additional cost to the patient, so that healthcare can be more accessible to people from lower socioeconomic backgrounds.
  - › Equity – ensuring those who need it the most have access to the services they need to level the playing field. The NDIS is an example of resources being provided to those who need it most.



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KEY QUESTIONS

SUMMARY QUESTIONS

1 Explain what Medicare is and how it is funded.
2 Outline what is covered by Medicare and what is not.
3 Outline the advantages and disadvantages of Medicare.
4 Describe the difference between the Medicare levy and the Medicare levy surcharge.
5 Explain what private health insurance is and what it provides cover for.
6 Outline the advantages and disadvantages of private health insurance.
7 Explain how private health insurance is funded.
8 Explain what the PBS is and how it is funded.
9 Outline the advantages and disadvantages of the PBS.
10 Explain what the PBS safety net is.
11 Explain what the NDIS is and what it provides cover for.
12 Explain how the NDIS is funded.
13 Explain how the Australian health system promotes health through ensuring sustainability, access and equity.

EXTENDED RESPONSE QUESTION

SOURCE 1



FIGURE 5.16 Many people of Aboriginal or Torres Strait Islander origin are at a greater risk of developing certain health conditions that may be preventable or can be treated more effectively when detected early.

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SOURCE 2

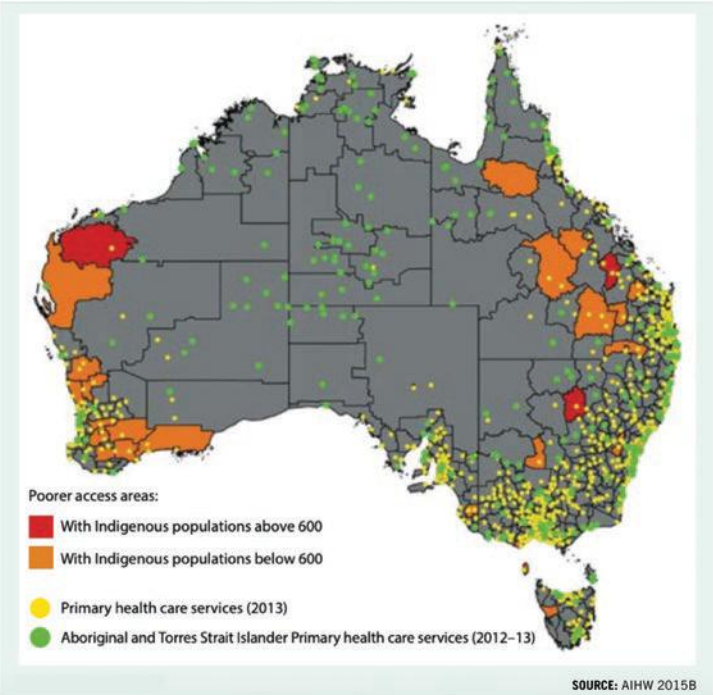
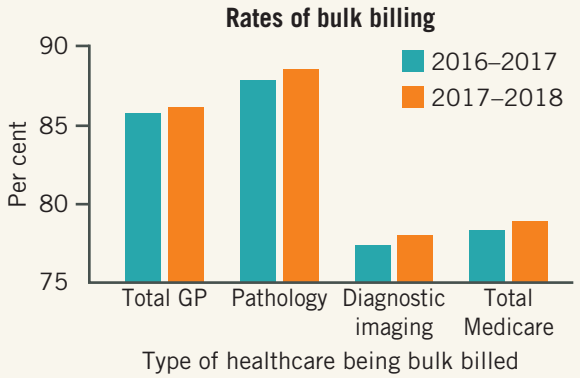


FIGURE 5.17 Areas where Indigenous Australian's have poor access to primary healthcare services, by location of services, 2012–13 and 2013

QUESTION

Referring to the information in Sources 1 and 2, explain the role of Medicare in promoting the health status of Indigenous Australians. Demonstrate your understanding of funding, sustainability, access and/or equity of the Australian healthcare system in your answer. (10 marks)

EXAMINATION PREPARATION QUESTIONS



SOURCE: Based on figures available at *Public Release of Medicare Statistics: Financial year 2018–2019,* Australian Department of Health

FIGURE 5.18 Rates of bulk billing

A This data reflects the rates of bulk billing for a range of Medicare services. Describe what Medicare is. (2 marks)

B Identify a trend in the graph related to the rate of bulk billed services between 2016–17 and 2017–18. (1 mark)

C Explain how bulk billing can promote the health and wellbeing of Australians. (3 marks)

D Describe how Medicare may have contributed to the improved health status of Australians. (4 marks)

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6 PROMOTING HEALTH IN AUSTRALIA

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 health promotion in improving population health
  - how the health promotion reflects the action areas of the Ottawa Charter for Health Promotion.
- Initiatives introduced to bring about improvements in Aboriginal and Torres Strait Islander health and wellbeing in Australia and how they reflect the action areas of the Ottawa Charter for Health Promotion.

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 Aboriginal and Torres Strait Islander health and wellbeing.

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INTRODUCTION

This chapter looks at three health promotion issues (concerns) that have been successful in Australia in bringing about changes in population health. These issues are smoking, road safety and skin cancer. For this study you only have to consider in detail one of these issues. You need to have an understanding of why this health issue was targeted for health promotion, know about aspects of this health promotion that increase effectiveness in improving population health, and be able to make judgements about the effectiveness of health promotion programs. You will also need to identify and explain how examples of health promotion reflect the action areas of the Ottawa Charter for Health Promotion.

The second part of this chapter looks at a number of initiatives that have been introduced to bring about improvements in Aboriginal and Torres Strait Islander health and wellbeing. You will need to have an awareness and understanding of a number of these initiatives/programs and also be able to evaluate them in terms of their capacity to improve Aboriginal and Torres Strait Islander health and wellbeing. You will also need to identify and explain how aspects of these initiatives reflect the action areas of the Ottawa Charter for Health Promotion.

AOS 2

What you need to know

- The action areas of the Ottawa Charter for Health Promotion.
- What health promotion is and how it can improve population health.
- Factors that can increase the effectiveness of health promotion.
- How to measure if health promotion has been effective.
- Why the selected health issue (smoking, skin cancer or road safety) was targeted by health promotion.
- Initiatives to promote Indigenous health and wellbeing.
- The dimensions of health and wellbeing.
- How health promotion programs reflect the Ottawa Charter for Health Promotion.

What you need to be able to do

- Evaluate (using evidence) if programs have been effective.
- Explain how programs and initiatives reflect action areas of the Ottawa Charter.

6.1 WHAT IS HEALTH PROMOTION?

According to the World Health Organization (WHO, 1998): 'Health promotion represents a comprehensive social and political process, it not only embraces actions directed at strengthening the skills and capabilities of individuals, but also action directed towards changing social, environmental and economic conditions so as to alleviate their impact on public and individual health. Health promotion is the process of enabling people to increase control over the [factors] of health and thereby improve their health. Participation is essential to sustain health promotion action' (WHO, 1998).

Examples of health promotion include social marketing, education, legislation and regulations that all aim to change the social, political and physical environment in order to promote behaviours.

Launched at its ninth Global Conference on Health Promotion in 2016, the WHO

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DISCUSS



When we have the correct information, we are able to make healthy lifestyle choices.

Discuss the importance of education for the success of health promotion iniatives.

Declaration highlights 'the need for people to be able to control their own health – to be in a position to make healthy lifestyle choices. Noting the need for political action across many different sectors and regions, it highlights the role of good governance and health literacy in improving health, as well as the critical role played by city authorities and communities' (WHO, 2016).

According to the Ottawa Charter, health promotion is the process of enabling people to increase control over, and to improve, their health. As the WHO states: 'To reach a state of complete physical, mental and social wellbeing, an individual or group must be able to identify and realise aspirations, satisfy needs, and change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept, emphasising social and personal resources as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy lifestyles to wellbeing' (WHO, 1986).

In 1984, the WHO stated the following:

Health promotion:

- involves the population as a whole in the context of their everyday life, rather than focusing on people at risk for specific diseases – it enables people to take responsibility and have control over their own health. This requires full access to health-related information.
- is directed towards action on the factors ... or causes of health – this relies on coordination of services beyond health services to address a wide range of health issues. Local, state and federal governments have an important role in ensuring that the physical and social environment (including that which is beyond the control of an individual) is suitable to promote good health.
- combines diverse, but complementary methods or approaches including communication, education, legislation, fiscal measures, organisational change, community development and spontaneous local activities against health hazards.
- aims particularly at effective and concrete public participation – this requires clear problem definition and development of life skills including problem solving among individuals and within communities.
- is basically an activity in the health and social fields, and not medical service – health professionals (especially those in primary health care) still have an important role in nurturing and enabling health promotion. Health professionals have an important contribution in relation to education and health advocacy (WHO, 1984).

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AOS 2

FEATURES TO INCREASE THE EFFECTIVENESS OF HEALTH PROMOTION

Ensuring that a program is able to address the following questions will make the health promotion more effective.

- Is it affordable in the long term? Does it have adequate funding to continue?
- Is it affordable to the participants or populations groups accessing the program?
- Is it culturally sensitive/appropriate and respectful of the values and knowledge of its target group?
- Does it involve local individuals and/or community groups in the planning and decision-making process? Do the local people have a sense of ownership over the program?
- Does it focus on empowering through skills and knowledge?
- Does it allow for feedback?
- Is it reaching those most in need – the most vulnerable population groups?
- Does it involve partnerships – government, private organisations, local governments and community groups working together in the programs delivery?
- Is it accessible? Is it located in areas that people can reach on foot or public transport? What are the opening hours?

DISCUSS



Health promotion enables people to take responsibility and have control over their own health. Discuss how we can tell if health promotion has been effective.

In 2015–16, 2 per cent of Australia's total health expenditure, or $3.4 billion, was spent on public health (AIHW, 2018).

ACTIVITY 6.1: WHAT IS HEALTH PROMOTION?

Watch the following videos on YouTube:

- *Understanding Health Promotion: A Short Introduction*
- *WHO: Shanghai Declaration on Health Promotion.*

1 Describe what is meant by 'health promotion'.

2 Explain how health promotion reflects the social model of health.

3 Identify examples of each priority action area of the Ottawa Charter for Health Promotion identified in these videos.

4 Explain why health promotion is important for improving health status in Australia.

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EVALUATING THE EFFECTIVENESS OF HEALTH PROMOTION

There are many ways of evaluating whether a program or initiative has been successful and effective; for example by evaluating it against the Ottawa Charter for Health Promotion or the Social Model of Health. Other indicators include the following.

- There was a rise or fall in relevant health statistics (e.g. lower rates of mortality from skin cancer, lung cancer, road trauma deaths).
- High participation/engagement rates by individuals/communities/whole population were found (e.g. number of people attending/interacting with the program by downloading the My QuitBuddy app).
- It was affordable (cost-effective) to run a program over a long period of time.
- Behavioural changes have occurred in individuals and/or population groups (e.g. a fall in the number of people drinking alcohol to risky levels).
- It is culturally appropriate.
- It involves partnerships.
- It is accessible.
- It empowers individuals.

6.2 ROLE OF HEALTH PROMOTION IN REDUCING THE IMPACT OF SMOKING

As discussed in Chapter 3, tobacco smoking is a dangerous lifestyle behaviour because tobacco contains more than 4000 chemicals, of which many have been associated with an increased risk of cancer. According to the AIHW, smoking is the single most important preventable cause of ill-health and death in Australia. When tobacco smoke is inhaled, these chemicals enter the lungs and spread through the body via the lymphatic system.

Most people start smoking when they are in their teens, and are addicted by the time they reach adulthood. Therefore, it is important that health-promotion initiatives target young people before they start smoking.

Many smokers have tried to quit but have returned to cigarettes because smoking is such a strong addiction. It is a habit that is very difficult to break.

Some of the main reasons why young people choose to smoke are: to look mature, to be like their friends, to manage their weight and to experiment.

Adults smoke for other reasons. Many adults identify stress and pressures caused by economic and personal problems as a reason for smoking. There are also some people who say they smoke because it makes them feel good.

Health-promotion initiatives such as those listed in Table 6.1 play an important role in preventing young people from taking up smoking. They include education and awareness programs, and supporting those who already

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smoke to quit through education, support programs, changes to the environment and to policy and legislation.

TABLE 6.1 Over the past 40 years, many health-promotion initiatives in Australia have had a positive impact on smoking rates.

1973	Health warnings on cigarette packs introduced
1976	Tobacco advertising on television and radio banned
1985	Anti-tobacco commercials aired on television
1987	Victorian *Tobacco Act* passed in parliament
1988	Victoria's health-promotion agency, VicHealth, buys out tobacco company advertising of sports and arts
1990	Ban on tobacco advertising in print media in Victoria
2004	Mandatory graphic warnings on tobacco packs about the health effects of smoking introduced
2006	Smoking banned in covered areas of train station platforms and bus and tram stops
2009	Smoking banned in government school grounds in Victoria
2010	Tobacco smoking banned in all clubs and pubs
2010	Smoking in cars with passengers under 18 years banned in Victoria
2011	Point of Sale display ban in Victoria
2014	Smoking banned in areas commonly used by children and young people for recreational and sporting activities in Victoria
2015	Smoking banned at all patrolled beaches in Victoria
2017	Smoking banned in outdoor dining areas

AOS 2

DISCUSS



Graphic warnings on packets of cigarettes came about through government intervention. Discuss the action area/s of the Ottawa Charter that this image represents.

Why smoking is targeted

Smoking is identified as a risk factor for a number of different cancers, cardiovascular disease, type 2 diabetes mellitus, rheumatoid arthritis, fractures and reproductive problems in women. The chemicals in a cigarette affect the smoker but they also affect other people exposed to the smoke. This is known as second-hand or passive smoking.

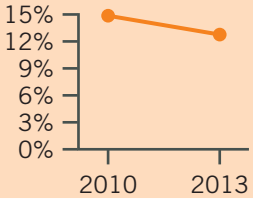
In Australia, the incidence of lung cancer increased from 5953 cases diagnosed in 1982 to 10 926 cases in 2012. In 2019, lung cancer was the fifth most commonly diagnosed cancer, with 12 817 new cases diagnosed, making up 8.9 per cent of all cancers diagnosed.

The mortality rate for lung cancer increased from 2883 deaths in 1968 to 8217 in 2013, and this was estimated to have increased to 9034 in 2019. In 2018, it was estimated that the risk to someone of dying from lung cancer by their 85th birthday was one in 24, and 18 per cent of cancer deaths were attributed to lung cancer.

Tobacco smoking was a leading risk factor contributing to death and disease in Australia in 2011, and was responsible for 9 per cent of the total burden of disease and injury.

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TABLE 6.2 Smoking rates in Australia

	Latest Australian data	2025 target	Baseline data against latest data	Trend	Latest Indigenous data
Daily smokers (aged 14 and over)	12.8%	5%		Trend in right direction. **Good progress** towards target. Maintain efforts.	38.9%

It was also estimated that in 2011 tobacco smoking accounted for 80 per cent of lung cancer and 75 per cent of COPD.

Other reasons why tobacco smoking has been targeted for health promotion include the fact that the most vulnerable population groups are more likely to smoke, which further increases the inequity in health status experienced by these population groups. For example, smoking rates are:

- twice as high in remote/very remote areas compared with major cities
- three times as high in the lowest socioeconomic status (SES) areas compared with the highest
- 2.7 times as high among single parents with dependent children compared with couples with dependent children
- 5.7 times as high for prisoners
- 1.7 times as high for unemployed people
- 2.6 times as likely for Aboriginal and Torres Strait Islander peoples.

Finally, tobacco smoking was targeted because it is a totally modifiable risk factor, meaning that it is one risk factor with an impact that the Australian community can totally reduce. As shown in Table 6.2, Australia has set a goal to reduce the smoking rate to 5 per cent by 2025. This will have a positive impact on the burden of disease attributed to smoking in the future.

ACTIVITY 6.2: INEQUALITY IN SMOKING RATES

1 Identify two trends in Table 6.3.

2 Referring to Table 6.4, outline two sociocultural factors that appear to increase smoking rates.

TABLE 6.3 Smoking rates during early and middle adulthood, 2001–16 (%)

GROUP	18–24 YEARS			25–29 YEARS			30–39 YEARS		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2001	28	26	27	34	26	30	30	26	28
2004	24	23	23	31	27	29	26	24	25
2007	21	18	19	31	26	28	25	21	23
2010	20	17	19	25	20	22	23	18	20
2013	17	14	15	20	16	18	20	12	16
2016	12	11	12	19	12	16	17	11	14

SOURCE: Tobacco in Australia

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TABLE 6.4 Tobacco smoking status, people aged 14 years and older, by SES and geographical characteristics, 2016 (%)

	NEVER SMOKED*	EX-SMOKERS †	CURRENT SMOKERS‡
ALL PERSONS, 14+ YEARS	**62**	**23**	**15**
Education			
With post-school qualification	61	25	14
Without post-school qualification	64	20	16
Labour force status			
Currently employed	60	24	16
Student	90	4	5
Unemployed	61	13	26
Home duties	60	23	18
Retired or on a pension	55	35	10
Volunteer/charity work	61	26	13
Unable to work	43	24	33
Other	65	19	15
Index of social injustice of place of residence			
1st quintile (most disadvantaged)	58	22	20
2nd quintile	59	24	17
3rd quintile	64	22	15
4th quintile	63	23	13
5th (least disadvantaged)	67	24	9
Geography			
Major cities	65	21	14
Inner regional	56	27	17
Outer regional	54	27	19
Remote/very remote	55	22	24
Marital status			
Never married	73	9	18
Married/de facto	59	28	13
Divorced/separated/widowed	51	30	20
Composition of household among households with dependent children			
Single with dependent children	44	26	31
Couple with dependent children	62	25	13

** Never smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco*
† Smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco and reports no longer smoking
‡ Smoked daily, weekly or less than weekly

SOURCE: Tobacco in Australia

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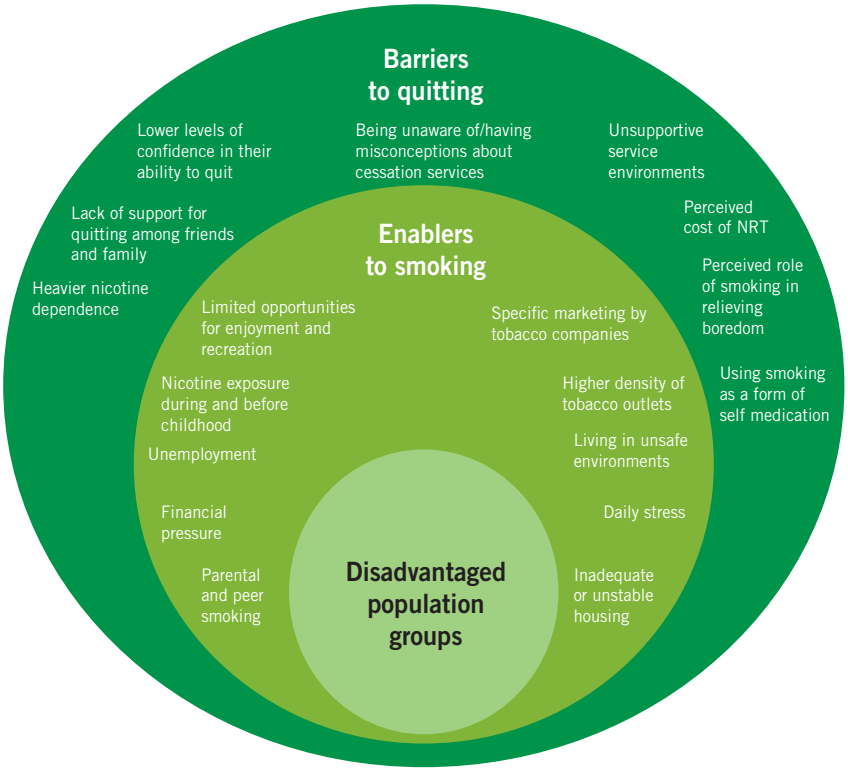


FIGURE 6.1 Enablers to smoking and barriers to quitting in disadvantaged population groups

It is also important that the Australian Government invests in health promotion to assist Australians to quit smoking because it is very addictive and many people struggle to quit alone. One of the main reasons smokers might find it difficult to quit is the withdrawal caused by the impact of nicotine. Nicotine is one of the chemicals in cigarettes that causes addiction to smoking. Over time, an individual's body gets used to having nicotine and the more they smoke the more nicotine they need in order to feel normal. When they try to stop smoking, their body doesn't get nicotine, so they may feel uncomfortable and crave cigarettes. Another challenge for people quitting is triggers like having a cup of coffee or being around other smokers. Stress may also be a reason why people find it difficult to quit because some people use cigarettes to help them cope with stress.

Examples of health promotion to address smoking

There have been many health-promotion initiatives implemented over the past few decades to address the high rate of smoking, including:

- changes to laws, policy and taxation
- QUIT Victoria and the wide range of initiatives it has implemented
- The National Tobacco Campaign with the range of initiatives it has implemented, such as a national media campaign, the My QuitBuddy app, the Quit for You – Quit for Two app and iCanQuit calculator.

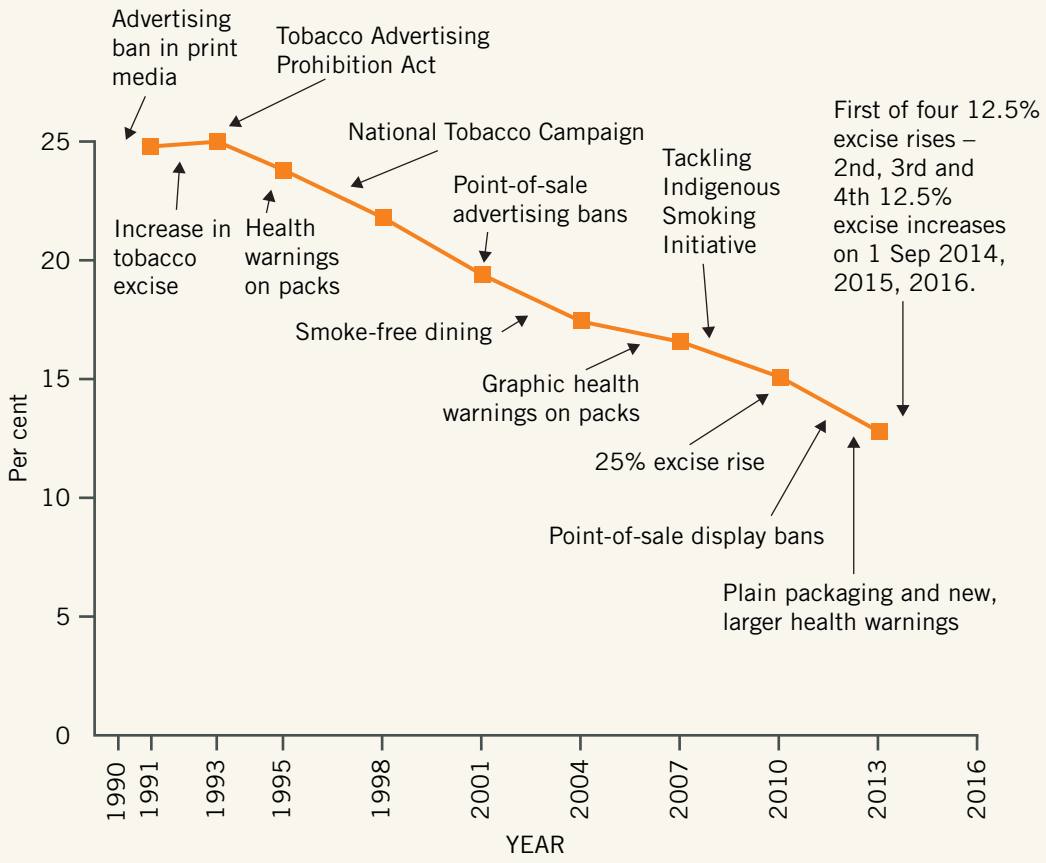
QUIT

QUIT is a program of Cancer Council Victoria. QUIT Victoria began in 1985, when a ministerial review of health promotion identified tobacco as the most significant health priority in the state. A committee was formed with representatives from the Victorian Health Department and Cancer Council Victoria, joined later by the National Heart Foundation of Australia (Victorian Division). This committee provides advice to the Minister for Health on legislation and policy aimed at reducing the prevalence of smoking in Victoria.

In 1987, the Victorian *Tobacco Act* was passed. It introduced a levy on the sale of tobacco products. The Victorian Health Promotion Foundation (VicHealth) was established to distribute funds raised by the new levy and provide expertise and support to assist the QUIT program. Today, QUIT is funded by Cancer Council Victoria, the National Heart Foundation of Australia (Victorian Division), VicHealth and the Department of Health. These organisations form QUIT's steering committee.

QUIT's purpose is to encourage, support and promote people in quitting smoking for preventative health reasons. QUIT also points

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SOURCE: Department of Health (2015)

FIGURE 6.2 Key tobacco controls in Australia, 1990–2016, and daily smokers aged 14 years and over

out the economic impacts that smoking can have on both the individual and the healthcare costs borne by the Australian Government.

Examples of the QUIT program's health-promotion initiatives include:

- Quitline
- QUIT Coach
- QUIT media campaigns
- QUIT learning hub for health professionals
- supporting the development of Critics Choice resources.

TABLE 6.5 How the QUIT program reflects the Ottawa Charter for Health Promotion

OTTAWA CHARTER ACTION AREAS	HOW THE QUIT PROGRAM REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Build healthy public policy	In conjunction with the Victorian Government, QUIT has assisted in the implementation of a range of policies and laws aimed at reducing the impact of smoking on the health of Victorians. These include the banning of tobacco advertising, the banning of smoking in public places, changes to tobacco taxation, the introduction of plain packaging on tobacco products via the *Tobacco Plain Packaging Act 2011*, increasing the age at which people can legally purchase tobacco and banning the display of tobacco in retail outlets.

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TABLE 6.5 *(Continued)*

OTTAWA CHARTER ACTION AREAS	HOW THE QUIT PROGRAM REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Strengthen community action	QUIT has worked with a range of groups within the community to increase the success of its program and initiatives. These include working with the state government to change legislation, working with community health-promotion agencies such as VicHealth and the Australian Network on Young People and Tobacco, to develop health-promotion initiatives, and providing resources for schools and other community groups.
Develop personal skills	Via its website, QUIT provides information about the impact of smoking, and advice and strategies to assist people to quit smoking. It also invests in media campaigns to educate the community about the harmful effects of smoking. QUIT partners with the Australian Network on Young People and Tobacco and VicHealth to produce the Critics Choice resources for use in schools to educate young people about the harmful effects of smoking.
Create supportive environments	Through the Quitline, QUIT provides a supportive social environment with the purpose of assisting individuals to quit smoking. It also has online support available via the QUIT website. Through working to ban smoking in public places, QUIT has also improved the physical environment by reducing the impact of passive smoking.
Reorient health services	QUIT provides a range of face-to-face and online learning opportunities designed to help health professionals support their patients to quit smoking.

NATIONAL TOBACCO CAMPAIGN

The National Tobacco Campaign targets all smokers; however, it focuses particularly on the most at-risk population groups, including Aboriginal and Torres Strait Islander peoples, those from culturally and linguistically diverse backgrounds, rural communities, and pregnant women and their partners.

The National Tobacco Campaign has several initiatives, including:

- media campaigns such as Break the Chain, Don't Make Smokes Your Story and Quit for You – Quit for Two, which focus on the negative health effects of smoking as well as promoting the benefits of quitting smoking. The National Tobacco Campaign features television, radio, print, outdoor and online advertising.
- a website that provides information about the harmful effects of smoking and advice to help and support people to quit
- development of the Quit for You – Quit for Two app and the My QuitBuddy app

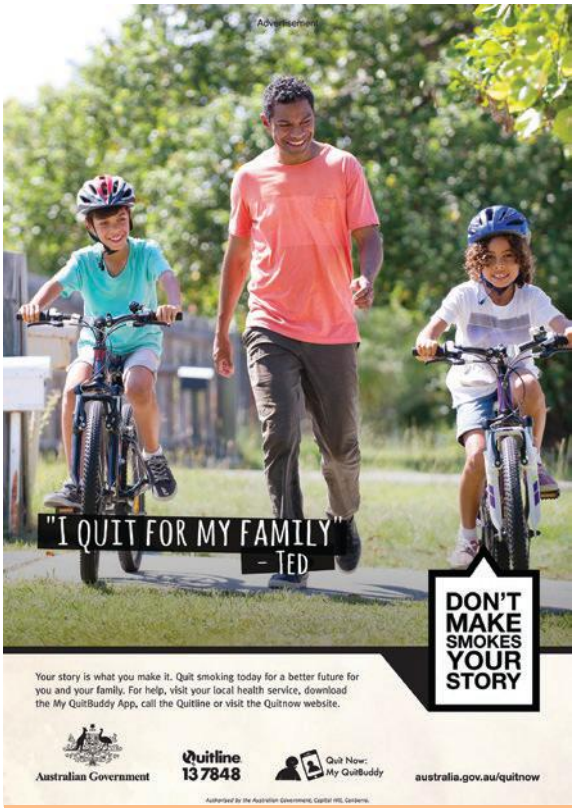


FIGURE 6.3 National Tobacco Campaign media campaign

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TABLE 6.6 How the National Tobacco Campaign reflects the Ottawa Charter for Health Promotion

OTTAWA CHARTER ACTION AREAS	HOW THE NATIONAL TOBACCO CAMPAIGN REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Develop personal skills	Through its website, with information, advice and support, the campaign aims to educate people and therefore develop personal skills.
Create supportive environments	Through the development of the Quit for You – Quit for Two app, and the My QuitBuddy app, the campaign aims to create supportive social environments by offering encouragement and support to people trying to quit.
Reorient health services	Through providing specialised information for health professionals to assist them to support individuals to quit, information about quitting among vulnerable groups, such as those with mental illness, pregnant women, prisoners and Aboriginal and Torres Strait Islander peoples, the campaign assists health professionals to reorient health services and work to prevent illness.

- specialised information for health professionals to assist them to support individuals to quit
- information about quitting, targeting vulnerable groups such as those with mental illness, pregnant women, prisoners and Aboriginal and Torres Strait Islander peoples
- a website with information, advice and support to help people quit
- the development of The Quit Book.

My QuitBuddy app

My QuitBuddy is an app that is personalised to help individuals quit smoking on their own terms. It has been designed to allow individuals to:

- choose when they want to quit (whether they are ready to quit when they join, or intend to quit smoking soon)
- set their own goals
- identify the reasons why they are quitting (they can even include photos and recordings of loved ones to help motivate them)
- program danger times when they know a craving might strike (at danger times, the app provides a reminder of why the individual chose to quit, offers games to distract them or can connect them to the Quitline).

The app includes a community forum, which has proved to be one of its most popular features, and allows people who are at all stages of their quitting journey to share success stories and distraction tips, and to celebrate their achievements.

To help people stay on track, the app has a 'check in' feature, which for the first three weeks 'checks in' every evening to make sure the individual is sticking to their goals.

Every day a person is able to stay smoke free, My QuitBuddy reveals a new health benefit to them.

SOURCE: The National Tobacco Campaign



FIGURE 6.4 The MyQuitBuddy app

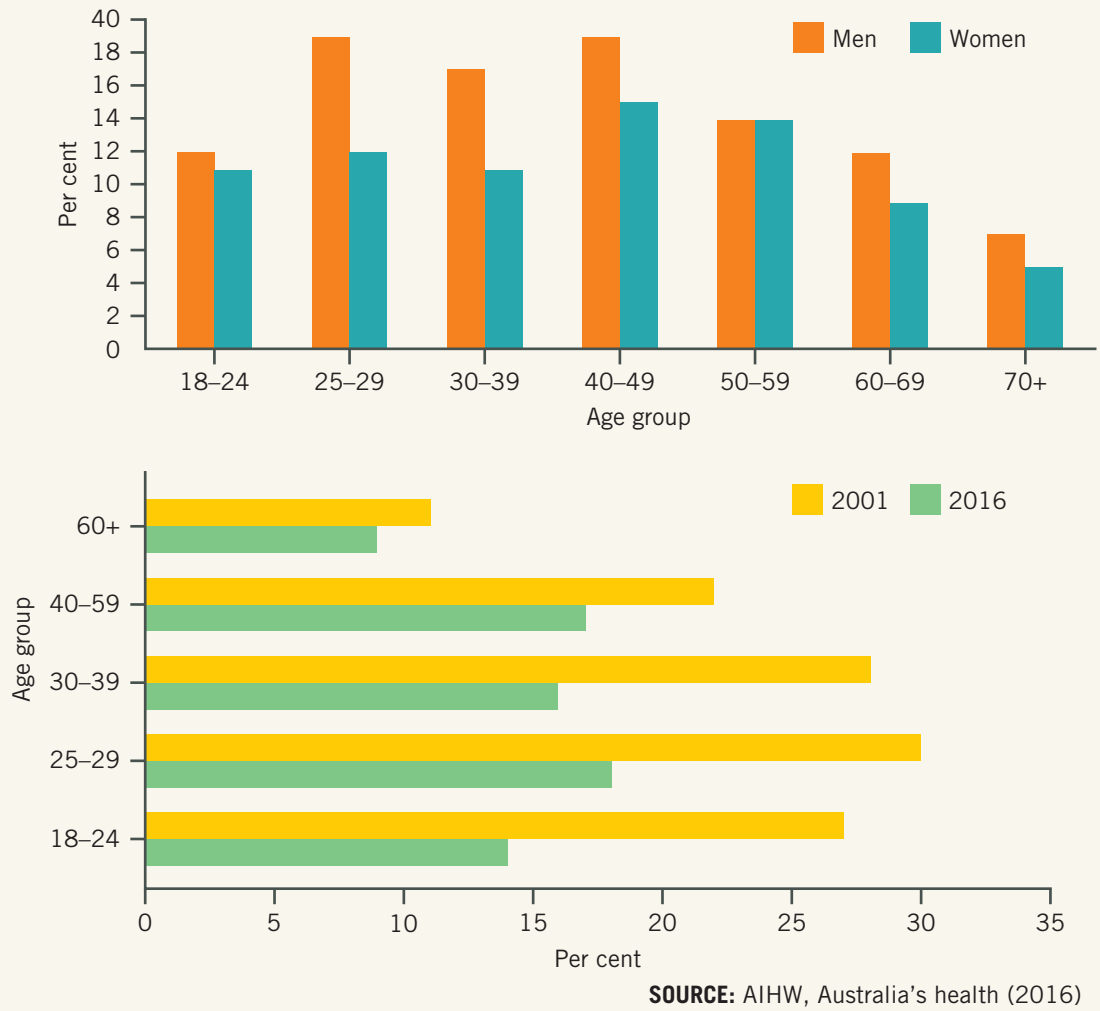
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ACTIVITY 6.3: MY QUITBUDDY

Watch the YouTube video *The Quit Now: My QuitBuddy*.

1 Explain how the My QuitBuddy app can promote health and wellbeing.

2 Select two action areas of the Ottawa Charter and explain how the My QuitBuddy app reflects each action area.



SOURCE: AIHW, Australia's health (2016)

FIGURE 6.5 Percentage of daily smokers by age and sex, 2001–16



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NEW REPORT SHOWS POSITIVE CHANGES IN AUSTRALIANS' SMOKING PATTERNS

Canberra, 29 September 2016

Tobacco smoking remains a major cause of many health problems, but according to a new report from the Australian Institute of Health and Welfare (AIHW), Australians' smoking behaviours are improving – with some groups improving more than others.

The report, Tobacco Indicators: Measuring Mid-point Progress – Reporting Under the National Tobacco Strategy 2012–18, measures smoking behaviours in Australia against a range of indicators, and shows that across most of them, Australia is progressing well.

The report's indicators look at a range of smoking phases – including exposure to tobacco smoke, initial uptake of tobacco smoking, established smoking patterns and quitting – and measure progress since the baseline report, released in 2015.

'Since the baseline report, we've seen improvements when it comes to people taking up smoking, with fewer secondary school students and adults trying cigarettes – and those who do are taking up tobacco smoking at older ages than in the past,' said AIHW spokesperson Tim Beard.

Falls were also recorded in the number of secondary students and adults who smoked regularly, with a decline of almost a quarter for both groups.

'Our report also shows a significant fall in the number of children and non-smokers who are exposed to tobacco smoke in the home,' Mr Beard said.

While improvements were seen across all population groups, some achieved greater progress than others.

'For example, despite the fact that Indigenous smoking rates are improving, they are not improving at the same rate as for non-Indigenous Australians, so the gap is widening across a number of indicators.'

Similar findings were seen for people living in remote and very remote areas (compared to major cities).

Daily smoking rates significantly improved among people living in the lowest and second-lowest socioeconomic areas, but not at the same rate as those living in the highest socioeconomic area.

The report showed unclear results when it came to quitting, but some positive results were recorded among people who had smoked more than 100 cigarettes in their lifetime (referred to in the report as 'ever-smokers').

Since the baseline report, the proportion of adult ever-smokers who have now quit smoking has risen from 47% to 52%.

In 2013, more than half (52%) of adult ever-smokers had quit smoking (they had not smoked in the last 12 months). This was an increase from 47% in 2010.

SOURCE: AIHW (2016)

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Effectiveness of health promotion to reduce smoking for improving health and wellbeing

According to the Australian Health Policy Collaboration (2016): 'Mass media campaigns are effective, they have a direct influence on young people and adults. They can contribute to the efforts to de-normalise smoking by influencing family and peer discussions about smoking and therefore social norms and attitudes towards smoking. Importantly, they complement and support the implementation of other tobacco control policies, such as tobacco tax increases, plain packaging and efforts to reduce smoking among disadvantaged groups. Mass media campaigns are also cost-effective, as large numbers of people can be reached by campaign messages. There are numerous studies that have demonstrated that returns on investment exceed the costs of the campaigns' (*Getting Australia's Health On Track*, AHPC, 2016).

Due in part to the effectiveness of anti-smoking campaigns, there have been some positive changes to smoking rates. People are delaying the uptake of smoking (in the age range 14–24 years, more people delayed the uptake – 14.2 in 2010, 16.3 in 2016). Smokers are smoking fewer cigarettes (with weekly cigarettes smoked decreasing from 111 per week in 2001 to 94 per week in 2016). Fewer people are being exposed to second-hand tobacco smoke (with the number of children exposed to tobacco smoke in the home decreasing from 31 per cent in 1995 to 2.8 per cent in 2016).

While there have been significant improvements in reducing exposure to tobacco smoke, these are yet to be reflected as positively in the death rates for lung cancer. This is because the damage caused by tobacco smoking can often take a long period of time to result in cancer. This means that with the declines seen in smoking rates over the past decade, it can be expected that over time there will be a decline in lung cancer rates.

Changes to policy, legislation and taxation are also examples of health promotion that have been effective in reducing tobacco smoking rates. Legislation that has banned smoking in public places such as pubs and clubs has had a significant impact on reducing smoking rates among low-SES population groups, while increases in taxation on cigarettes have also led to reductions in smoking.

6.3 ROLE OF HEALTH PROMOTION IN PROMOTING ROAD SAFETY

Road safety refers to any action taken or modification made to prevent road users from being injured or losing their lives. Road users can include pedestrians, cyclists, motorcyclists, motor vehicle passengers, motor vehicle drivers and users of on-road public transport such as buses or trams.

There are a number of factors that can promote road safety, including:

- **safer roads:** keeping roads in good repair and making changes such as addressing accident black spots, introducing flexible road barriers, better signage and tactile edging on roads
- **safer drivers:** reducing the range of behavioural risks, such as not wearing seatbelts, alcohol and drug use, speeding, driving while fatigued and distractions such as mobile phones
- **safer vehicles:** introducing a range of safer features in cars, such as lane departure warnings, electronic stability control and auto emergency braking which are recent developments in creating safer vehicles
- **safer road laws:** creating legislation about speed limits, seatbelts, and drug and alcohol use while driving.

Why road safety was targeted

Transport accidents were the leading cause of hospitalisation for males aged 15–24 years in 2013–14 (613 per 100 000) in Victoria. Males of this age were 2.2 times more likely to be hospitalised for transport accident injuries than females (276 per 100 000). In 2016, 292 people died on Victorian roads, a number that

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decreased to 213 in 2018, the lowest number of road deaths since records began. There were also 4951 people who were seriously injured as a result of transport accidents in 2013–14.

Some population groups are more affected than others; for example, younger drivers, males and those in rural areas. There are more fatalities from transport accidents in rural areas (56 per cent) than metropolitan areas (44 per cent), even though people in rural areas only account for 25 per cent of the population, and males are approximately 3.5 times more likely than females to die on Australian roads.

Another reason why road safety is targeted is because deaths from transport accidents are preventable. Changes such as a small reduction in speed can have a significant impact on the severity of a crash. It is also estimated that if all Victorians swapped their cars to the safest vehicle in the same class as their current vehicle, road trauma would drop by one third. Single vehicle crashes are by far the most common type of traffic accidents that result in fatalities (54 per cent) indicating that many traffic accidents are caused by driver behaviours.

Road crashes also have a significant economic impact on the Australian Government and those who are injured due to the cost of treatment, rehabilitation, social security payments, lost productivity, cost of care and lost income. According to the TAC, the economic cost of road trauma per year is around $6 billion.

TABLE 6.7 History of health-promotion initiatives to address road safety

1970	1061 road deaths in Victoria
1970	Introduction of compulsory wearing of seatbelt in Victoria
1976	Introduction of random breath testing to reduce the number of transport accidents due to alcohol
1983	Introduction of red light cameras to reduce transport accidents at intersections
1986	Introduction of speed cameras to reduce transport accidents from speeding
1986	Transport Accident Commission (TAC) established
1990	Compulsory wearing of bicycle helmets in Victoria
1991	Road black spot program implemented, targeting dangerous crash sites
2001	Speed limit in urban streets reduced to 50 km/h
2003	Arrive Alive road safety strategy implemented
2004	Introduction of 40 km/h speed zones around schools
2006	Random drug testing introduced
2008	Graduated licensing system introduced
2008	Arrive Alive 2 road safety strategy implemented
2016	Towards Zero Strategy and Action Plan implemented

DISCUSS



Discuss how this initiative might promote road safety.

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Finally, road safety is targeted because traffic accidents affect all road users including drivers, passengers, motorcyclists, pedestrians and cyclists.

Examples of health promotion to address road safety

As discussed earlier, there have been a wide range of health-promotion strategies in recent decades to improve road safety, including:

- changes to legislation and policy
- Transport Accident Commission (TAC) media campaigns
- Driver Reviver National Campaign (operated by the Victoria State Emergency Service and Lions Club members in Victoria)
- programs to target specific population groups, such as VicRoads' Kids on the Move
- The PARTY, an initiative of the Royal Melbourne Hospital and the Alfred Hospital in Victoria
- comprehensive road safety strategies such as the Victorian Government's 2016–20 Towards Zero Strategy and Action Plan, and the National Road Safety Strategy 2011–20.

Towards Zero

The 2016–20 Towards Zero Strategy and Action Plan is about saving as many lives and reducing as many serious injuries as possible. It takes a community approach to road safety, and the strategy is developed around the belief that everyone must take responsibility. The Victorian Government has set a target to reduce lives lost on our road by 200 people over the next five years (a 20 per cent reduction in deaths). The Road Safety Strategy is about creating a safe system for all Victorians and

TABLE 6.8 How Towards Zero reflects the Ottawa Charter for Health Promotion

OTTAWA CHARTER ACTION AREAS	HOW TOWARDS ZERO REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Build healthy public policy	Through changing the number of hours of night driving by learner drivers and new legislation requiring that all drink drivers caught over the limit will have to drive vehicles with alcohol interlocks, Towards Zero is building healthy public policy.
Strengthen community action	Involving five key organisations to oversee the Towards Zero strategy and action plan (Department of Transport, TAC, Department of Human Services, Department of Justice and Regulation and Victoria Police) encourages community action by working with local government, community groups and sharing the responsibility of road safety with the Victorian community as these organisations will need to work together to achieve the common goal of Towards Zero.
Create supportive environments	The addition of barriers or tactile centre and edge lines on more than 2500 km of the riskiest parts of the high-speed rural road network and the removal of 50 of Victoria's most dangerous level crossings will help to create a supportive physical environment with the aim of reducing the number of transport accidents.
Develop personal skills	Through the initiative to provide mandatory training for motorcyclists and a practical safe driving program for secondary school students, Towards Zero aims to develop personal skills by teaching safe driving behaviours.
Reorient health services	The development of a better system of online medical reports to allow timely and high-quality assessments to help keep older drivers safer on the roads is reorienting health services because doctors are working to prevent fatalities among older drivers by ensuring that details about their health are easily accessible online.

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ACTIVITY 6.4: EXPLORING TOWARDS ZERO



FIGURE 6.6 Towards Zero – Meet Graham initiative

Watch the following YouTube videos to learn more about Towards Zero:

- *Towards Zero – There's No One Someone Won't Miss*
- *Rethink Speed – TAC 2016*
- *The Science Behind the TAC's Sculpture Graham – TAC* 2016
- *Meet Graham* (https://cambridge.edu.au/redirect/8641)

1 Outline the message in each of the media campaigns: There's No One Someone Won't Miss, Rethink Speed and Meet Graham.

2 Explain how each of these three campaigns aims to improve road safety.

3 Justify how successful you think each of these initiatives will be in reducing road trauma.

this includes working to create safer roads and roadsides, safer speeds, safer vehicles and safer road use by all road users. Central to Towards Zero is the belief that human health is paramount, and that we need to work together to protect it. Towards Zero acknowledges that all humans make mistakes; however, when mistakes happen on the roads they can cause serious injury or death. The human body is strong but if it is hit at high speed, there is a limit to the force it can withstand. There are five key organisations that all work together to oversee the Towards Zero program: VicRoads, the TAC, the Department of Human Services, the Department of Justice and Regulations and Victoria Police.

The principles of Towards Zero include the following:

- Human health is paramount.
- People make mistakes.
- People are fragile.
- People have a limited tolerance to physical forces.
- Road safety is a shared responsibility.

Towards Zero believes it is vital for Victoria to create a system that can absorb drivers' mistakes and it invests in:

- safe roads
- safe speeds
- safe vehicles
- safe people.

Australasian New Car Assessment Program (ANCAP)

The Australasian New Car Assessment Program (ANCAP) is Australasia's leading independent vehicle safety advocate. ANCAP provides consumers with transparent advice and information on the level of occupant and pedestrian protection provided by different vehicle models in the most common types of crashes, as well as their ability (through technology) to avoid a crash.

ANCAP undertakes crash testing on passenger and light commercial vehicles sold in Australia and New Zealand. Vehicles are awarded a safety rating from between one and five stars. This rating provides consumers with a guide as to how a car performs in regards to safety in the event of a crash. ANCAP

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TABLE 6.9 How the ANCAP ratings program reflects the Ottawa Charter for Health Promotion

OTTAWA CHARTER ACTION AREAS	HOW THE ANCAP RATINGS PROGRAM REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Build healthy public policy	ANCAP has developed a new policy in an attempt to better align safety rating with Euro NCAP.
Develop personal skills	Through educating consumers on new vehicle safety features and safer vehicle choices, and educating and influencing decision-makers to advocate for improved vehicle safety, ANCAP aims to develop personal skills.
Strengthen community action	ANCAP strengthens community action by working with 23 member organisations in Australia and New Zealand, such as the TAC, VicRoads and Royal Automobile Club of Victoria (RACV). It also maintains strong links with other NCAPs and international advocates to lift and align safety standards around the world and to work with vehicle brands to raise the bar on safety while remaining independent.
Create supportive environments	Through providing an informative website that consumers can access 24 hours a day to check the safety star rating of a vehicle they might be looking to purchase, ANCAP aims to create a supportive environment through supporting consumers to purchase safer vehicles.

recommends five-star rated cars. ANCAP's vision is: Safe vehicles for all. It's mission is to work with members and partners to eliminate road trauma through independent assessment, market influence and consumer advocacy.

ANCAP aims to improve road safety not only by making consumers more aware of the safety of the vehicle they are purchasing, but also through encouraging car manufacturers to make their vehicles safer. ANCAP has support from 23 member organisations in Australia and New Zealand, such as the TAC, VicRoads and the Royal Automobile Club of Victoria (RACV). Since 1993, ANCAP has published crash test results for more than 590 vehicles sold in Australia and New Zealand. According to ANCAP, prior to the year 2000, just over 60 per cent of vehicles were rated three stars or less and in 2015 only 2 per cent were rated two stars or less, with 86 per cent of vehicles being rated five stars. ANCAP have worked with Euro NCAP and testing laboratories to develop and implement a common test protocol in 2018, and have developed a new policy document to transition to better alignment with Euro NCAP. (Euro NCAP is the European New Car Assessment Programme founded in 1996 in the UK and backed by several European governments and the European Union.)

Effectiveness of health promotion in increasing road safety and improving health

Reducing road deaths is one of the biggest success stories in health promotion in Australia. At the same time as the number of registered vehicles continued to increase, the number of road deaths in Australia reduced from nearly 3800 in 1970 to fewer than 1226 in 2017.



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ACTIVITY 6.5: GRADUATED LICENSING SYSTEM – HELPING YOUNG DRIVERS BE SAFER DRIVERS

1 Access the VicRoads website via your preferred browser. Watch *The Direct Route to Licence Town* video and read the Graduated Licensing System fact sheet.
2 Explain how the graduated licensing system can promote the health of all Australians.
3 Explain how the graduated licensing system reflects the action areas of the Ottawa Charter for Health Promotion.

Connecting our communities

Information update
October 2019

Graduated Licensing System

Helping young drivers be safer drivers

What is the Graduated Licensing System?
The Graduated Licensing System (GLS) is designed to help improve the safety of young drivers.

There have been significant reductions in the road toll but young drivers continue to have more casualty crashes than any other group of drivers on the road.

The facts are simple:

- Each year about 90 people are killed and 1,800 are seriously injured in crashes involving 18-25 year old drivers.
- Probationary drivers are involved in casualty crashes at three times the rate of more experienced drivers.
- More young people die from road crashes than any other causes in Victoria.

Experience shows that it is possible to have a significant effect on the safety of young drivers through the licensing system.

The GLS structures the licensing process so that learning to drive is fully supported and restrictions are placed on risky solo driving situations.

How does the system work?
Young driver crashes are caused by many factors such as inexperience, driving in high risk situations such as driving late at night or with multiple passengers, and unsafe behaviours such as speeding, drink or drug driving and inattention from distractions like mobile phones. The GLS addresses these factors through the following requirements.

Learner permit for 12 months
A person can apply for their learner permit when they are aged at least 16 years, and must pass a computerised learner permit knowledge test. If aged less than 21 years at the time of applying for a probationary licence, the person must have held a learner permit for a minimum of 12 months.

120 hours of supervised driving
Learner drivers aged less than 21 years when applying for their probationary licence must complete at least 120 hours of on-road supervised driving in a variety of conditions, including 10 hours of night driving. These hours must be recorded in the official VicRoads Learner Log Book.

Drive Test and Hazard Perception Test
All learner drivers applying for a probationary licence must pass a challenging on-road Drive Test and computerised Hazard Perception Test.

P1 and P2 probationary licences
Victoria has a two stage probationary driver licence. A P1 licence is issued for the first 12 months followed by a P2 licence for three years. If you are 21 or over when you obtain your probationary licence you will become a P2 licence holder. P1 licence holders must display a red P plate. P2 licence holders must display a green P plate.

P drivers can't drive probationary prohibited vehicles
A vehicle is a probationary prohibited vehicle (PPV) if it has:

- a power to mass ratio of greater than 130 kilowatts per tonne, or
- an engine that has been modified to increase the vehicle's performance (other than a modification made by the manufacturer in the course of the manufacture of the vehicle), or



- been declared a PPV by a notice published in the Victorian Government Gazette.

Exemptions may be available for undue hardship.

For more information go to **vicroads.vic.gov.au**

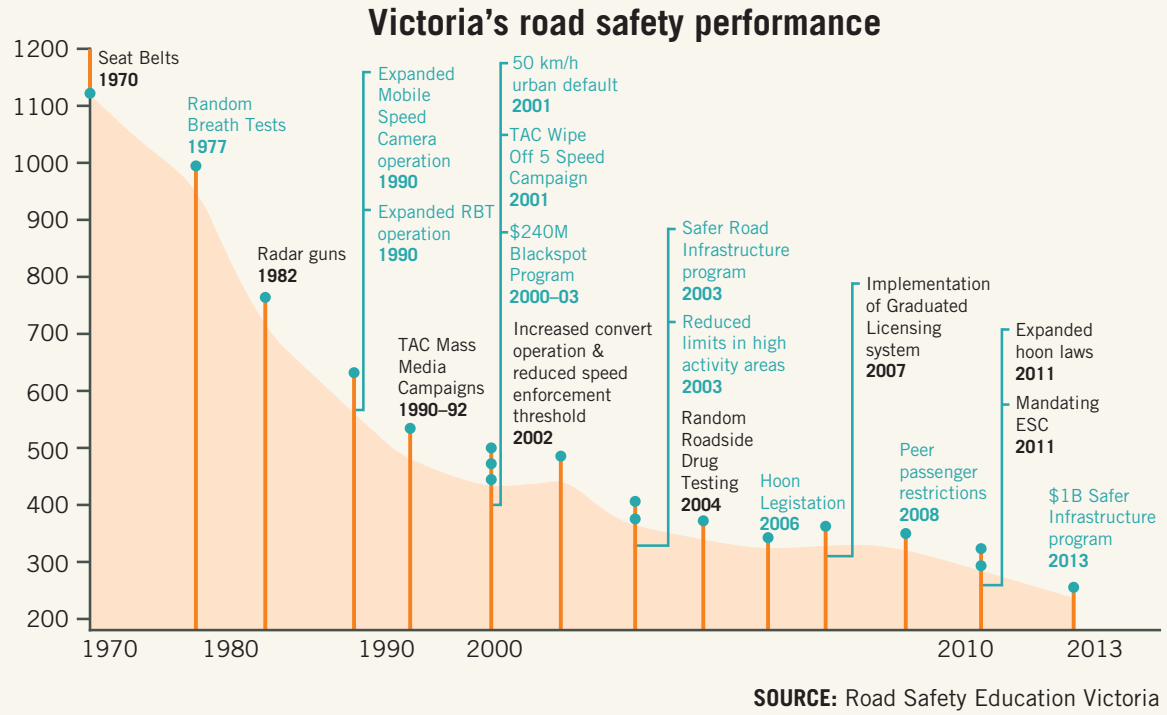
If you drive a probationary prohibited vehicle, you will be fined and incur three demerit points.

Peer passenger restriction
A driver on a P1 probationary licence is not permitted to carry more than one peer passenger (aged 16 to under 22 years of age). Peers do not include siblings and this rule does not apply when supervised by a fully licensed driver in the front passenger seat.

vicroads TRANSPORT FOR VICTORIA

FIGURE 6.7 Graduated licensing system

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Note: Orange shade represents road deaths.

FIGURE 6.8 Road safety: it started with seat belts and has continued over 40 years

This decline can be attributed to a range of health-promotion initiatives, such as changes in legislation, improvements in road conditions, improvements in vehicle safety and initiatives to promote safer driving behaviours. There have also been improvements in the safety of roads, vehicles and driver behaviours over the past five to seven years that have continued to reduce the number of fatalities on Australian roads.

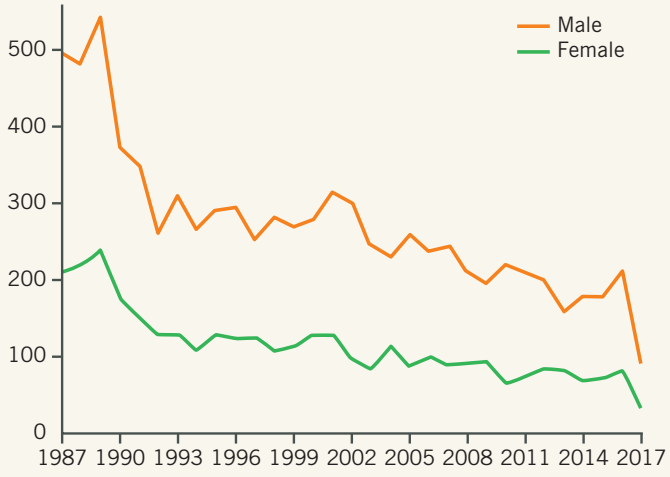


FIGURE 6.9 Victorian road deaths, 1987–2017, males and females

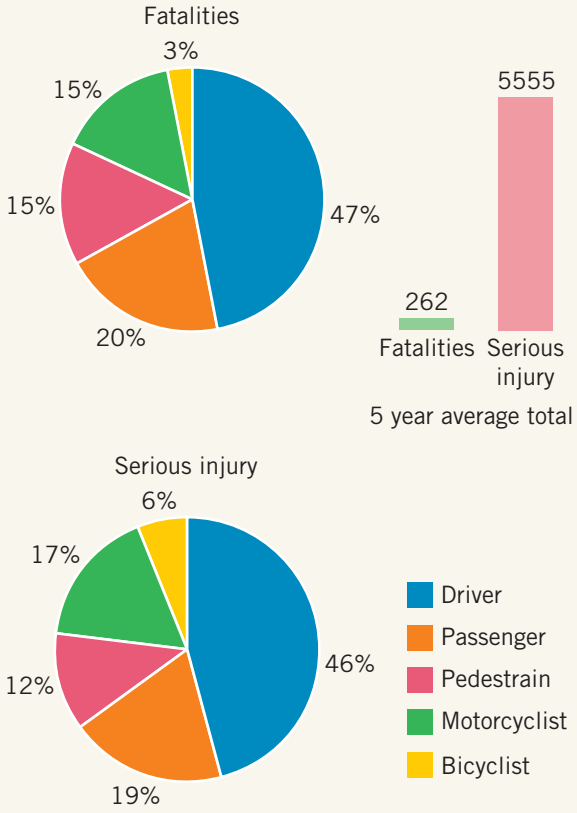


FIGURE 6.10 Victorian five-year average deaths and serious injuries, by road user

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TABLE 6.10 Victorian road deaths by age group, 1987–2018

SELECT YEARS 1987–2018	5–15 YEARS	16–17 YEARS	18–20 YEARS	21–25 YEARS	26–29 YEARS	30–39 YEARS	40–49 YEARS	50–59 YEARS	60–69 YEARS	70+ YEARS	UNKNOWN	TOTAL
1987	45	33	106	107	53	95	64	52	43	96	0	705
1996	15	10	54	70	43	54	45	34	35	52	1	418
2006	11	16	29	35	29	61	48	32	23	50	0	337
2009	11	6	36	26	19	43	41	35	23	44	0	290
2012	7	3	30	34	18	42	29	37	31	47	1	282
2013	5	3	16	22	17	29	31	29	31	59	1	243
2015	3	15	25	18	24	30	38	28	23	46	0	252
2017	3	5	21	27	15	37	42	28	26	53	0	257
2018	8	1	12	16	16	39	20	30	27	42	1	212
TOTAL	108	92	329	355	234	455	358	305	262	489	4	

SOURCE: TAC (2017 and 2019)

TABLE 6.11 Road fatalities in Australia, by age group, 2011–19

CALENDAR YEAR	0–16	17–25	26–39	40–64	65–74	≥75	AUSTRALIA
2008	87	377	345	395	86	147	1437
2009	106	362	355	445	94	129	1491
2010	74	336	305	418	97	122	1353
Baseline	**89**	**358**	**335**	**419**	**92**	**133**	**1427**
2011	93	280	375	398	83	148	1277
2012	70	284	300	400	96	149	1300
2013	66	230	243	374	118	156	1187
2014	65	235	251	359	109	130	1151
2015	65	225	272	373	118	151	1204
2016	60	265	290	412	103	163	1293
2017	48	244	237	391	121	181	1222
2018	52	225	257	355	114	129	1136
2019	48	238	254	378	107	169	1194
2 months to Jan 2020	*44*	*227*	*260*	*362*	*104*	*164*	*1161*
Jan 2020 % change to baseline	***–50.6%***	***–36.6%***	***–22.4%***	***–13.6%***	***+13.0%***	***+23.3%***	***–18.6%***

SOURCE: National Road Safety Strategy (2020)

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ACTIVITY 6.6: SUCCESS OF ROAD SAFETY STRATEGIES

Refer to Tables 6.10 and 6.11 and Figures 6.8, 6.9 and 6.10.

1 Explain the impact of specific road safety health-promotion initiatives on the health of Victorians.

2 Justify, using examples, how successful you feel these initiatives have been.

6.4 ROLE OF HEALTH PROMOTION IN REDUCING SKIN CANCER

Skin cancer refers to the uncontrolled and abnormal growth of skin cells. Cancer Council Australia estimates that two out of three Australians will be diagnosed with skin cancer by the age of 70.

Melanoma skin cancer starts from cells in the skin called melanocytes, which produce melanin that gives the colour to skin. Melanoma is the most deadly type of skin cancer because it can grow quickly and spread to other parts of the body.

Non-melanoma skin cancer refers to all forms of skin cancer that do not start in the melanocyte cells. The two most common types include basal cell carcinoma and squamous cell carcinoma.

Skin cancer has a range of risk factors, which include the following:

- Exposure to ultra violet (UV) radiation can damage DNA and increase the risk of skin cancer. Solariums are reported to emit up to five times the UV radiation of the sun, making past solarium use a significant risk factor. The source of UV exposure is usually the sun, however, and the risk of skin cancer increases with an increase in UV exposure over time and with episodes of sunburn.
- Family history is also a risk factor. People with a first-degree relative (parent, sibling or child) with melanoma have a greater risk of being diagnosed. Those who have a family history of non-melanoma skin cancer are at a significantly higher risk of developing a non-melanoma skin cancer.
- Age is a risk factor for skin cancer because the risk of being diagnosed generally increases with age. This is because the amount of exposure to the sun in our lifetime and the number of episodes of sunburn can take effect as we increase in age.
- Skin type can be a risk factor because melanin in the skin protects it from the sun and this puts people with fairer skin at greater risk. However, a risk for people with darker skin is that the cancer is often diagnosed at a later stage because the skin changes are more difficult to see; this makes them more life-threatening.
- Gender can also be a risk factor in that males tend to be more likely to develop melanoma than females. This is because males are more likely to work and be physically active outdoors and this puts them at greater risk of death from skin cancer.

Health promotion plays an important role in educating people about how to protect their skin from cancer. This includes: media campaigns about the signs to look for and the importance of early detection; changing the environment by means such as providing more shade; changing policy to reduce skin cancer, such as through the banning of solariums; and health-promotion campaigns to remind people of prevention strategies.

Why skin cancer is targeted

According to the AIHW, it is estimated that there were 13 283 cases of melanoma skin cancer diagnosed in 2016, which was an increase from 2012 when there were 12 036 cases diagnosed, and 1982 when there were 3526 cases diagnosed. Melanoma skin cancer is the fourth most commonly diagnosed cancer and accounted for approximately 10 per cent of all cancers diagnosed in 2016 in Australia.

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In 2017, melanoma was the third most commonly diagnosed cancer in males, with 8392 cases diagnosed (or one in 13). In females, melanoma was the third most commonly diagnosed cancer in 2017, with 5549 cases diagnosed (or a rate of one in 23).

It is estimated that there were 1839 deaths from melanoma skin cancer in 2017. This was an increase from 1617 deaths in 2013 and 315 deaths in 1968. In line with the number of cases to be diagnosed, the estimated mortality for melanoma skin cancer in 2017 was higher for males (1280) than for females (559).

Skin cancer is targeted for health promotion because of its significant economic burden, with nearly $9.4 million in benefits paid by Medicare for melanoma-related services and nearly $117.6 million on non-melanoma skin cancer-related benefits in 2014. It is also targeted because it is a condition that is largely preventable and has a considerable impact on the emotional and mental health and wellbeing of an individual.

Examples of health promotion to address skin cancer

Preventing skin cancer relies largely on behaviours of individuals and the actions that people take to protect their skin from UV damage. There is some opportunity to make changes in policy (particularly in schools) and change the environment (through creating more shade), but most of the responsibility to protect our community from skin cancer rests on individuals and their SunSmart behaviours. Most health-promotion initiatives to address skin cancer in Victoria are initiatives of the Cancer Council and its SunSmart program.

Many health-promotion initiatives have been implemented over the past few decades to address the incidence of skin cancer, including:

- changes to policies and legislation (such as solarium use)
- SunSmart initiatives.



FIGURE 6.11 SunSmart is one of the most successful skin cancer-prevention programs in the world.

SunSmart

SunSmart was first funded by Cancer Council Victoria and the Victorian Health Promotion Foundation (VicHealth) in Victoria in 1988. Today programs are operated in each state and territory of Australia by individual Cancer Councils, all using common principles but tailored to reflect the priorities of each state.

SunSmart is a program that is internationally recognised for providing leadership in UV protection. The original Slip! Slop! Slap! sun protection message has now expanded to Slip! Slop! Slap! Seek and Slide!

The aims of the SunSmart program in Victoria are to improve skin cancer prevention awareness, knowledge, attitudes and behaviours; support priority populations to detect skin cancers earlier; and advocate for measures that aim to reduce the health and economic burdens of skin cancer.

SunSmart has implemented a broad number of health-promotion initiatives to affect sun-protective behaviours of individuals and the community. It also advocates for broader environmental and legislative change. SunSmart also works with early childhod services, primary and secondary schools, workplaces, health professionals, local government and sporting clubs to promote healthy UV exposure. It reinforces the SunSmart message through media campaigns that communicate key messages.

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Examples of health promotion that have been implemented by the SunSmart program include:

- SunSmart Schools and Early Childhood Membership Program
- a 'UV. It all adds up' media campaign
- the SunSmart and see UV apps
- SunSmart's workplace UV safety training program
- advocacy for legislation to ban solariums.



FIGURE 6.12 SunSmart's Slip! Slop! Slap! Seek! and Slide! media campaign

ACTIVITY 6.7: THE SUNSMART PROGRAM HEALTH-PROMOTION INITIATIVES

Watch the YouTube video *SunSmart – Celebrating 30 years Protecting Victorians*.

1 Outline some of the SunSmart health-promotion initiatives that have been implemented over the past 30 years.
2 Other than the SunSmart Schools program, research one of the SunSmart health-promotion initiatives.
3 Justify how effective you feel this health-promotion initiative is.
4 Outline how this SunSmart health-promotion initiative reflects the action areas of the Ottawa Charter for Health Promotion.

TABLE 6.12 How SunSmart reflects the Ottawa Charter for Health Promotion

OTTAWA CHARTER ACTION AREA	HOW SUNSMART REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Build healthy public policy	Through lobbying to ban the use of solariums and through the development of policies as part of the SunSmart Schools initiative, the SunSmart program helps to build healthy public policy.
Strengthen community action	Through a range of SunSmart health-promotion initiatives, such as lobbying for changes in legislation and working with schools and workplaces in the SunSmart Schools and SunSmart workplaces initiatives, SunSmart helps to strengthen community action.
Develop personal skills	Through working to spread its health-promotion message 'Slip, Slop, Slap, Seek, and Slide', SunSmart aims to develop personal skills by educating people about the actions they can take to protect their skin from skin cancer.
Create supportive environments	Through the SunSmart Schools initiative, SunSmart creates supportive environments as it encourages schools to build shade to promote supportive physical environments. It also promotes education and the promotion of the Slip! Slop! Slap! Seek! and Slide! message on posters, which helps to promote a supportive social environment.
Reorient health services	Through providing specialised training and education for doctors and encouraging them to spread the SunSmart message during consultations with patients, the SunSmart program helps to reorient health services.

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AOS 2

ACTIVITY 6.8: WORKPLACE SUN SAFETY

1 Investigate the responsibilities of employers in ensuring the sun safety of their employees.
2 Identify ways the government supports the sun safety of employees.

TABLE 6.13 SunSmart campaign timeline

1980	Slip! Slop! Slap! mass media campaign
1988	SunSmart born – a broader skin cancer campaign
1990s	Slip! Slop! Slap! message adapted to suit young men as an audience, SunSmart schools campaign began
Mid 1990s	Graphic melanoma advertisements
2005	Slip! Slop! Slap! refreshed – Slip! Slop! Slap! Seek! and Slide! campaign
2005	SunSmart focuses on workplaces and the implementation of SunSmart polices in workplaces
2007	'No tan is worth dying for' campaign (Clare Oliver and Cancer Council)
2015	Solariums banned
2020	Focus on improving the sun protection practices and policies in Victorian secondary schools.



FIGURE 6.13 SunSmart in the workplace became a focus in 2005.

SKIN CANCERS COMMON, BUT MELANOMA RATES FALLING AMONG YOUNGER PEOPLE

Skin cancers overall account for the largest number of cancers diagnosed in Australia each year and Australia has the world's second highest melanoma incidence rate, according to a report released today by the Australian Institute of Health and Welfare (AIHW).

The report, Skin Cancer in Australia, presents the latest information on skin cancers – a disease group including melanoma of the skin and non-melanoma skin cancer – in Australia.

The report estimates that almost 13 300 new cases of melanoma will be diagnosed in Australia in 2016, with about 1800 people dying from the disease.

'Since 1982, the rate of melanoma in the population has almost doubled, up from 27 to 49 cases per 100 000 people,' said AIHW spokesperson Justin Harvey.

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'The good news is that for people aged under 40 the rate has dropped, from 13 cases per 100 000 people in 2002 to about nine in 2016.'

Long-running public education campaigns on the effects of sun exposure may be related to this decrease.

The report also shows that survival from melanoma is relatively high, with people diagnosed in 2007–11 having a 90 per cent chance of surviving at least five years. This is much higher than the five-year survival rate for all cancers combined (67 per cent).

The total number of new cases of non-melanoma skin cancer is unknown. However, non-melanoma skin cancer is estimated to account for more cases diagnosed than all other cancers combined.

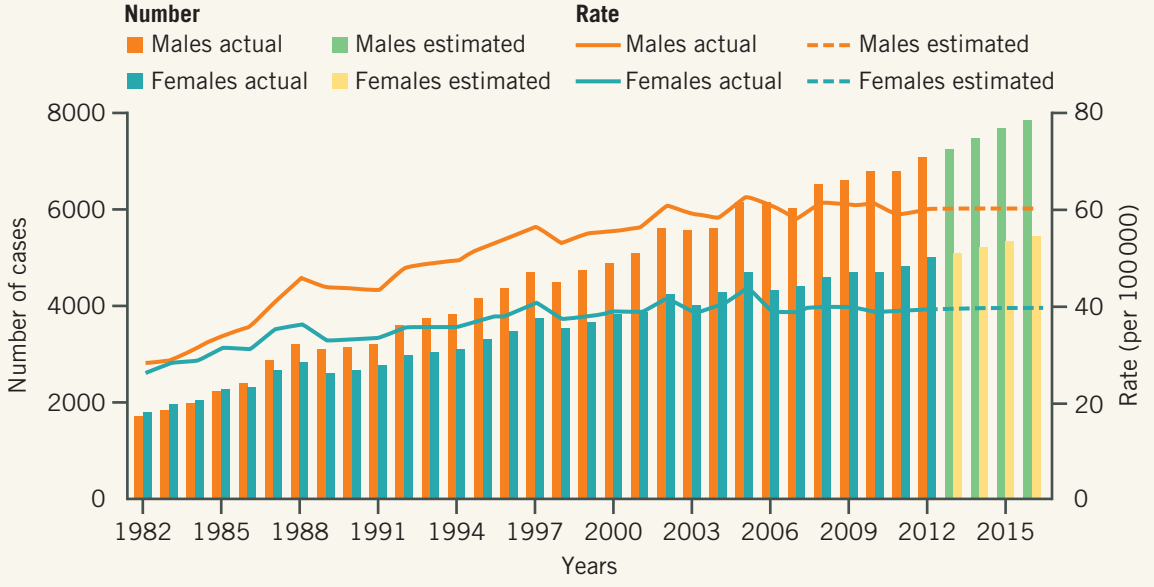
'In 2016, an estimated 560 people will die from non-melanoma skin cancer, with a death rate of 1.9 deaths per 100 000 people,' Mr Harvey said.

Hospitalisations for all types of skin cancer are also common, and have increased significantly over the last decade.

In 2013–14, there were over 23 400 melanoma-related hospitalisations in Australia, a 63 per cent rise from the 14 350 recorded in 2002–03. Over the same period, non-melanoma skin cancer-related hospitalisations rose by 39 per cent, from about 82 400 in 2002–03 to around 114 700 in 2013–14.

In 2014, almost $137 million in Medicare benefits was paid for melanoma-related services ($9.4 million) and non-melanoma skin cancers ($127.5 million). Excluding cancer screening expenses, non-melanoma skin cancer accounted for over 8 per cent of health spending on all cancers in Australia in 2008–09.

SOURCE: AIHW (2016)



SOURCE: AIHW (2016)

FIGURE 6.14 Actual and estimated skin cancer mortality rate, 1982–2015, males and females

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ACTIVITY 6.9: SKIN CANCER

1 Explain what skin cancer is.
2 Outline two trends in Figure 6.14.
3 Outline the risk factors for skin cancer.
4 Outline the protective factors for skin cancer.
5 Explain the role of health promotion in preventing skin cancer.
6 Explain some barriers that people might face in relation to being sun smart.

AOS 2

SUNSMART SCHOOLS

All Victorian schools are eligible to apply for SunSmart membership, and almost 90 per cent of Victorian primary schools are registered SunSmart members.

SunSmart has membership criteria, which must be met to join the program. For example, schools must have SunSmart policies and practices that follow SunSmart guidelines such as those in the sample below.

In order to receive SunSmart status and recognition, primary schools must:

- have a written sun protection policy meeting minimum standards relating to curriculum, behaviour and the environment
- be working to increase shade
- teach, model and reinforce positive sun protection behaviour
- agree to undertake periodic policy reviews with Cancer Council Victoria, and update their policy accordingly to meet SunSmart standards.

SOURCE: Cancer Council Australia (2015)

The following is part of a sample SunSmart policy for primary schools that is used as part of the SunSmart initiative 'SunSmart Schools Program'. This policy covers the key features of the SunSmart Schools initiative.

PURPOSE

This SunSmart policy provides guidelines to:

- ensure all students and staff are protected from over-exposure to UV radiation;
- ensure the outdoor environment provides shade for students and staff;
- ensure students are encouraged and supported to develop independent sun protection skills to help them be responsible for their own sun protection;

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- support our school's strategies to meet its duty of care and occupational health and safety obligations to minimise harmful UV exposure for students, staff and visitors.

BACKGROUND

Too much of the sun's UV can cause sunburn, skin and eye damage and skin cancer. UV damage accumulated during childhood and adolescence is strongly associated with an increased risk of skin cancer in later life. Australia has one of the highest rates of skin cancer in the world, with two in three Australians developing some form of skin cancer before age 70.

LEGISLATION AND STANDARDS

- *Occupational Health and Safety Act 2004*
- *Education and Training Reform Act 2006*: Sch. 5, Reg. 1 (1.2)

PROCEDURES

- To assist with the implementation of this policy, staff and students are encouraged to access the daily local sun protection times via the SunSmart widget on the school's website, the free SunSmart app or at sunsmart.com.au.
- The sun protection measures listed are used for all outdoor activities during the daily local sun protection times. The sun protection times are a forecast from the Bureau of Meteorology for the time of day UV levels are forecast to reach 3 or higher. At these levels, sun protection is recommended for all skin types. In Victoria, UV levels regularly reach 3 or higher from mid-August to the end of April.

ENVIRONMENT

Seek *shade*

- The school council makes sure there are sufficient shelters and trees providing shade in outdoor areas, particularly in high-use areas, e.g. where students have lunch, canteen, assemblies, sports, outdoor lessons and popular play spaces.
- The availability of shade is considered when planning all other outdoor activities.
- Students are encouraged to use available areas of shade when outside.
- Students who do not have appropriate hats or outdoor clothing are asked to play in the shade or a suitable area protected from the sun.
- In consultation with the school council, shade provision is considered in plans for future buildings and grounds.
- A shade assesment is conducted regularly to determine the current availability and quality of shade.

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AOS 2

BEHAVIOURS

Slip on *sun protective clothing*.

- Cool, loose-fitting, sun protective clothing made of densely woven fabric is included in our school uniform / dress code and sports uniform. It includes shirts with collars and elbow-length sleeves, longer dresses and shorts and rash vests or t-shirts for outdoor swimming.

Slap on a *sun protective hat*.

- All students and staff wear hats that protect their face, neck and ears (legionnaire, broad-brimmed or bucket hat), whenever they are outside. Peak caps and visors are not considered a suitable alternative.

Slop *on sunscreen*.

- Students must provide their own SPF30 (or higher) broad-spectrum, water-resistant sunscreen.This is included on the school's booklist each year.

AND/OR

- The school supplies SPF30 (or higher) broad-spectrum, water-resistant sunscreen for staff and students' use.
- Sunscreen is applied in accordance with the manufacturer's directions (applied at least 20 minutes before going outdoors and reapplied every two hours, or more frequently if sweating or swimming).
- Strategies are in place to remind students to apply sunscreen before going outdoors (e.g. reminder notices, sunscreen monitors, sunscreen buddies).

Slide on *sunglasses* [if practical].

- Where practical students wear close-fitting, wrap-around sunglasses that meet the Australian Standard 1067 (Sunglasses: Category 2, 3 or 4) and cover as much of the eye area as possible.

LEARNING

Programs on sun protection are included in the curriculum for all year levels.

SunSmart behaviour is regularly reinforced and promoted to the whole school community through newsletters, school website/intranet, staff and parent meetings, school assemblies, student and teacher activities and on student enrolment/new staff orientation.

OHS

As part of OHS UV risk controls and role-modelling, staff, families and visitors:

- wear a sun protective hat, covering clothing and, if practical, sunglasses
- apply SPF30 (or higher) broad-spectrum, water-resistant sunscreen
- seek shade whenever possible.



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MONITORING AND REVIEW

- The school council and staff monitor and review the effectiveness of the SunSmart policy and revise the policy when required (at least once every three years) by completing a policy review and membership renewal with SunSmart at the SunSmart website.
- SunSmart policy updates and requirements will be made available to staff, families and visitors.

SOURCE: Cancer Council Victoria (2019)

ACTIVITY 6.10: SUNSMART SCHOOLS

1 Discuss the role of the SunSmart Schools health-promotion initiative in promoting health and wellbeing.
2 Outline, using examples, how the SunSmart Schools initiative reflects the action areas outlined in the Ottawa Charter.

Effectiveness of health promotion in addressing skin cancer and promoting health and wellbeing

SunSmart has been very successful in implementing a wide range of health-promotion initiatives that aim to reduce harmful UV exposure and reduce the risk of skin cancer. It was successful in advocating for the banning of solariums and commercial tanning units and solariums have been banned in Victoria since 1 January 2015. This will reduce the risk of melanoma and save lives.

The SunSmart Schools initiative has been effective, with almost 90 per cent of Victorian primary schools having a sun protection policy and being registered as SunSmart schools. This means that the benefits of the program reached over 460 000 Victorian primary school students. This is an increase from 1993, prior to the SunSmart Schools Program commencing, when only 17 per cent of Victorian primary schools had a sun protection policy. This is one of the highest participation rates across all states in Australia, and one of the highest participation rates for any public health intervention in Australia.

SunSmart is an example of a very cost-effective health-promotion initiative with a $2.20 saving for every dollar spent in the Victorian program, and is one of a handful of Australian public health interventions assessed as being 'excellent value for money'.

The SunSmart app has been downloaded by over 350 000 users, which means that these people now have access to UV alerts or sun protection times on their device to help them make decisions about sun protection and reduce the risk of skin cancer.

Independent evaluation of the SunSmart program found that it prevented more than 103 000 skin cancers in Victoria between 1988 and 2003, resulting in more than 1000 deaths being averted.

In Victoria, the overall melanoma incidence is increasing; however, there are now falling incidence rates in men and women younger than 40 years. This is the sub-group in the community that has been exposed to up to 30 years of SunSmart messages being delivered through health-promotion initiatives to promote behaviour change.

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FIGURE 6.15 SunSmart developed a variety of tools to assist institutions with spreading information about sun protection.

The incidence of melanoma rose between 1982 and 2012, and since then it has remained stable. The incidence in 2012 was 49 new cases per 100 000 population. While the number of new cases has remained fairly stable, the five-year survival rate has increased during the same period.

6.5 INITIATIVES TO IMPROVE ABORIGINAL AND TORRES STRAIT ISLANDER HEALTH AND WELLBEING

As discussed in Chapter 2, Aboriginal and Torres Strait Islander peoples tend to suffer poorer health than other Australians. In general, they have poorer diets and according to the Australian Bureau of Statistics (ABS) data, in 2012–13, only 43 per cent of Aboriginal and Torres Strait Islander peoples aged over 15 consumed an adequate level of fruit each day while 5 per cent consumed an adequate amount of vegetables. Aboriginal and Torres Strait Islander adults are more likely to smoke (45 per cent) compared with other Australians (13 per cent). Cannabis use in Aboriginal and Torres Strait Islander peoples was 16.7 per cent compared to 10.7 per cent in non-Indigenous Australians (AIHW, 2016). Aboriginal and Torres Strait Islander peoples are twice as likely to have coronary heart disease than non-Indigenous Australians, four times as likely to die from diabetes,

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twice as likely to die from injuries, and have approximately eight years lower life expectancy (ABS, 2016). Indigenous child death rates are considerably higher than non-Indigenous children (146 per 100 000 and 70 per 100 000 respectively) a gap of 76 deaths per 100 000 children (AIHW, 2018).

As a result of the inequality that exists between the health status of Aboriginal and Torres Strait Islander peoples and other Australians, the Commonwealth Government and the state and territory governments must invest in Aboriginal and Torres Strait Islander health in an attempt to address these differences.



FIGURE 6.16 Aboriginal and Torres Strait Islander peoples have considerably low intakes of fresh fruit and vegetables.

In order to evaluate the success of initiatives and programs that promote health and wellbeing in Aboriginal and Torres Strait Islander peoples, we need to consider if they address some of the following considerations of an effective program.

- Are the initiatives/programs presented in a culturally appropriate manner? For example, are relevant cultural traditions considered in the planning and implementation?
- Does the initiative/program address language barriers? Is the program presented in the local language or is there an interpreter service available?
- Are the initiative/programs located in places that Aboriginal and Torres Strait Islander peoples reside/frequent?
- Can they be easily accessed? Is there transport available or does the program come to the participants?
- Did the initiative/program involve Aboriginal and Torres Strait Islander individuals/Indigenous Elders and community groups in both the planning and implementation?
- Does the initiative/program address the needs of the Indigenous community and have residents been able to communicate their thoughts on current concerns that need addressing?
- Does the initiative/program employ local Indigenous members to be part of the implementation and delivery of the initiative/program?
- Does the initiative/program focus on education and developing knowledge?
- Does the initiative/program work to foster partnerships and collaboration? For example, does it provide services that form partnerships and collaborations with other local community and government organisations (because these are better able to ensure that those in need receive the right assistance)?

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Although most Aboriginal and Torres Strait Islander peoples (approximately 75 per cent) live in major cities and regional areas, where healthcare services typically are readily available, these services are not always socially, culturally and geographically accessible to Aboriginal and Torres Strait Islander peoples. It is important that the Commonwealth Government invests in a range of specific primary health services to meet the needs of Aboriginal and Torres Strait Islander peoples.

In 2015–16, there were 277 Australian Government-funded organisations that provided health services to Aboriginal and Torres Strait Islander peoples, many of which provided health-promotion activities targeting smoking, physical activity, maternal and child health and chronic diseases. Approximately one-third of these organisations provided services in very remote areas.

Close the Gap campaign for Indigenous health equality

Australia's peak Aboriginal and Torres Strait Islander and other health bodies, health professional bodies and human rights organisations operate the Close the Gap campaign. The goal of the campaign is to improve the health and life expectancy of Australia's Aboriginal and Torres Strait Islander peoples so that it reaches the same standard as that of the rest of Australia's population by 2030 (within a generation).

In 2008, Australian Governments committed to specific targets for reducing inequalities in Aboriginal and Torres Strait Islander life expectancy, mortality, education and employment. In December 2016, the Council of Australian Governments (COAG) agreed to refresh the Closing the Gap agenda ahead of the tenth anniversary of the agreement and four of the seven targets expiring in 2018.

Closing the Gap's refreshed targets are:

- 95 per cent of all Aboriginal and Torres Strait Islander four-year-olds enrolled in early childhood education by 2025.
- Increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all five domains of the Australian Early Development Census to 45 per cent by 2028.
- Significant and sustained progress to eliminate the over-representation of Aboriginal children in out-of-home care.
- A significant and sustained reduction in violence against Aboriginal and Torres Strait Islander women and children.
- Close the gap in life expectancy between Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians within a generation by 2031.
- By 2028, 90–92 per cent of babies born to Aboriginal and Torres Strait Islander mothers have a healthy birthweight.
- Halve the gap in attainment of Year 12 or equivalent qualifications between Aboriginal and Torres Strait Islander peoples and non-Indigenous 20–24 year-olds by 2020.
- Increase the proportion of Aboriginal and Torres Strait Islander students in the top two bands of NAPLAN reading and numeracy for years 3, 5, 7 and 9 by an average of 6 percentage points by 2028.
- Decrease the proportion of Aboriginal and Torres Strait Islander students in the bottom two bands of NAPLAN reading and numeracy for years 3, 5, 7 and 9 by an average of 6 percentage points by 2028.
- 65 per cent of Aboriginal and Torres Strait Islander youth (15–24 years) are in employment, education or training by 2028.
- 60 per cent of Aboriginal and Torres Strait Islander people aged 25–64 years are employed by 2028.
- 47 per cent of Aboriginal and Torres Strait Islander people (aged 20–64 years) have completed Certificate III or above, including higher education, by 2028.
- Increase the proportion of Aboriginal and Torres Strait Islander population living in appropriately sized (not overcrowded) housing to 82 per cent by 2028.

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- Reduce the rate of Aboriginal and Torres Strait Islander young people in detention by 11–19 per cent and adults held in incarceration by at least 5 per cent by 2028.

SOURCE: Closing the Gap Refresh (2018)

Under the Closing the Gap strategy a number of programs and initiatives have been developed to help move closer to meeting these targets.

Aboriginal Road to Good Health

Aboriginal and Torres Strait Islander peoples experience significantly higher levels of chronic disease such as diabetes and heart disease, compared to non-Indigenous Australians.

The Road to Good Health program is designed to support Aboriginal health workers and other health professionals who work with Indigenous Australians to promote healthy lifestyles. This program has several benefits that include helping individuals to choose healthier habits to prevent type 2 diabetes mellitus and heart disease. It is a free service that is run by Aboriginal health workers. Through the program, Aboriginal Australians learn about how different foods affect their health, how to read food labels, how to get active and stay on track, how to maintain a healthy weight and how to purchase inexpensive healthy foods. In 2016, the Victorian Aboriginal Health Service (VAHS)'s Healthy Lifestyle team and Tackling Tobacco team collaborated with Diabetes Victoria's Life! team to integrate the Life! Road to Good Health program into VAHS's six-week challenge.



FIGURE 6.17 The Road to Good Health program is aimed at the prevention of diabetes and improving the health and wellbeing of families and communities through engaging in regular physical activity, for example.

TABLE 6.14 How the Road to Good Health reflects the Ottawa Charter for health promotion

OTTAWA CHARTER ACTION AREAS	HOW THE ROAD TO GOOD HEALTH REFLECTS THE OTTAWA CHARTER FOR HEALTH PROMOTION
Strengthen community action	Through working with the Victorian Aboriginal Health Service (VAHS), the Life! program is able to integrate its Road to Good Health type 2 diabetes mellitus prevention program with VAHS's six-week challenge, which strengthens community action.
Develop personal skills	Through the program, Aboriginal and Torres Strait Islander peoples are taught how different foods affect their health, how to read food labels, how to get active and stay on track, how to maintain a healthy weight and how to purchase inexpensive healthy foods, which helps to develop personal skills.
Create supportive environments	Through providing support for Aboriginal health workers and other health professionals, and running group sessions, the Life! Road to Good Health program is able to create supportive social environments.
Reorient health services	The Aboriginal Road to Good Health program provides support to health professionals to help Aboriginal and Torres Strait Islander peoples prevent type 2 diabetes mellitus and heart disease.

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National Aboriginal and Torres Strait Islander Health Plan 2013–23

In 2008, the Commonwealth Government signed up to the task of working with Aboriginal and Torres Strait Islander peoples to achieve equality in health status and life expectancy by 2031 for Aboriginal and Torres Strait Islander peoples and all other Australians.

Since 2011, as part of the plan to close the gap, the Commonwealth Government has worked with Aboriginal and Torres Strait Islander peoples to develop a 10-year plan to provide direction for Aboriginal and Torres Strait Islander health policy. The National Aboriginal and Torres Strait Islander Health Plan 2013–23 is the result of a partnership between the Commonwealth Government, and Aboriginal and Torres Strait Islander peoples and community organisations.



FIGURE 6.18 The National Aboriginal and Torres Strait Islander Health Plan 2013–23 aims to close the gap so that all Australians enjoy the same health status and life expectancy by 2031.

CASE STUDY: WAYS OF THINKING AND WAYS OF DOING (WOTWOD)

Ways of Thinking and Ways of Doing (WoTWoD) is a NHMRC-funded project that is a joint initiative between the University of Melbourne and the University of New South Wales. It is aimed at improving the cultural and clinical appropriateness of community health services and general practices for Indigenous Australians.

The project is conducting a randomised controlled trial in Melbourne, Victoria and Sydney, New South Wales, to test the effectiveness of an intervention program. Part of the intervention is providing workshops to GPs and practice staff on cultural awareness and intervention strategies at a practice level to address the health of Aboriginal and Torres Strait Islander patients with chronic disease.

The first workshop included 19 participants, among them GPs, practice nurses, practice managers, receptionists and other practice staff. Aunty Di Kerr of the Wurundjeri people is a cultural mentor for the WoTWoD project. She welcomed the participants and provided her cultural expertise to the workshop and discussion.

The workshop provided the participants with tools to better engage with their Indigenous clientele and the opportunity to understand cultural differences and overcome any barriers they experienced, such as:

- fear of offending
- how to approach sensitive topics
- how to action appropriate follow up care.

The relationship between general practitioners and their patients is a journey and the workshop intends to assist GPs and staff with tools to nurture interaction.

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With participants working together with the Aboriginal team members, the workshop lent itself to an interactive learning environment around respect, responsibility and equity for all parties.

SOURCE: 'Ways of Thinking and Ways of Doing (WoTWoD)' written by Lisa Mamone and published by The University of Melbourne 16 September 2015. Reproduced with permission from The University of Melbourne.

1 Explain how this project aims to promote the health and wellbeing of Aboriginal and Torres Strait Islander peoples.
2 Evaluate the effectiveness of this initiative in terms of its capacity to improve health and wellbeing in Aboriginal and Torres Strait Islanders.
3 Outline, using examples from the case study, how the program reflects the action areas of the Ottawa Charter for Health Promotion.

Tackling Indigenous Smoking (TIS) program

Tackling Indigenous Smoking (TIS) is a national program funded by the Commonwealth Government under the Indigenous Australians Health Program. It aims to reduce smoking rates, which are the most preventable cause of ill-health among Aboriginal and Torres Strait Islander peoples. Under the National Healthcare Agreement, COAG has committed to halving the daily smoking rate (of 47.7 per cent in 2008) among Aboriginal and Torres Strait Islander adults by 2018.

ARNHEM LAND PROGRESS ABORIGINAL CORPORATION

The Arnhem Land Progress Aboriginal Corporation, or ALPA, was established in 1972 as a cooperative of community stores across Arnhem Land. Today ALPA has grown to be the largest Aboriginal Corporation in Australia and operates community stores in 27 location across the NT and Queensland. ALPA contributes to the development of local economies and Indigenous business where they operate, providing accommodation and hospitality in partnership with local families, training and employment services.



FIGURE 6.19 Healthy food choices at Galiwinku store

SOURCE: ALPA

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ALPA aims to provide quality services with a commitment to local employment and training and they currently have more than 1100 employees of which just over 85 per cent are Indigenous. They aim to enhance social and economic development wherever they operate, while continuing to embrace cultural heritage.

ALPA runs a number of programs and has areas of priorities in which it focuses its work. The importance of promoting fruit and vegetable consumption in local communities is one of ALPA's areas of focus. Guided by a Health and Nutrition Policy, they have worked for many years to tackle chronic diseases such as type 2 diabetes mellitus, hypertension, coronary heart disease and some cancers. ALPA has been independently subsidising (no government funding) fruit and vegetables for over 30 years and continue to do so in an effort to promote health eating and work towards preventing chronic diseases. In addition, they also subsidise all freight on frozen, tinned and dried vegetables in member stores. These subsidies help make prices on healthy food more affordable.

They also have a number of other programs that help to promote healthy food choices, such as a Healthy Choice Reward Scheme and a Nutrition checklist app.

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This program was redesigned and reintroduced in 2015–16, with an emphasis on flexible approaches for regional tobacco control and the Commonwealth Government committed $116 million for TIS.

The program includes a range of initiatives such as regional tobacco control grants, a National Best Practice Unit (NBPU), enhancements to existing Quitline services, brief intervention training, program evaluation and monitoring, and special projects in areas of high need.

ACTIVITY 6.11: ARNHEM LAND PROGRESS ABORIGINAL CORPORATION

Watch the YouTube video *Food availability in remote Indigenous communities* and visit the ALPA website.

1 Describe how ALPA could promote two dimensions of health and wellbeing in the Indigenous communities in which it operates.
2 Identify and describe two action areas of the Ottawa Charter for Health Promotion that are reflected in ALPA's programs and explain how they are evident.
3 Evaluate the effectiveness of the ALPA programs in promoting the health and wellbeing of the Aboriginal and Torres Strait Islander peoples in Arnhem Land. Justify your response.

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CASE STUDY: DEADLY CHOICES

Deadly Choices is a health promotion initiative of the Institute for Urban Indigenous Health (IUIH). It aims to empower Aboriginal and Torres Strait Islander people to make healthy choices for themselves and their families – to stop smoking, to eat good food and exercise daily. Deadly Choices also encourages our people to access their local Community Controlled Health Service and complete an annual 'Health Check'.

Deadly Choices is a social marketing campaign that is made up of:

- Tobacco cessation programs
- Community events
- Sport and recreation
- Education programs
- Cooking programs
- Leadership camps
- Social media.

Governments have committed to Closing the Gap in Indigenous health, but only our communities can make this happen.

In Aboriginal slang, if something is 'deadly' it is great. As such a Deadly Choice is a good choice, and we encourage community to make such choices each day.

SOURCE: *What is Deadly Choices?,* Deadly Choices (2018)

1 Consider how the Deadly Choices Program could promote the health and wellbeing of Aboriginal and Torres Strait Islander peoples. Refer to at least two dimensions of health and wellbeing in your response.

2 Explain how the Deadly Choices initiative reflects the Ottawa Charter for Health Promotion.

Aboriginal Quitline

Aboriginal Quitline is a telephone helpline that provides confidential support for Aboriginal and Torres Strait Islander peoples based in Victoria, New South Wales and Queensland who would like to quit smoking. It operates from 8.00 a.m. to 8.00 p.m. Monday to Friday. Although the Aboriginal Quitline service is only running in these states, all Quitline services in Australia are funded to provide culturally sensitive services to Aboriginal and Torres Strait Islander peoples. The contact number for the Aboriginal Quitline is the same as for the main Quitline; however, the caller can ask to speak to a specialist Aboriginal Quitline adviser.

Aboriginal Quitline advisers have specialist training to assist people to quit smoking in a culturally appropriate way. The advisers will provide the caller with a plan to help them quit that is tailored to their individual needs. They will also provide them with information on different ways to quit and products to help them, along with other resources. The Quitline advisers can also put callers in touch with local support groups if needed.

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FIGURE 6.20 Support to help Aboriginal and Torres Strait Islander peoples quit smoking

ACTIVITY 6.12: RESEARCH TASK

Research your own program/initiative that has been introduced to bring about improvements in Aboriginal and Torres Strait Islander health and wellbeing in Australia. Describe the program and explain how the program reflects the action areas of the Ottawa Charter for Health Promotion.

NATIONAL TOBACCO CAMPAIGN

As discussed earlier, the National Tobacco Campaign targets all smokers; however, it particularly targets vulnerable groups such as Aboriginal and Torres Strait Islander peoples, those from culturally and linguistically diverse backgrounds, regional and rural communities, and pregnant women and their partners.

The National Tobacco Campaign features television, radio, print, outdoor and online advertising, and the campaign advertisements focus on the negative health effects of smoking as well as promoting the benefits of quitting smoking.

Examples of media campaigns for the National Tobacco Campaign include:

- Don't Make Smokes Your Story
- Cough
- Break the Chain
- Health Benefits
- Quit for You – Quit for Two.

The 2015–16 phase of the National Tobacco Campaign, Don't Make Smokes Your Story, focuses on the story of Ted, an Aboriginal man who quit smoking for his family. The campaign features a mix of mass media advertising and community engagement activities.

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Red Dust Healing

Red Dust Healing is a targeted cultural healing program that has been written from an Aboriginal point of view. It aims to engage Aboriginal and Torres Strait Islander Australians in order to help them recognise and confront problems that stem predominantly from rejection and grief. It is a Caritas Australia initiative that was implemented in conjunction with partner agency Spread Out and Stick Together. The program includes individual case management plans, and draws on the tools of Red Dust Healing to provide ongoing support for participants. The program links Aboriginal and Torres Strait Islander cultures and other cultures by making use of holistic learning models to help participants with their own journey of personal growth. It also makes use of the train-the-trainer approach, which trains individuals to be able to run Red Dust Healing programs in their own communities.

The program aims to reduce levels of substance abuse and promote empowerment in communities. Since being implemented, the program has resulted in positive outcomes for participants, including increased employment rates and reduced incidence of domestic violence.

CASE STUDY: RED DUST HEALING STORY

Watch the YouTube video *Karimah's Red Dust Healing story* and complete the following questions.

1. Explain how this project aims to promote the health and wellbeing of Aboriginal and Torres Strait Islander people.
2. Evaluate the effectiveness of this initiative in terms of its ability to improve health and wellbeing in Aboriginal and Torres Strait Islander people.
3. Outline, using examples from the program, how it reflects the action areas of the Ottawa Charter for Health Promotion.

FIGURE 6.21 Red Dust Healing is a cultural program that helps Aboriginal and Torres Strait Islander peoples confront feelings that stem from rejection and grief.



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CHAPTER SUMMARY

- The action areas of the Ottawa Charter for Health Promotion:
  - Build Healthy Public Policy
  - Develop Personal Skills
  - Strengthen Community Action
  - Create Supportive Environments
  - Reorient Health Services.
- What is health promotion?
  - Health promotion is the process of enabling people to increase control over the factors of health and thereby improve their health. Examples of health promotion include social marketing, education, legislation and regulations, which all aim to change the social, political and physical environment to promote behaviours.
- Why some issues are targeted by health promotion:
  - Because they contribute to mortality/morbidity rates
  - They are preventable/avoidable
  - They result in considerable financial burden/costs to individuals and the government
  - They have increased in recent years
  - They contribute to other health conditions.
- Factors that can increase the effectiveness of health promotion:
  - Making it cost effective/affordable
  - Ensuring it is culturally appropriate
  - It involves local people
  - It empowers people
  - It reaches those most in need
  - It involves partnerships
  - It is accessible.
- How to measure if health promotion has been effective:
  - There is a rise or fall in relevant health statistics
  - High participation/engagement rates by individuals/communities/whole population
  - Cost effective
  - Behavioural changes have occurred in individuals and/or population groups.
- Initiatives to promote Indigenous health and wellbeing:
  - The Close the Gap campaign
  - Tackling Indigenous Smoking (TIS)
  - The National Tobacco Campaign
  - Aboriginal Quitline
  - Deadly Choices
  - Red Dust Healing
  - Aboriginal Road to Good Health.

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KEY QUESTIONS

SUMMARY QUESTIONS

1 Explain why smoking/road safety/skin cancer (select one only) has been targeted by public health initiatives in Australia.

2 Outline examples of public health initiatives implemented to address smoking rates/road safety/skin cancer (select one only).

3 Outline how effective these programs have been in reducing the number of smokers/deaths on roads/skin cancer (select one only).

4 Explain the role of these initiatives in improving the health of all Australians.

5 Identify factors that can be used to evaluate the effectiveness of health promotion programs/initiatives.

6 Identify and describe two health promotion initiatives that have been implemented to bring about improvements in Aboriginal and Torres Strait Islander health and wellbeing.

7 Using one of the initiatives described in the previous question justify its effectives in bringing about improvements in Aboriginal and Torres Strait Islander health and wellbeing.

EXTENDED RESPONSE QUESTION

SOURCE

Health promotion is the process of enabling people to increase control over, and to improve their health.

QUESTION

Outline a health promotion program that has been successful in addressing skin cancer, road safety or smoking and explain how you might determine if this program has been effective. In your answer, include a discussion of how the program reflects two action areas of the Ottawa Charter for health promotion. (8 marks)

EXAMINATION PREPARATION QUESTIONS

Smoking rates in Australia are still falling, continuing a long-term downward trend over the past 50 years. In 2013, 13 per cent of people aged 14 or older smoked daily (*Australia's Health 2016*).

A Identify two reasons why smoking has been targeted as an area for health promotion. (2 marks)

B Outline a health-promotion program that was implemented to address smoking rates. (3 marks)

C Justify how successful you feel this program will be in addressing smoking rates. (3 marks)



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7 HEALTHY EATING IN AUSTRALIA

KEY KNOWLEDGE

- Initiatives to promote healthy eating in Australia, including the Australian Dietary Guidelines and the work of Nutrition Australia, and the challenges involved in bringing about dietary change.

KEY SKILLS

- Draw conclusions as to why dietary improvements are difficult to achieve in Australia.

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INTRODUCTION

This chapter looks at initiatives to bring about improvements in Australia's eating patterns. You will need to be familiar with The Australian Dietary Guidelines which are explained in detail in this chapter, providing information about the role of different nutrients, the composition of the five food groups and the nutrients that they contain as well as some of the current dietary behaviours of Australians that are explored. The second part of the chapter considers the work of Nutrition Australia (a non-government organisation, or NGO that focuses on promoting improvements in Australia's health status through improvements in diet.) You will find examples of the work of this NGO and ways in which it has brought about improvements to Australia's eating patterns and in turn health status. The final part of the chapter explores a range of factors that pose a challenge for Australians in following the Australian Dietary Guidelines and for overall improvements in diet.

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What you need to know

- Each of the Five Australian Dietary Guidelines.
- The role of the Australian Dietary Guidelines initiative in promoting the healthy eating of Australian people.
- Examples of the work of Nutrition Australia in improving the eating patterns of Australians (including the Healthy Eating Pyramid).
- The challenges that exist in bringing about dietary change in Australia.

What you need to be able to do

- Identify the Australian Dietary Guidelines.
- Analyse data related to eating patterns and food consumption.
- Explain how the work of Nutrition Australia promotes healthy eating
- Explain the challenges to bringing about dietary change and consider how Nutrition Australia and other organisations could address these challenges.

7.1 AUSTRALIAN DIETARY GUIDELINES

The latest edition of the *Australian Dietary Guidelines* publication was developed in 2013. The development of these guidelines was funded by the Commonwealth Department of Health and Ageing, and was conducted by the National Health and Medical Research Council (NHMRC).

The *Australian Dietary Guidelines* is a publication that seeks to encourage healthy eating to reduce the risk of diet-related disease and chronic conditions, and to improve the community's health and wellbeing. It provides guidance on foods, food groups and dietary patterns that protect against chronic disease and provide the nutrients required for optimal health and wellbeing, and it has three main aims:

- to promote health and wellbeing
- to reduce the risk of diet-related conditions that act as biological factors influencing overall health and wellbeing, such as high cholesterol, high blood pressure and obesity
- to reduce the risk of chronic diseases such as type 2 diabetes mellitus, cardiovascular disease and some types of cancers.

As the foundation of most Australian public health approaches, this publication is the most up-to-date summary of the basic principles of human nutrition as they relate to the Australian population's health.

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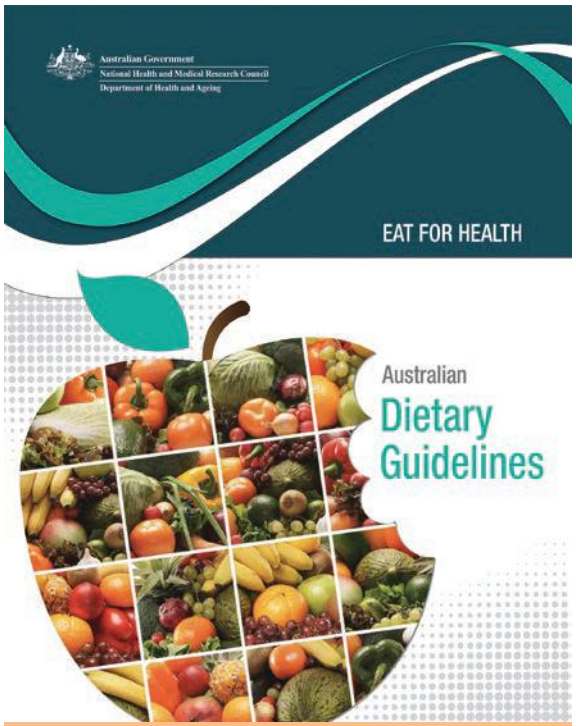


FIGURE 7.1 The Australian Dietary Guidelines were originally published in 2013.

The Australian Dietary Guidelines recognise that the foods we eat are important to our long-term health and wellbeing. This is especially true for children, given the impact of nutrition on healthy growth and development. For adults, healthy eating can help prevent some diseases that become particularly evident during the later years of life.

The Australian Dietary Guidelines provide recommendations for healthy eating that are realistic and practical. Presenting the recommendations and the scientific evidence that underpins them in a single volume, the guidelines are designed to help health professionals, policy-makers and the Australian public make informed decisions.



FIGURE 7.2 The Australian Dietary Guidelines provide recommendations for healthy eating that are realistic and practical.

Some patterns of food intake are healthier than others. An over-reliance on foods that contain large amounts of saturated fats, sugars and salt, combined with a low intake of fruits, vegetables and wholegrain cereal foods, leads to adverse health consequences. For this reason, the Australian Dietary Guidelines focus on changing the food intake of individuals. However, the guidelines also recognise that a focus on food intake, food patterns, the experience of food and an enjoyment of eating is more likely to develop long-term dietary improvements.

TABLE 7.1 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 stay 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

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TABLE 7.1 *(Continued)*

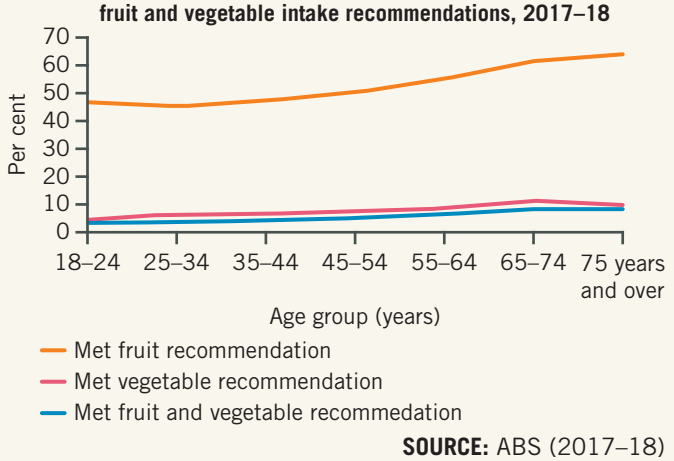
	• Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans • Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced-fat milks are not suitable for children under the age of two years) And drink plenty of water.
Guideline 3	Limit intake of foods containing saturated 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 that 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 2 years. **b** Limit intake of foods and drinks containing added salt. • Read labels to choose low-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 confectionary, 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: Australian Dietary Guidelines 1–5

AOS 2

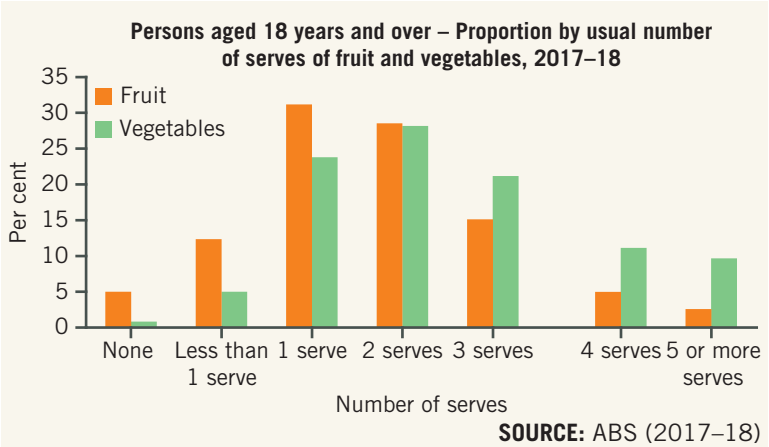
Description of the Australian Dietary Guidelines

Evidence suggests that there is a strong association between adherence to national dietary guidelines and recommendations, and reduced morbidity and mortality. More recent evidence from countries comparable with Australia confirms that dietary patterns consistent with guidelines recommending relatively high amounts of vegetables, fruit, whole grains, poultry, fish, and reduced-fat milk, yoghurt and cheese products may be associated



SOURCE: ABS (2017–18)

FIGURE 7.3 Proportion of people aged 18 and over meeting the fruit and vegetable recommendations, 2017–18



SOURCE: ABS (2017–18)

FIGURE 7.4 Proportion of usual number of serves per day of fruit and vegetables eaten by Australians aged 18 years and over, 2017–18. Note that the recommended serves of vegetables for an adult is 5-6, while for fruit it is only 2.

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with superior nutritional status, quality of life and survival in older adults (NHMRC, 2013).

For this reason, the Australian Dietary Guidelines make recommendations based on **whole foods**, such as vegetables and meats, rather than recommendations related to specific food components or individual nutrients. This practical approach makes the recommendations easier to apply (NHMRC, 2015).

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

The primary factors that influence energy balance are physical activity and dietary energy intake. Regularly obtaining more energy from food eaten than is needed to meet energy requirements can lead to energy storage in the form of excess body fat. Insufficient physical activity reduces the amount of energy used and therefore can increase the risk of energy input outweighing output, therefore causing excess body fat. Excess body fat is associated with many adverse health consequences (including increased mortality) and is now a major health problem in Australia. Furthermore, being inactive is directly associated with poorer health and increased mortality while the health benefits that result from regular physical activity are substantial and are not restricted to control of excess body fat.

Guideline 2: Enjoy a wide variety of nutritious foods from these five food groups every day

Eating a variety of nutritious foods means consuming different food types in appropriate amounts that enable the attainment of all the required nutrients without excess energy intake. Ideally, people should choose a range of items from within each food group, particularly within the plant-based groups (vegetables, fruits and cereals) in order to achieve variety. A diet containing a wide range of foods from the different food groups is most likely to offer protection against non-communicable chronic diseases such as cardiovascular disease, obesity, diabetes and some cancers.

- **Eat plenty of vegetables of different types and colours, and legumes/beans.** There is strong evidence that different-coloured vegetables play a protective role against the development of a number of non-communicable chronic diseases, among them cancer, cardiovascular disease, type 2 diabetes mellitus and hypertension. This may be due partly to the many different types of phytochemicals that are present in them. Including a variety of vegetables and legumes in the diet will also ensure the intake of a wide range of vitamins, minerals and dietary fibres. Adults are encouraged to consume an average of at least five servings of vegetables each day (75 g per serve), selected from a wide variety of types and colours, and served cooked or raw, as appropriate. The *National Health Survey* reports that in 2017–18, 51.3 per cent of Australians aged 18 years and over met the recommended guidelines for fruit consumption while only 7.5 per cent met the guidelines for vegetable consumption. Only 5.4 per cent of adults met both guidelines.

whole foods: Refers to foods themselves (for example, fruit, vegetables, bread, pasta, lean meat, milk, yoghurt) and not the food component (for example, calcium, iron, protein).

FIGURE 7.5 Selecting fruit and vegetables based on the colours of the rainbow is both fun and informative.



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grain (cereal) foods: The entire class of cereal/grain foods, including whole or partially processed cereal grains (e.g. rice, breads, cereals, oats, corn and barley), breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley. It excludes cereal or grain-based products with a significant amount of added fat and sugar, such as cakes, pastries, pasta, noodles, polenta and biscuits.

AOS 2

The proportion of adults meeting the recommended guidelines was relatively similar across each age group (refer to Figure 7.3). Furthermore, although a large proportion of adults did not meet the recommended five serves of vegetables, 42 per cent usually consumed three or more serves of vegetables (refer to Figure 7.4).

- **Eat fruit.** Most fruits have a high dietary fibre and water content, and the consumption of the recommended daily intake is associated with reduced risk of weight gain. There is also evidence of other health advantages of including fruit in the diet, particularly for coronary heart disease and stroke, and some cancers. This is especially the case when fruit and vegetables are considered together. Consuming at least two serves of fruit per day (150 g per serve) is recommended for adults.
- **Eat grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, couscous, oats, quinoa and barley.** As with vegetables, legumes and fruits, different cereal grains can contribute a variety of nutrient and phytochemical benefits. A wide range of cereal-based products is advised in the guideline. Cereal grains generally are an excellent source of carbohydrate and dietary fibre, and are also an important source of protein. They are mostly low in fat and are good sources of B-group vitamins, vitamin E and many minerals, notably iron, zinc, magnesium and phosphorus. To achieve a low-GI diet, consumption of slowly digested cereal foods, such as grainy breads, pasta, low-GI breakfast cereals and high-amylose rice, is advised. Choosing low-GI foods from wholegrain foods with low levels of saturated fat will also increase the protective cereal fibre and phytochemical content of the diet.
- **Eat lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans.** The inclusion of lean meats, fish, poultry and non-meat alternatives (such as beans, nuts and legumes) in the daily diet will help to ensure an adequate intake of protein, iron, zinc and vitamin B12. Fish is also a particularly good source of omega-3 fats. Low iron intakes are common in Australia and iron-deficiency anaemia is a significant public health concern. Vegetarians and semi-vegetarians may also be at increased risk because of the higher intake needs resulting from the low bioavailability of plant-based iron sources. They also need to ensure an adequate intake of zinc and vitamin B12.
- **Eat milk, yoghurt, cheese and/or their alternatives, mostly reduced fat.** Milk-based foods are the richest source of calcium in the Australian diet, but are also important contributors to protein, vitamin A, riboflavin, vitamin B12 and zinc. Calcium is required for the normal development and maintenance of bones and teeth because calcium acts as an ossifying (hardening) agent for bones and teeth. In Australia, low intakes of calcium have been associated with osteoporosis, which often results in bone fracture and is one of the main causes of morbidity among older Australians, particularly women. An adequate intake of calcium will help delay loss of bone density

FIGURE 7.6 Enjoy a wide variety of foods from the five food groups.



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and the onset of osteoporosis. Although rich in calcium, milk-based foods can also be relatively high in saturated fat, so it is recommended that reduced-fat varieties or reduced-fat alternatives should be chosen where possible.

- **Drink plenty of water.** Water is an essential nutrient for life. It is a part of all chemical reactions in the body. It also helps form structures of large molecules such as protein and glycogen. Additionally, water is required for digestion, absorption and transportation and as a solvent for nutrients, and for the elimination of waste products and thermoregulation. Adequate fluid consumption is an integral component of a healthy diet.

Guideline 3a: Limit intake of foods containing saturated fat, added salt, added sugars and alcohol

- **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 that contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado. Overweight and obesity have been increasing rapidly in Australia. Fats are the most concentrated form of energy, providing 37 kilojoules per gram, and an over-consumption of them contributes to an energy-dense diet. Overweight and obesity are diet-related risk factors for type 2 diabetes mellitus. Since dietary (total) fat is energy-dense and high fat intakes can be associated with overweight and obesity, the recommendation of moderation in fat intake aims to reduce the incidence of diabetes as well as obesity. Many processed foods are high in saturated fats and are overall extremely energy-dense, so it is recommended that these foods be avoided altogether. Not all fats need to be excluded from the diet as some types of fat assist in the efficient functioning of the body. It is recommended that the fats in the diet are sourced from natural sources; for example, nuts and seeds, legumes/beans, avocado, oats, fish, meat (lean meats), poultry, eggs, and reduced-fat milk and cheese. The biological effects and health risks of dietary fats and oils are determined in large part by their predominant fatty acids. Saturated fatty acids raise plasma LDL cholesterol, a major risk factor for coronary heart disease. Polyunsaturated fats and monounsaturated fatty acids do not raise plasma cholesterol. The evidence indicates that replacing dietary saturated fat with monounsaturated and polyunsaturated fats is associated with improved blood lipid profiles and reduced risk of cardiovascular disease. Therefore, for adult Australians who are not overweight, a moderate total fat intake is around 25–35 per cent of energy, of which saturated fat should contribute a maximum of 10 per cent, and at least 4–10 per cent of the fat intake should come from omega-3 and omega-6 fatty acids.
- **Low-fat diets are not suitable for children under the age of 2 years.** For infants under the age of around 6 months, breastmilk provides an ideal amount and type of fat. Children aged less than 2 years are not recommended to have a reduced-fat intake as even a small energy shortage during this period of rapid development may affect their growth. In particular, the developing nervous tissue needed for brain development requires an adequate supply of essential fatty acids, particularly omega-3, at that time of life. However, after the age of 2 years, reduced-fat foods are recommended as, even at a young age, a diet high in saturated fats may predispose children and adolescents to cardiovascular disease later in life.

Guideline 3b: Limit intake of foods and drinks containing added salt

- Read labels to choose low-sodium options among similar foods.
- Do not add salt to foods in cooking or at the table.

Dietary salt is an inorganic compound consisting of sodium and chloride ions. It is found naturally in many foods, but it is also added

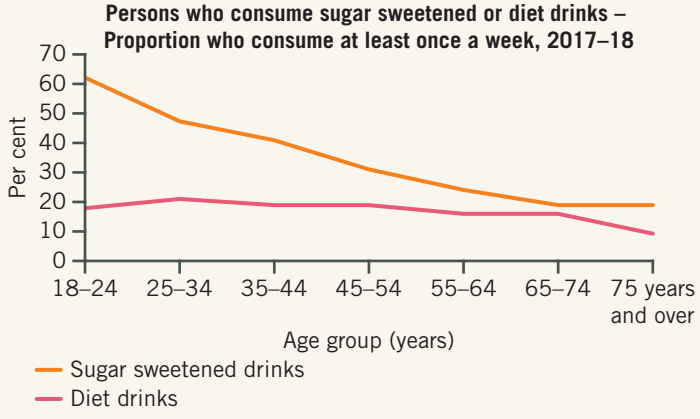
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to many foods because of its preservative and flavouring characteristics. It is now well accepted that a reduction in dietary sodium intake will decrease the mean population blood pressure and reduce the prevalence of hypertension. The risk of stroke and ischaemic heart disease increases continuously with blood pressure.

Guideline 3c: Limit intake of foods and drinks containing added sugars

Many of the foods found in the Australian diet contain naturally occurring sugars. In other foods, sugars (particularly sucrose) may be added during processing to increase the food's palatability and acceptability, and sometimes to add bulk. Sugars provide a readily absorbed source of energy and play an important role as sweeteners and flavour enhancers. The presence of high amounts of sugar can, however, dilute the nutrient density of the diet, and diets high in added sugar have been associated with development of obesity. Sugar is also a contributing factor to dental caries.

According to the National Health Survey 2017–18 (ABS), sugar-sweetened drinks, including soft drink, cordials, sports drinks or caffeinated energy drinks as well as diet drinks diet soft drink, cordials, sports drinks or caffeinated energy drinks, were consumed by adults in worrying amounts. Approximately 48 per cent of adults consumed either sugar-sweetened drinks or diet drinks at least once a week. Young adults aged 18–24 reported the highest proportion of people – 61.3 per cent (refer to Figure 7.7). A further 9.1 per cent consumed sugar-sweetened drinks daily and 4.8 per cent consumed diet drinks daily.



SOURCE: ABS (2017–18)

FIGURE 7.7 Proportion of adults who consumed sugar-sweetened and diet drinks at least once a week, by age group, 2017–18

Guideline 3d: 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

- Alcohol is energy dense and can contribute to weight gain. Excess alcohol use has also been linked to many chronic diseases such as hypertension and stroke, colorectal cancer, liver cancer and hepatitis. It has also been associated with dementia, and can result in nutritional deficiencies such as those of folate and vitamin A. Alcohol use by pregnant women may harm the unborn baby. The NHMRC indicates that there is no alcohol intake during pregnancy that can be guaranteed to be completely safe, so avoiding alcohol while pregnant is considered the safest option.
- The recommendation related to breastfeeding is because when a mother consumes alcohol it is then present in breastmilk. The concentration of alcohol in the blood is the concentration of alcohol in the breastmilk. Thus once alcohol has been consumed it will not be removed from the breastmilk until it has been broken down by the liver. Therefore unless the mother is sure there is no alcohol left in her blood stream she cannot be sure there is no alcohol left in her breastmilk. This is the reason for the recommendation that alcohol is avoided when breastfeeding.

Guideline 4: Encourage, support and promote breastfeeding

Breastfeeding is included in the Australian Dietary Guidelines because it contributes to the health of all Australians from birth. Breastfeeding is the natural and most appropriate method for feeding infants, and is closely related to immediate and long-term positive health outcomes. Breastfeeding provides health benefits to infants, including

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reduced risk of infection and asthma, and contributes to improved intellectual development. Breastfeeding is also indicated as protective against obesity, hypertension and some chronic diseases in later life. Exclusive breastfeeding to the age of six months gives the best nutritional start to infants and is now recommended by a number of authorities. Apart from their nutritional suitability, colostrum and mature human milk are hygienic and provide immunoglobulins and other anti-infective agents, which play a major role in protecting infants against infection and disease.

Guideline 5: Care for your food; prepare and store it safely

Despite having one of the world's safest food-supply systems, Australia has recently seen an increase in the number of reported food-borne disease. Food-borne disease can have very serious consequences on health, particularly for vulnerable groups in the population, such as the elderly. Correct handling of food is required during all stages of its preparation and storage in order to reduce the incidence of food-borne disease. To optimise food safety, care should be taken at all stages of the consumers' 'food chain': purchasing, transport, storage, preparation, cooking, serving and cleaning.



FIGURE 7.8 The Australian Guide to Healthy Eating is a food selection guide that visually represents the proportion of the five food groups recommended for consumption each day.

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AOS 2

ACTIVITY 7.1: AUSTRALIAN DIETARY GUIDELINES

1 Explain how the government is promoting healthy eating through the development of the Australian Dietary Guidelines.
2 Describe the aims of the Guidelines.
3 Explain how the Guidelines can be used to promote healthy eating by different groups within the community.
4 Identify the dietary-related diseases that are being targeted by the Guidelines. Outline possible reasons for these diseases being targeted.
5 Research the benefits of breastfeeding and create a summary table of the benefits in relation to the mother, the infant and the community.
6 The increasing prevalence of overweight people in Australia is a growing concern. Choose three of the Australian Dietary Guidelines and explain how they can be used to address the prevalence of overweight in Australia.
7 Using data on Australia's health status (from Chapter 2), identify two health concerns in Australia and explain how two of the Australian Dietary Guidelines can be used to address these concerns.
8 Explain why each of the Dietary Guidelines is important for promoting healthy eating. Use a summary table to organise your information.
9 Referring to Figure 7.8 The Australian Guide to Healthy Eating, identify and explain which Australian Dietary Guideline this best represents.
10 Explain how the Australian Guide to Healthy Eating could assist people in following the Australian Dietary Guidelines. Consider the types of people for whom this visual guide would be beneficial.

7.2 USING THE AUSTRALIAN DIETARY GUIDELINES FOR FOOD SELECTION

The Australian Dietary Guidelines provide information regarding the number of serves of each of the five food groups that should be consumed, as well as examples of what a serving size constitutes for each of the food groups. Tables 7.2, 7.3 and 7.4 provide a summary of the recommended serves per day, based on gender and age group.

TABLE 7.2 Number of serves of food groups for adults

	VEGETABLES	FRUIT	GRAIN (CEREAL) FOODS	LEAN MEATS, POULTRY, FISH, EGGS, TOFU, NUTS, SEEDS, LEGUMES/BEANS	MILK, YOGHURT, CHEESE AND/OR ALTERNATIVES
Men 19–50 years	6	2	6	3	2½
Men 51–70 years	5½	2	6	2½	2½
Men 70+ years	5	2	4½	2½	3½
Women 19–50 years	5	2	6	2½	2½
Women 51–70 years	5	2	4	2	4
Women 70+ years	5	2	3	2	4
Pregnant women	5	2	8½	3½	2½
Breastfeeding women	7½	2	9	2½	2½

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TABLE 7.3 Number of serves of food groups for children and youth

	VEGETABLES	FRUIT	GRAIN (CEREAL) FOODS	LEAN MEATS, POULTRY, FISH, EGGS, TOFU, NUTS, SEEDS, LEGUMES/BEANS	MILK, YOGHURT, CHEESE AND/OR ALTERNATIVES
Boys 2–3 years	2½	1	4	1	1½
Boys 4–8 years	4½	1½	4	1½	2
Boys 9–11 years	5	2	5	2½	2½
Boys 12–13 years	5½	2	6	2½	3½
Boys 14–18 years	5½	2	7	2½	3½
Girls 2–3 years	2½	1	4	1	1½
Girls 4–8 years	4½	1½	4	1½	1½
Girls 9–11 years	5	2	4	2½	3
Girls 12–13 years	5	2	5	2½	3½
Girls 14–18 years	5	2	7	2½	3½

TABLE 7.4 Examples of standard serves for each of the five food groups

	STANDARD SERVING SIZE – KILOJOULES (KJ)	EXAMPLES OF RECOMMENDED SERVING SIZE
Vegetables	100–350 kJ (equivalent to 75 g)	1 cup raw salad ½ cup cooked vegetables (e.g. carrots, green beans, pumpkin) ½ medium-sized potato or starchy vegetable
Fruit	350 kJ (equivalent to 150 g)	1 medium-sized apple, orange, banana 1 cup fresh, diced fruit (or canned with no added sugar) Small fruits such as kiwi fruit or plum
Grain (cereal) foods	500 kJ	1 slice bread ½ medium roll ½ cup cooked grain such as rice or pasta ½ cup cooked porridge ⅔ cup of cereal flakes (with no added sugar)
Lean meats, poultry, fish, eggs, tofu, nuts, seeds, legumes/ beans	500–600 kJ	100 g raw lean meat such as beef, lamb, pork (65 g when cooked) 100 g raw poultry (80 g when cooked) 2 large (60 g) eggs 1 cup cooked legumes (e.g. lentils, chickpeas) 170 g tofu 30 g nuts or seeds
Milk, yoghurt, cheese and/or alternatives	500–600 kJ	1 cup milk Sliced cheese (or 40 g hard cheese) or ½ cup ricotta cheese ¾ cup yoghurt 1 cup soy, rice, almond etc. milk fortified with at least 100 mg calcium per 100 ml

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AOS 2

CASE STUDY: USING THE AUSTRALIAN DIETARY GUIDELINES AS A TOOL TO PROMOTE HEALTHY EATING

Read the following case study and complete the activities that follow.

Paul is 50 years old and works in an office as a finance manager. He is fairly sedentary in his job; however, he does enjoy exercise and works out at the gym three times a week and on most weekends goes on a long-distance bike ride. He enjoys eating out and will usually leave work at lunchtime to buy something for lunch instead of preparing it himself. A typical food intake for one day for Paul would include:



FIGURE 7.9 A meal that can be made healthier

BREAKFAST	LUNCH	DINNER	DRINKS	SNACKS
3 Hi-Fibre Weetbix 1 cup no-fat milk	6 Chinese vegetarian steamed dumplings with soy sauce	1 large serve meat lasagne 1 cup salad vegetables 50 g feta cheese 2 slices garlic bread	2 latte coffees 1 glass low-fat, low-sugar iced coffee 2 glasses water 1 beer	1 banana 2 muesli bars 1 Cornetto ice-cream

1 Using the information above and Tables 7.2 and 7.4 copy and complete the table below.

	BREAD AND CEREALS	FRUIT	VEGETABLES, LEGUMES	MILK, YOGHURT, CHEESE	MEAT, POULTRY, FISH, EGGS	EXTRA FOODS
Recommended intake (serves)						
Paul's intake (serves)						

2 Outline the effectiveness of the Australian Dietary Guidelines as a tool to promote healthy eating for someone like Paul.

3 Evaluate Paul's food intake according to the information in the Australian Dietary Guidelines, taking into account the food groups that are under- and over-consumed, and three major dietary risks that may be present.

4 Identify three impacts on health status that Paul may be at risk of suffering due to dietary risks in his food intake.

5 Refer back to Paul's diet and suggest two specific modifications or changes that he could make to his food intake. Justify your suggestions in relation to their impact on health status.

6 Compare the strengths and limitations of both the Australian Guide to Healthy Eating (Figure 4.7) and The Australian Dietary Guidelines in helping Paul to follow a healthy diet.

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7.3 HOW NUTRITION AUSTRALIA PROMOTES HEALTHY EATING

A number of NGOs are committed to promoting healthy eating and improving the health status of Australians. In fact, the non-government health sector has contributed much of the leadership and public education in public health nutrition over the past decade. Non-government organisations often have special knowledge of the specific issues or population groups they represent. They can also act as policy advocates, lobbying the government on behalf of the community. The key NGOs active in the public health nutrition sector include Nutrition Australia, Australian Cancer Councils, Diabetes Australia, the National Heart Foundation of Australia and professional associations such as the Dietitians Association of Australia (DAA).

Nutrition Australia is a non-government, non-profit, community-based organisation that aims to promote the health and wellbeing of all Australians. Originally founded in 1979 as the Australian Nutrition Foundation (ANF), Nutrition Australia is Australia's primary community nutrition education body, providing scientifically based nutrition information to encourage all Australians to achieve optimal health and wellbeing through food variety and physical activity.

While Nutrition Australia is an NGO, it has had a long history of working as a key nutrition information body for state and Commonwealth Health Departments. Nutrition Australia has worked in nutrition across the lifespan from infants to the elderly through settings including but not limited to early childhood, schools, workplaces, universities, hospitals and aged care. It responds to local needs and opportunities for nutrition education and health promotion.

Nutrition Australia consists of a national board that is responsible for policies and national programs such as National Nutrition Week. They also have smaller state divisions and this allows Nutrition Australia to respond to local needs and provide targeted education and health promotion.

- Provision of the latest information on nutrition research and current food and health trends
- Coordination of events in the annual National Nutrition Week campaign
- Facilitation of high-profile seminars for the general public and health professionals
- Extensive media coverage and public speaking demonstrations
- Media commentary
- Food industry consultancies
- Nutrition training and presentations
- Menu assessments
- Provision of products and services to address food and nutrition issues across the lifespan
- Facilitation of a range of community nutrition education and food preparation programs
- Facilitation of workplace health and wellbeing programs

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FIGURE 7.10 Nutrition Australia aims to promote the health and wellbeing of all Australians.

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Nutrition Australia employs a range of staff and volunteers, enabling a large number of services to be offered, such as menu assessments and the facilitation of workplace health and wellbeing programs.

The following sections provide more specific details regarding some Nutrition Australia's work.

Victorian Healthy Eating Enterprise

The Victorian public health and wellbeing plan 2019–23, identifies increasing healthy eating as one of four priority areas.

The Victorian Healthy Eating Enterprise (VHEE) aims to improve the health and wellbeing of Victorians through food. The VHEE provides a coordinated platform for the Victorian Government to work with local governments, businesses, community health services, academics, health professionals and peak health bodies to build robust food systems, promote healthy eating and increase healthy eating opportunities across Victoria.

The VHEE's priorities are:

- Increase consumption of fruit and vegetables
- Decrease consumption of sugar-sweetened beverages
- Improve access to nutritious food.

Nutrition Australia Vic Division is the lead agency on initiatives to increase fruit and vegetable consumption.

Fruit and Vegetable Consortium

The Fruit and Vegetable Consortium (FVC) is a collaborative group of key organisations coordinated by Nutrition Australia Vic Division that works towards improving the supply and consumption of fruit and vegetables. Partners involved in the Consortium include representatives from local and state government, industry, health, education and community organisations.

Through the Fruit and Vegetable Consortium, members:

- collaborate on new initiatives
- share information and resources
- promote each other's initiatives.



FIGURE 7.11 The VHEE is addressing a need to increase the consumption of fruit and vegetables.

Nutrition Australia also curates a resource hub as part of its work to increase fruit and vegetable consumption. The resource hub includes a range of key resources for Victorian health and health promotion professionals to use in their work to promote the increase of the supply and/or consumption of fruit and vegetables in Victoria. The hub has a variety of links to credible, current and relevant information to support consistent messaging and evidence-based practice in Victoria.

The resources are arranged in sections that include:

- Guidelines
- Evidence – benefits of fruit and vegetable consumption, consumption data, factors affecting fruit and vegetable sales and consumption
- Resources – for settings (e.g. early childhood services, schools, workplaces, sports and recreation centres, universities, and the food industry), for consumers, and relating to food skills such as buying, storing and cooking fruit and vegetables.

Product and menu assessments

Product assessments

Nutrition Australia Vic Division works with food and drink manufacturers to independently classify their products against state and territory nutrition guidelines. The assessment of products allows manufacturers to reformulate to make

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their products healthier or leverage the results to approach schools, workplaces, health services and sport and recreation facilities with healthy options.

Online assessment tool

Nutrition Australia Vic Division's Healthy Eating Advisory Service has developed an online menu, product and recipe assessment tool, FoodChecker. FoodChecker allows anyone working in a long day care, school or retail food outlet to review the foods and drinks they supply against the relevant Victorian healthy food and drink guidelines for their establishment. The assessment process also provides tailored recommendations for healthy changes to meet the guidelines.

Workshops and programs

Health and wellbeing program

Nutrition Australia offers various services to workplaces to promote health and wellbeing in relation to food and nutrition, including:

- cooking demonstrations with a range of possible focuses, including seasonal produce, family-friendly, affordable, quick and favourite meals, and health makeovers
- nutrition education seminars with topics such as understanding food labels, healthy weight management, boosting energy and increasing the variety of food eaten
- personal one-to-one consultations that include the provision of advice from a dietitian as a short session provided in the workplace rather than having to travel to a dietitian's consulting rooms
- workplace vending machine and catering services assessment, which allows workplaces to improve the nutritional quality and variety of the food available to employees
- an interactive health display with a qualified nutrition professional that provides up-to-date information as well as being able to address individual queries regarding a range of topics such as a 'healthy' versus 'unhealthy' lunch.

Seasonal long day care menu packs

Nutrition Australia Vic Division has created a menu pack with simple seasonal recipes suitable for children. The menus are nutritious, cost-effective, aim to reduce food waste for childcare centres and meet the National Quality Standards. These menus are based on the menu-planning guidelines for seasonal day care and the Australian Dietary Guidelines. Each menu pack and recipes are tailored to the number of children at each centre.

Healthy Lunchbox Week

Healthy Lunchbox Week is a national initiative that aims to promote healthy eating among children, through aiming to inspire parents to create healthy lunchboxes that their children will enjoy. The initiative provides online recipes that are more nutritious than the processed foods often included in children's lunchboxes. The recipes provided are quick and can be made ahead of time, rather than in a rush on school mornings. The website also provides fact sheets and videos that aim to increase knowledge on what to include in the lunchbox and why it is important to include these foods. The advice is practical and easy to follow; for example: seven steps to creating a healthy lunchbox, lunch



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FIGURE 7.12 Nutrition Australia's Healthy Lunchbox week was launched in 2018. ©The Australian Nutrition Foundation Inc.

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box swaps (healthy food and drink options for specific common lunch box items) and virtual lunchbox builder. The Healthy Lunchbox Week is supported by Grains and Legumes Nutrition Council, Life Education and Cancer Council's Healthy Lunch Box.

Healthy Eating Advisory Service

The Healthy Eating Advisory Service involves a partnership between Nutrition Australia and the Victorian state government to provide advice to a range of organisations where people live, work and play. These include: early childhood services, schools (including before and after school care), workplaces, hospitals, sport and recreation centres, tertiary education facilities and parks. The service aims to improve food and drink options on their menus, in vending machines and their catering and food outlet options. The service is delivered by experienced nutritionists and dietitians by providing specific steps to improving the food and drink provided by the organisation, and options for menus and recipes. It also increases understanding of government policies and guidelines. A major aspect of the service is providing staff training to ensure the changes are long term and consistent.

Recipes and fact sheets

Nutrition Australia has a wide range of fact sheets and recipes available to the public, accessible via its website. It also has a wide range of publications promoting healthy eating and food variety available for use in homes, schools and workplaces (these items are not available online). These include recipe, nutrition and activity books; teacher resource packages; educational posters; and booklets and leaflets. In addition, Nutrition Australia produces a series of webinars for health professionals, which are available in its online shop.

National Nutrition Week

Nutrition Australia coordinates the annual National Nutrition Week that runs each year in the week of World Food Day (16 October). The *Tryfor5* campaign is an awareness campaign run during National Nutrition Week and encourages Australians to increase their vegetable consumption. During this week a number of activities and are hosted in early childhood services, schools and workplaces relating to a increasing vegetable intake.

Healthy Eating Pyramid

The Healthy Eating Pyramid has been Nutrition Australia's iconic guide to a healthy and balanced diet for over 30 years. It sets out the types of food that should be eaten every day as well as the proportions of our intake if we want to ensure good health.

Nutrition Australia's Healthy Eating Pyramid has continually evolved as a guide for Australians towards a balanced and varied diet in line with current dietary guidelines. Originally, it was launched in the 1980s as the 'Healthy Eating Pyramid'. This changed in 2004 when the 'Move more' layer was added and it became the 'Healthy Living Pyramid'. After removing the 'Move more' layer in 2015, it was changed back to the 'Healthy Eating Pyramid' to reflect a focus on food and nutrition messages only.

The Healthy Eating Pyramid categorises the different types of foods people should eat, and the proportion that these foods should take up in the daily diet for good health. The Healthy Eating Pyramid, following the Australian Dietary Guidelines (2013), includes healthy fats in addition to whole foods and minimally processed foods in the five main food groups as the basis for a balanced diet.

Although the placement of each food group on the pyramid can be applied to any Australian between the ages of 1 and 70, the layers follow the Australian Dietary Guidelines (2013) and are the recommended daily food intake for Australians aged between 19 and 50 years specifically.

The bottom of the pyramid includes the plant-based food groups that should form the base of our diet and should contribute the largest portion of our daily food intake. It is recommended that foods from these layers make up approximately 70 per cent of our diet. This is the biggest section

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SOURCE: 'The Healthy Eating Pyramid' © The Australian Nutrition Foundation Inc.

FIGURE 7.13 Healthy Eating Pyramid

of The Healthy Eating Pyramid and the layers are collectively referred to as the 'foundation layers'. They contain three core, plant-based food groups: legumes and vegetables, grains, and fruit. From late childhood to adulthood, the recommendation is to eat at least two serves of fruit and five serves of vegetables or legumes each day. When consuming fruit, it is recommended that individuals consume mainly whole fruit rather than juice, and include a variety including citrus fruits and berries. Individuals should also aim to include a wide variety of choices from the vegetables category, such as root vegetables, legumes and green leafy vegetables, both raw and cooked. When selecting foods from the grains section of the pyramid, preference should be given to whole grains including oats, brown rice and quinoa.

Other whole foods, such as dairy foods (milk, yoghurt, cheese) and alternatives, and lean meats, poultry, fish, eggs, legumes, seeds and nuts make up the next layer of the pyramid. This is referred to as the 'middle layer'. Reduced-fat options of milk, yoghurt and cheese are recommended along with lean cuts of meat to limit excess kilojoules from saturated fat.

At the top of the Healthy Eating Pyramid is the 'top layer' which is made up of healthy fats such as extra virgin olive oil, avocado, seeds and nuts. Individuals need a small amount of these each day to promote good health and wellbeing, including the promotion of heart health and brain function. The Healthy Eating Pyramid recommends selecting these types of healthy fats over foods that contain trans fats and saturated fats.

Additional messages in the Healthy Eating Pyramid include:

- Enjoy herbs and spices, which give colour and flavour to meals without having to add salt.
- Choose water over sugary drink options such as soft drinks, sports drinks and energy drinks. Water is the best drink for staying hydrated and it supports many functions in the body.
- Limit salt and added sugar intake. This includes avoiding adding salt or sugar to food when cooking or eating, and avoiding packaged foods and drinks that have salt or added sugar in the ingredients.

SOURCE: Nutrition Australia (2017)

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The success of the Healthy Eating Pyramid as an educational tool lies in its simplicity, and it continues to be in great demand by educators, health workers and the general public. It has been designed as a simple, conceptual model for people to use as a first step to adequate nutrition. It represents basic foods only and facilitates individual food choices in the ways that these foods can be mixed to create flavours and textures that please Australia's diverse population.

ACTIVITY 7.2: HEALTHY EATING PYRAMID

1 Provide examples of when and where you have come into contact with this model.
2 Compare your own dietary intake with the Healthy Eating Pyramid and note any differences.
3 Suggest changes you could make to your food intake to correspond with the recommendations of this food model.
4 Identify and explain three advantages and three disadvantages in relation to use of the Healthy Eating Pyramid to improve Australians' diets.
5 Referring to Figure 7.8 and Figure 7.13 identify three similarities and three differences between the Australian Guide to Healthy Eating and the Healthy Eating Pyramid.
6 Identify which model you would prefer to use as a means of improving your own diet. Explain your choice.
7 Discuss three other services provided by Nutrition Australia that you could use to help improve your dietary intake so that it is line with the Healthy Eating Pyramid and the Australian Dietary Guidelines.
8 Outline why you think the services identified in Question 7 will be effective in enabling you to make the necessary changes.

AOS 2

CASE STUDY: THE WORK OF NUTRITION AUSTRALIA

Thumbs up to MSAC's new healthy food range

14 September, 2017

Next time you take the kids for a swim at the Melbourne Sports and Aquatic Centre, there's no need to feel stressed when they're hounding you for food.

The café has become the first state-level facility or stadium in Victoria offering guilt-free snacks, food and drinks.

Stadiums are often notorious for their unhealthy fast-food style of catering.

But for Melbourne Sports Hub CEO Phil Meggs, that went against the grain of everything the centre stood for.

'It's hard to promote health, sport and active recreation, then back that up with a menu of deep fried food and sugar,' he said.

So the team at MSAC set about a dramatic shift in profile.

They utilised the Victorian Government's Healthy Choices traffic light guidelines which ranks food and drinks as green (excellent), amber (fine for sometimes) and red (I'm sure you can guess). They also used the Healthy Eating Advisory Service to help them get on track with healthy changes.

Starting in January they began removing the vending machines in the facility, and replacing them with a much smaller number containing healthier options such as mineral water, or small serves of milk and 99 per cent fruit juice.

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They've also gutted the cafeteria, and transformed it into a comfortable, welcoming café.

Gone are all the sugary snacks, chocolate-coated ice creams and soft drinks, along with the huge branded fridges and freezers that housed them.

The clean lines of the shelves, fridges and freezers are now logo-free, and filled with appetising and healthy options.

Virtually everything on the menu is now green or amber, but that doesn't mean it's boring.

You can still get hot chips, but they are oven baked in a high speed oven using barely any oil.

There are some homemade slices, but they are sweet enough with their own natural ingredients such as dates, so don't need added sugar.

There are hot pies, but a smaller 'traveller' size is available so the portion is healthier with lower added salt.

There's also a wide range of menu items, and the café has introduced take home healthy meals that busy parents or late trainers can take home and heat up.

State Public Health Nutritionist Sharon Laurence says MSAC is to be applauded for its leadership and for its clever approach.

'We all know the influence that pester power has when it comes to buying unhealthy food for kids. When they see it, they ask for it,' she said.

'What we choose to eat is powerfully influenced by access and signage. If you remove the visual cues then kids … and adults … will focus instead on what's on offer.

'And it's also not about eliminating all unhealthy foods. Things like, chips, milk-based ice creams and pies can be okay if they are well prepared and in small portions.

'So this café isn't a health food shop – the menu is varied – but it's dominated by fresh healthy food that looks and tastes great.'

Phil Meggs said the transition was a challenge, but it's been rewarding.

'It's obviously taken time and effort to completely change our look, our focus and our food but the results are incredible.

'We're proud of our food and so are our staff. Our goal is to be cost neutral in the early days, and gradually build from there.'

Phil is introducing the concept at Lakeside Stadium and the State Hockey and Netball Centre, which are also managed by Melbourne Sports Hub.

It's also happening at several smaller YMCA facilities across the State …

SOURCE: *Thumbs up to MSAC's new healthy food range*, State Government of Victoria (2019)

1. Explain why it is important for people to consider energy input and energy output. Consider Phil Meggs's reasons for change, and explain how they relate to this.
2. Identify the Australian Dietary Guidelines that are reflected in the changes to MSAC's menu.
3. Explain, with specific examples, how the Healthy Eating Advisory Service works.
4. Explain the advantages of using the Healthy Eating Advisory Service, particularly in a large facility.
5. Consider your own school canteen menu. Explain whether this menu reflects the Australian Dietary Guidelines. Explain how Nutrition Australia could work to improve the menu and overall the dietary behaviours of your school community.



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7.4 CHALLENGES TO BRINGING ABOUT CHANGE IN DIETARY INTAKE

While hunger is a person's primary motivation for consuming food, the choices an individual makes with regard to what they eat are not driven solely by their physiological or nutritional requirements. In fact, there are quite a number of factors that influence food choice, including:

- **sociocultural influences:** income, culture, family and peers, attitudes and beliefs, education (knowledge and skills)
- **Personal factors:** personal taste preferences, meal patterns
- **biological influences:** age, stress levels
- **environmental influences:** food availability and security.

AOS 2

Influences on dietary intake

Income

Food selection is often influenced by the prices of goods, and an individual's socioeconomic status (SES) and household income level can be important for determining overall food intake quality. Nutrient-dense diets are more likely to be consumed by those of high SES, whereas nutrient-poor diets are more likely to be consumed by people of low SES due to their limited economic means.

Differences in food choice between SES groups have been found, particularly with regard to intake of energy, fat, sodium and simple sugars. Groups with a higher SES are more likely to eat whole grains, lean meats, fish, low-fat dairy products, and fresh vegetables and fruit, as opposed to lower SES groups, where there is a higher consumption of refined grains and added fats. This is likely to be due to the fact that, while healthy food is often expensive, less healthy and highly processed options can be relatively cheap, as well as offering other appealing characteristics such as reducing the time needed for meal preparation. The food industry is able to produce low-cost, highly palatable, energy-dense foods in large portion sizes relatively cheaply; for example, high-starch options such as white bread and pasta instead of whole grains, or higher fat options such as processed meats instead of fresh, lean meats. These foods are also a good option for those with limited food budgets because they are energy-rich foods that are very filling.

Alternatively, high-SES groups can afford to pay someone else to prepare food and are more likely to eat outside the family home regularly because they can afford the high cost of this practice.

Efforts by governments, public health authorities, producers and retailers to promote meals made mainly from whole foods (such as fruit and vegetable dishes) as value for money could make a positive contribution to dietary change.

ACTIVITY 7.3: ARTICLE ANALYSIS

Food insecurity strikes middle-income households, study finds

Some Melbourne mums are reducing their own portion sizes or skipping meals when money is tight so their children don't go without, as middle-income families say stretched budgets are causing food stress.

Middle-income families are among those having trouble putting food on the table at times because of stretched budgets, research has found.

A study involving Melbourne households discovered some mums reduce their own portion sizes or skip meals when money is tight so children don't go without.

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Others relentlessly chase grocery specials at different stores and host occasional 'bring a plate' dinners with friends to manage, the Monash University investigation revealed.

Research published in *The International Journal of Environmental Research and Public Health* found food insecurity was not restricted to people on the lowest incomes, and could extend to those considered middle-class.

Food insecurity is described as limited or uncertain access to enough nutritious food.

Monash University researcher and public health dietitian Dr Sue Kleve said families juggling housing, grocery, utility and other costs could at times be pushed to the brink by unexpected medical or other bills, or cuts to casual or contract work hours.

'We are talking about people who are employed, who have a roof over their head and a mortgage,' Dr Kleve said.

'Food insecurity leads to stress, anxiety and concern about having enough food, enough money for food. You might have to buy cheaper choices, which are higher in energy and lower in nutrition.

'It's like mortgage stress but with food – food stress.'

The research, in collaboration with Flinders University, surveyed 134 people and found a third had experienced food stress.

In-depth interviews were then held with 16 people from households with annual before-tax incomes of $40 000 to $80 000 about their food experiences.

Dr Kleve said some grew vegies in pots, or always had tinned food in the pantry to prepare basic, cheap meals.

'One woman talked about ensuring the household had fruit and vegetables but at times was so challenged at the end of the week she had to feed a family of three with a $5 pizza,' she said.

'Another said friends regularly bought her basics such as toilet paper so she had an extra $10 for food.'

Dr Kleve said most already had good budgeting and home cooking skills, so policies for affordable food and utilities, and more secure employment, were also needed.

SOURCE: *Food insecurity strikes middle income households, study finds*, Herald Sun (2019)

1 Explain the concepts of 'food stress' and 'food insecurity' and explain how they may be a barrier to dietary change in Australia.
2 Explain why 'mothers reducing portion sizes or skipping meals' is a concern for health and wellbeing.
3 Conduct research into activities that the government could undertake to tackle the issues outlined in the article.
4 Explain how Nutrition Australia could work to improve the issues outlined in the article.

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AOS 2

Family and peers

Dietary habits and choices develop early. From infancy, a child's dietary intake is shaped by their parents. Food can be used as a reward for good behaviour; and sometimes food is used to interrupt bad behaviour. Experts suggest that this may have a negative impact on children's views and attitudes towards food and undermine healthy eating messages. Parental attitudes also affect their children through the foods purchased and served in the household, influencing family members' exposure to different foods, and their habits and preferences.

Some research suggests that children pick up eating behaviours by observing the eating habits of others. It is therefore important for parents to be good role models and to be careful about the way they encourage or discourage certain types of food. Children learn about foods they like or dislike by being exposed to different types of food, and observing and experiencing the consequences and rewards of consuming those foods.

Friends and peers also exert an influence on eating habits. Sharing a meal with friends, school mates or work colleagues is a common activity. Other people influence our food intake and choices in a variety of ways. When people are together, they tend to eat more, or less, than when they're alone (depending how much others eat). For example, when a person eats with someone who is consuming a large amount, they are likely to model what their companion eats and consume more than they would eat if they were alone. Individuals are also likely to eat a larger amount if they in a larger group than when eating alone. Further, the type of food eaten in social situations can be different from the food eaten when a person is alone.

Such 'social facilitation' of eating has been well documented, with evidence from food diaries, observational and experimental studies. One reason why peers have such an influence on eating is that they provide a guide or norm for appropriate behaviour. For example, conversely to eating more, individuals may eat less than usual if they think that consuming a small amount will create a more favourable social impression.

An interest in the relationship between social norms, dietary patterns and health status could allow organisations to assess the potential for social norms to be used in the promotion of healthy eating.

Culture

The culture of a group – that is, the set of values, beliefs and practices that they share – not only affects the emotions, behaviours and thoughts of each member, but also their adoption of health education messages.

Growing up in a distinctive culture is bound to influence lifestyle, belief system and food intake. Food plays an important role in the lives of families in most cultures. However, the degree of importance varies from culture to culture.

FIGURE 7.14 A child's dietary intake is strongly influenced by their parents.



FIGURE 7.15 Food plays an important role in the lives of families in most cultures.



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Cultures have long histories of food patterns going back to ancestral origins. Ingredients, preparation methods, preservation techniques and types of food eaten at different meals vary from culture to culture and these can be a way for immigrants to maintain their cultural identity while living in Australia.

Some food traditions are more healthy than others and some cultures can produce people with varying health risks that may be due partly to the influence of culture on food intake. For example, a diet that includes low-fat foods and lots of vegetables, such as those of many Asian cultures, can result in good health and may play a significant role in reducing the risks of diseases such as diabetes mellitus and cancer.

Some food beliefs and practices are based on religious beliefs. Around the world, Muslims fast during Ramadan when, for a month, they do not eat during daylight hours, only eating and drinking before dawn and after sunset. Many Jewish people follow dietary laws (popularly referred to as a *kosher* diet) which describe the use and preparation of animal foods, and are followed for purposes of spiritual health and wellbeing. Many followers of Buddhism and Hinduism are vegetarians, a practice which stems from the desire to avoid harming other living things. Despite this, dietary practices vary widely even among those who practise the same faith.

EXTENSION QUESTION 7.1

Consider the impact that culture has on dietary choices and explain how the work of Nutrition Australia may address this.

Attitudes and beliefs

Although food is often selected with some attention to physical needs and hunger, the values or beliefs that a society attaches to food items influence the attitudes and beliefs of the individuals within that society.

How people adjust their own eating to fit in with perceived societal beliefs is similar to the influence of their culture. For example, individuals may bring their eating in line with that of others through changing their food preferences. While family and carers have the strongest influence on children's attitudes and beliefs regarding food intake, peer groups create norms concerning eating behaviours, particularly as children grow older. For example, teenagers' desire to conform to their peer group's expectations may cause them to make unhealthy food choices.

All of us, however, are subject to normative beliefs (beliefs about what other people think of a particular behaviour) that affect our food preferences and choices. Positive attitudes of peers can increase positive attitudes towards a food, as well as the perceived value of that food for the individual. Eating like other people is a positive emotional experience, and an individual uses these norms to inform their own food preferences.

The reasons why individuals change or adopt new dietary behaviours are numerous and complex. In some circumstances, people will find dietary change difficult to achieve and maintain. Understanding the influence of attitudes and beliefs and when, how and why dietary changes occur over time (whether or not the changes are lasting) is critical for developing intervention strategies.

Education (knowledge and skills)

People with lower levels of education may eat larger amounts of unhealthy, energy-dense food than those with a higher education level.

Sound nutrition knowledge is important to enable healthy food choices. There are a number of ways by which Australians can obtain information relating to food and nutrition. Food labels, advertising, food and nutrition information and the food environment all contribute to food selections made by people. The knowledge that people gain and use to make food choices needs to be in a form that can address a range of limitations being experienced by the population. This is a challenge that needs to be addressed if significant changes in population-wide intake are to take place.

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For example, many people are still experiencing difficulties in understanding food-packaging labels, what constitutes a portion size and how to balance the diet in relation to more complex concepts such as macronutrient balance. Furthermore, with increased access to information through means such as social media, people are exposed to an abundance of information and may lack the knowledge and skills to make informed decisions about the reliability and quality of the information they are being exposed to.

One of the major barriers to improved nutritional intake is identified as a lack of time for preparation and limited skill levels in creating variety in food intake. Individuals and families can find it difficult to exchange habitually bought items for whole foods and unprocessed foods without increasing the cost, effort and time involved.

Nutrition education in schools is fundamental for supporting young people to develop sustainable, health-promoting eating behaviours and to empower them to make informed decisions. Teaching students about nutritional recommendations alone is insufficient to bring about change, and it is important for young people in schools to explore their eating habits and the implications of these habits for their health. Food-preparation classes are integral to teaching about food and nutrition, and students should be taught to prepare meals that are cost- and time-effective, nutritious and tasty.

Personal taste preferences

Personal taste preferences represent a significant challenge to developing healthier eating practices for many people. Basically, many people make their food choices based on the simple fact that they taste good. Individuals who consistently consume a high-sugar, high-sodium (salt) and high-fat diet can find foods lower in these substances unpalatable and unsatisfying. Giving up foods perceived as 'favourite foods' can take a great deal of willpower that, even if armed with information and nutritional advice to change choices, can represent a barrier to change.

On the other hand, people may be eating lightly and what they perceive as healthily, but they are actually not eating enough vegetables and whole grains. More to the point, people may know what they should be eating, but in their daily food choices they eat what satisfies and that they are used to eating.

Meal patterns

The term 'meal patterns' is often used to describe an individual's eating patterns at the level of a 'meal', such as a main meal (for example, breakfast, lunch or dinner) or a smaller-sized meal (for example, morning tea, afternoon tea, supper or snack) (Leech et al., 2015).

One of the most common unhealthy meal patterns is that of skipping breakfast. This meal pattern can result in an increase in snacking and can also result in a lower intake of essential nutrients, including fibre.

It is important for families to eat together as often as possible because family meal patterns have been linked to the nutritional quality of children's diets. For example, where families regularly have dinners together, their food intake is much healthier than in families where shared meals are uncommon.

People consume combinations of foods as meals and snacks rather than as individual foods and nutrients. Understanding the nutritional composition of meals and the ways in which different meal patterns make an impact on diet quality might help to clarify how to overcome challenges to changing dietary behaviour.

A meals-based approach could complement the dietary advice that uses a food-based model as part of its framework (for example, the Australian Dietary Guidelines, the Healthy Eating Pyramid) to assist people in achieving the recommended daily intakes of foods and nutrients. Simply, dietary advice in the context of meals could help populations with their daily meal preparation and therefore be a more practical way to assist populations to make changes (Leech et al., 2015).

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Ageing

Individuals tend to eat less and make different food choices as they get older. Low-energy intakes or low-nutrient density of the diet may increase the risk of diet-related diseases, and thus pose a health problem. Several factors may influence this decline in food intake. Daily volume of foods and beverages declines as a function of age. Physiological changes associated with age, including slower gastric emptying, altered hormonal responses, decreased basal metabolic rate, and altered senses of taste and smell, together with dental problems that make some foods too difficult to eat, may contribute to this reduced food intake.

Stress levels

In the short term, stress can shut down appetite. A structure in the brain called the hypothalamus releases a hormone that suppresses appetite. But if stress persists, another hormone called cortisol is released, which increases appetite and may also increase the motivation to eat. Once a stressful episode is over, cortisol levels should fall, but if the stress is ongoing then cortisol may stay elevated, resulting in continued eating even if hunger is not being experienced.

Stress also seems to affect food preferences. Numerous studies have shown that physical or emotional distress increases the intake of foods high in fat, sugar or both. Again, certain hormones (such as cortisol, leptin, epinephren and ghrelin) may be responsible for this. Once ingested, high fat-filled and high sugar-filled foods seem to have a feedback effect that inhibits activity in the parts of the brain that produce and process stress and related emotions. Hence, many people often refer to these as comfort foods. Therefore, part of our stress-induced craving for those foods may be that they counteract stress.

Food availability and security

Food security is generally thought to have four dimensions:

1 **food availability:** sufficient quantities of food are available on a consistent basis
2 **food access:** sufficient resources are available to obtain appropriate foods for a nutritious diet
3 **food use:** appropriate use, based on knowledge of basic nutrition and care, as well as adequate food preparation facilities
4 **food stability:** stability of availability and access over time (AIHW, 2012).

When looking at one of the major concerns regarding Australians' nutritional intake, reported environmental barriers can include availability and cost. Availability and choice of food can be influenced, and limited, by when and where it is prepared and by whom. Australians eat their meals in a variety of settings – in the home, at commercial food outlets and in institutional settings such as early childhood services, schools, the workplace, hospitals, aged care facilities, prisons and military establishments. The setting chosen can be for pleasure (for example, eating at a restaurant), for convenience (for example, a workplace canteen) or out of necessity (for example, food services in hospitals).

Availability and accessibility of healthy or less healthy foods are important for nutrition behaviours in youth and adulthood; schools and worksites offer good opportunities to improve availability of healthy foods. For example, the political environment (rules and regulations) that a person experiences may influence food choices and eating behaviours. Bans on soft

ACTIVITY 7.4: ANALYSIS

Abbey is a 16-year-old who attends secondary college. She works in her parents' fish and chip shop most nights after school and also plays in a girls' netball team.

1 Identify and explain any factors that may positively or negatively influence Abbey's dietary intake.
2 Explain how Nutrition Australia may work to influence Abbey's diet.

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drink vending machines in schools, rules on what treats can and cannot be brought to school, nutrition policies in worksites and institutions, and family food rules are examples of political environmental factors that affect food availability.

The challenges involved in addressing these influences to bring about dietary change

Involvement of all stakeholders

In order to bring about dietary change in a population, a coordinated strategic plan is necessary – one that includes all sectors of society, including individuals, families, educators, communities, physicians and allied health professionals, public health advocates, policy-makers, scientists, and small and large businesses (farmers, agricultural producers, food scientists, food manufacturers, and food retailers of all kinds). Unfortunately some of these key stakeholders cannot see the benefits of changing dietary intake, especially as it may result in negative outcomes for them; for example, a loss of profit for a food manufacturer. Hence, having all of these groups in agreement in terms of need (the why) and process (the how) is a hurdle that has yet to be overcome.

Tailored approach instead of a 'one-size-fits-all' approach

Another significant challenge with regard to changing dietary intake is that a 'one-size-fits-all' approach cannot successfully be applied to the wider population and address so many different influences. More than one type of approach is required for successful change. It has become evident that organisations tasked with changing dietary intake, together with dietitians, nutritionists and counsellors, may need to personalise guidance based on the needs and priorities of individual consumers in order to influence change. In particular, a comprehensive, long-term approach is required that encompasses a range of strategies, including education, provision of information, legislative changes and restrictive measures.

Helping the unmotivated

It can be relatively straightforward to help those who are motivated to improve their health by providing information and resources such as counselling support; however, one of the main challenges that health practitioners and governments have is motivating people disinclined to engage in healthy behaviour. The above approaches to changing behaviour (such as food intake) do not account for a substantial proportion of the population who do not feel that there is a need to make changes or that the changes required are worth the effort – that is, they are unmotivated. The lack of motivation may stem from low levels of feelings of self-worth, low outcome expectations, and not believing they can do something successfully. Based on these findings, approaches aimed at reducing a lack of motivation could include confidence-building strategies targeting decisional balance and also those that focus on changing effort and beliefs.

Focusing on the environment

Studies of influences on eating behaviours have focused primarily on individual-level factors, such as taste preferences, nutrition knowledge, attitudes and intentions. Insight into such motivational factors has informed health education interventions to promote healthier eating habits, including nutrition advice and counselling. Such nutrition education approaches attempt to urge people to consciously adopt healthier eating habits by providing information about unhealthy eating and healthier alternatives. However, such nutrition education interventions have had limited and mostly short-lived effects at best. More recently, it has been argued that the environment in which we live may be the driving force behind many of our less healthy dietary intake practices.

For example, present-day food environments are characterised by abundant (almost anywhere and any time) availability and accessibility of energy-dense foods that strongly appeal to preferences for sweet, fat and salty foods. The focus on environmental influences on dietary

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EXTENSION QUESTION 7.2



FIGURE 7.16 Challenges to bringing about change in dietary intake

Using examples from Figure 7.16 outline the relationship that may exist between multiple dietary challenges, considering how one challenge may increase the likelihood of another challenge.

practices is concerned with a health-protection approach to promotion of healthy eating. An example of this is changing the environment to protect the population against exposure to foods and eating patterns that contribute to chronic disease risk.

Affordability of interventions

Another major challenge for both health professionals and the public in terms of effecting dietary change is creating campaigns that incorporate practical solutions in a way that is affordable for all stakeholders.

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Targeting change in children's dietary intake

There is a lot of evidence to suggest that in order to change dietary intake, interventions are required early in life. The family food environment is complex, and is thought to include parental factors such as nutrition knowledge, parenting styles and feeding practices, role modelling, food availability and accessibility, as well as children's own individual characteristics and behaviours. Traditionally women have had a central influence on the provision of food in many families. Changes in employment patterns and family structure, however, have left women with less time to devote to this activity. One possible consequence of this trend is that someone other than a parent routinely provides food for young children. An example of this is preschool-age children may receive out-of-home childcare that includes mealtime care from a grandparent or other relative, or organised childcare in a facility. In later childhood, the school environment plays a role in shaping lifelong eating patterns.

In order to change the dietary intake of children, there must be a two-pronged approach that focuses on changing parental practices as well as changing the foods available in external environments such as childcare facilities and schools. This requires changing policies – for example, school canteen policies – as well as parental education programs. Nutrition education at the very earliest educational stages could result in changing behaviours, especially when linked with a healthy food environment.



ACTIVITY 7.5: MEDIA ANALYSIS

You can now get 'ugly' fresh fruit and veg and reduce food waste at the same time

by Lindy Lawler

Coles is encouraging Aussies to buy imperfect produce to help reduce food waste

Coles has taken a positive approach to food wastage by launching a new program called 'I'm Perfect' that offers flawed-but-adored fruit and vegetables. As part of the program, customers will be able to buy select fresh produce for cheaper than the standard price.

Ugly, but bursting with flavour

The new range focuses on working with suppliers to reduce food waste and exposes customers to 'ugly' fruit that may have unnecessarily ended up as waste.

'Our customers know that regardless of shape, size or any small cosmetic blemishes, Coles produce is fresh and bursting with flavour,' said Coles General Manager, Brad Gorman. 'The I'm Perfect range will introduce our customers to millions of pieces of fruit and veg that they may otherwise never have met.'

Products in the range will also be wrapped in plastic that can be recycled through the RedCycle soft plastics recycling program.

Helping farmers recoup costs

The program is being trialled in Victoria and South Australia and has been well received by suppliers such as Adelaide Hills apple grower, Tony Ceravolo.

'For two years running the Ceravolo Orchards were hit by a devastating hailstorm, damaging up to 90 per cent of their harvest', said Tony. 'With far less premium grade fruit for us to sell and an abundance of fruit with minor to major defects, Coles really



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got behind the Hailstorm Hero's campaign and helped us recoup some of our costs by encouraging people to buy perfectly good fruit that was a little freckly on the outside.'

The 'ugly' range includes:

Apples (2 kg)

Pears (2 kg)

Oranges (3 kg)

Lemons (1 kg)

Onions (2 kg)

Carrots (2.5 kg)

Sweet Potatoes (2 kg).

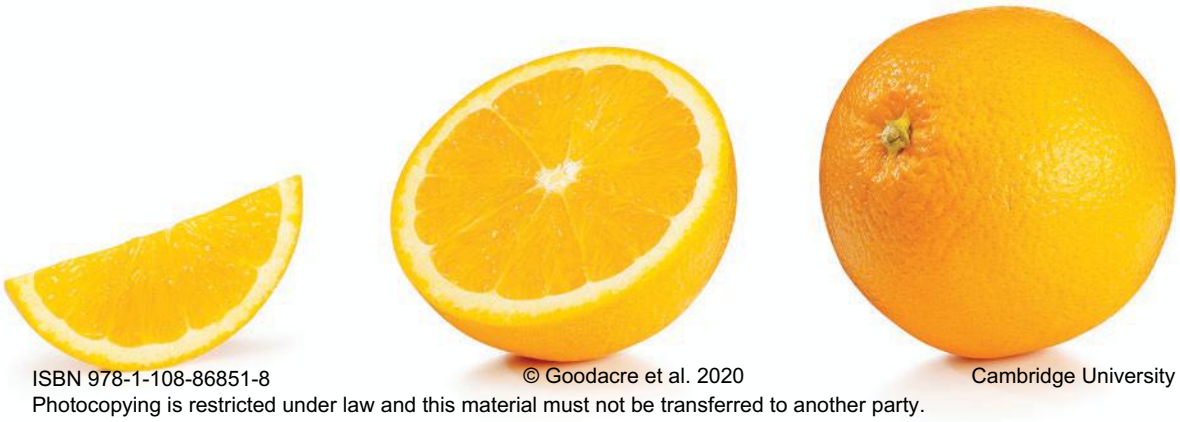
The program also builds on a range of Coles Brand banana products – such as banana bread and muffins – made with bananas that would have otherwise been unsold.

SOURCE: *You can now get 'ugly' fresh fruit and veg and reduce food waste at the same time*, Lindy Lawler, Taste.com.au (2019)

1 Select a challenge in bringing about dietary change that has been discussed in this chapter and explain how the 'imperfect range' initiative aims to address this challenge.
2 Explain how this initiative could improve the health and wellbeing of Australians.
3 Consider the advantages and disadvantages of this program for all stakeholders. Create a summary table that outlines five advantages and five disadvantages.

ACTIVITY 7.6: REFLECTION TASK

1 To help you identify your own barriers to changing your eating habits, recall the last few times you thought about changing your eating behaviour but didn't follow through with it. What held you back? Write down your reasons. Then, for each of your reasons, write a response that helps you to reconsider your choice. Look at this list of reasons and responses whenever you are about to make a choice about what to eat.
2 With a partner, identify and briefly describe two of the challenges faced by government bodies and organisations in bringing about successful dietary change. Devise a strategy that you think could overcome these challenges and discuss why you think it would be successful.



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CHAPTER SUMMARY

- The Australian Dietary Guidelines
  - › The Australian Dietary Guidelines seek to encourage healthy eating to reduce the risk of chronic conditions and to improve the community's health and wellbeing.
  - › There are five main guidelines with underlying details:
    - Guideline 1: Achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.
    - Guideline 2: Enjoy a wide variety of nutritious foods from these five groups every day.
    - Guideline 3: Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.
    - Guideline 4: Encourage, support and promote breastfeeding.
    - Guideline 5: Care for your food; prepare and store it safely.
- Nutrition Australia is Australia's primary community nutrition education body, providing scientifically based nutrition information to encourage all Australians to achieve optimal health and wellbeing through food variety and physical activity.
  - › The Healthy Eating Pyramid is Nutrition Australia's iconic guide to a healthy diet, and has been designed as a simple, conceptual model representing basic foods for people to use as a first step to ensure adequate nutrition.
- Other work of Nutrition Australia Includes:
  - › Awareness-raising, information provision for the public and health professionals, and education, and offering a range of services for the public and industry.
  - › The Victorian Healthy Eating Enterprise (VHEE) Fruit and Vegetable Consortium.
  - › Resource hub.
  - › Online menu-assessment tool that allows anyone working in long day care or retail food outlets to review food and drink products, recipes and entire menus.
  - › A workshop that includes a range of resources available to workplaces to promote health and wellbeing in relation to food and nutrition.
  - › The Healthy Eating Advisory Service supports Victorian early childhood services, primary and secondary schools, workplaces and hospital retail food outlets to provide healthier food and drinks.
  - › A wide range of fact sheets and recipes available to the public via its website.
  - › Co-ordination of the annual National Nutrition Week campaign that runs each year in the week of World Food Day (16 October).
- There are quite a number of factors that influence food choice, and that make dietary change challenging. Examples include:
  - › **sociocultural influences:** income, culture, family and peers, attitudes and beliefs, education (knowledge and skills)
  - › **personal factors:** personal taste preferences, meal patterns
  - › **biological influences:** age, stress levels
  - › **environmental influences:** food availability and security.
- The challenges to dietary change need to be considered and addressed in order to see improvements in diet.

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KEY QUESTIONS

SUMMARY QUESTIONS

1 Explain why it is important for the government to be actively involved in improving the health status of Australians.

2 Outline the aims of the Australian Dietary Guidelines.

3 Create a table or concept map that summarises the Australian Dietary Guidelines.

4 Identify the differences in serving size recommendations between age groups, and between males and females. Explain why these differences exist.

5 Explain the role of Nutrition Australia in health promotion and the provision of dietary advice.

6 Outline the objectives of Nutrition Australia. Discuss whether you believe that these objectives are being met in Australia and explain your reasons.

7 Identify the range of services provided by Nutrition Australia.

8 Describe the Healthy Eating Pyramid. Ensure you use the correct terminology for the layers.

9 Summarise the influences on dietary intake that can make changing dietary intake challenging.

10 Summarise the overall challenges that organisations (such as Nutrition Australia) face in creating population-wide changes to dietary intake.

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EXTENDED RESPONSE QUESTION

SOURCE

TABLE 7.5 Fruit and vegetable consumption

IN THE PAST TEN YEARS, THE PROPORTION OF AUSTRALIANS 18 YEARS AND OVER NOT MEETING THE RECOMMENDED DAILY INTAKE (RDI) FOR FRUIT AND VEGETABLES HAS INCREASED SIGNIFICANTLY.

INADEQUATE FRUIT INTAKE OVER TIME					
	2001	2004–05	2007–08	2012	2014–15
Inadequate fruit intake (total)	47.3%	46.1%	48.7%	51.6%	50.2%
Inadequate fruit intake (male)	52.8%	52.1%	53.9%	56.4%	56.0%
Inadequate fruit intake (females)	42.0%	40.2%	43.6%	46.7%	44.6%

INADEQUATE VEGETABLE INTAKE OVER TIME				
	2004–05	2007–08	2012	2014–15
Inadequate vegetable intake (total)	86.1%	91.2%	91.9%	92.9%
Inadequate vegetable intake (male)	87.9%	92.7%	92.9%	96.2%
Inadequate vegetable intake (females)	84.2%	89.9%	90.6%	89.9%

QUESTION

Consider the challenges to dietary change that may impact on trends in relation to inadequate fruit and vegetable intake and outline two examples of how Nutrition Australia may work to improve fruit and vegetable consumption in Australia. (8 marks)

EXAMINATION PREPARATION QUESTIONS

Diabetes mellitus (diabetes) refers to a group of different conditions where the body cannot maintain normal blood glucose levels. Type 2 diabetes mellitus is more prevalent than type 1, and accounts for 85–90 per cent of all people with diabetes. It is also the type of diabetes most commonly associated with dietary risks such as high sugar and high fat intake. It is caused by a decrease in insulin production or the inability of the body to use insulin properly, and is associated with being overweight or obese.

A Explain two ways in which the Australian Dietary Guidelines may assist in reducing the risk of type 2 diabetes mellitus. (4 marks)

B Identify and explain how Nutrition Australia works to reduce the risk of developing type 2 diabetes mellitus. (4 marks)



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UNIT 4

HEALTH AND HUMAN DEVELOPMENT IN A GLOBAL CONTEXT

AREA OF STUDY	OUTCOME
1 Health and wellbeing in a global context	Analyse similarities and differences in health status and burden of disease globally and the factors that contribute to differences in health and wellbeing.
2 Health and the Sustainable Development Goals	Analyse relationships between the Sustainable Development Goals and their role in the promotion of health and human development, and evaluate the effectiveness of global aid programs.

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8 COMPARISONS IN HEALTH STATUS AND HUMAN DEVELOPMENT

KEY KNOWLEDGE

- Characteristics of high-, middle- and low-income countries.
- Similarities and differences in health status and burdens of disease in low- , middle- and high- income countries, including Australia.
- 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

- 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 the burden of disease in different countries and discuss their impact on health and wellbeing.
- Explain the Human Development Index and evaluate its usefulness in measuring the human development of countries.

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INTRODUCTION

This chapter considers health in a global context. The World Bank has created an income classification system of countries, which are high income, upper middle income, lower middle income and low income. In this chapter, your main focus will be on high- and low-income countries while also considering some aspects and levels of health status in middle-income countries. You will find data on the characteristics of high, middle- and low-income countries to help you develop an understanding of the situation that each of these countries faces as well as health status in a global context. Similarities and differences in health status are discussed, highlighting recent changes for both high- and low-income countries.

You will explore the role of sustainability in the promotion of health and wellbeing and improvements in health status now and into the future, learning how sustainable development can impact on the health and wellbeing of all people. Finally, you will learn about the concept of Human Development and consider it in terms of the interrelationship that exists between human development and a range of health indicators, as well as health status over all. The Human Development Index (HDI) was created by the United Nations as a means of providing a statistical indication of a country's level of human development. You will explore the advantages and disadvantages of the HDI as an indication of levels of human development.

What you need to know

- The economic, environmental and social characteristics of high-, middle- and low-income countries
- Similarities and differences in health status between, high-, middle- and low-income countries
- The concept and dimensions of sustainability
- The impact of sustainability on health outcomes, in high-, middle- and low-income countries
- The concept of Human Development
- The relationship between human development and health outcomes
- The Human Development Index, including its dimensions and indicators
- The advantages and disadvantages of the Human Development Index as an indication of the levels of human development

What you need to be able to do

- Describe characteristics of high-, middle- and low-income countries.
- Analyse and evaluate health status data on high-, middle- and low-income countries.
- Explain the connection between characteristics of high-, middle- and low-income countries and health status.
- Explain what is meant by sustainability and identify the different dimensions.
- Explain how sustainability impacts health outcomes.
- Explain what is meant by human development.
- Explain the Human Development Index and its dimensions and indicators.
- Evaluate the advantages and disadvantages of the Human Development Index.

AOS 1

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IF THE WORLD WERE 100 PEOPLE

- 50 would be male
- 50 would be female
- 25 would be aged 0–14
- 66 would be aged 15–64
- 9 would be aged 65 and older
- 60 would be from Asia
- 16 would be from Africa
- 10 would be from Europe
- 9 would be from Latin America and the Caribbean
- 5 would be from North America
- 31 would be Christian
- 23 would be Muslim
- 15 would be Hindu
- 7 would be Buddhist
- 8 would believe in other religions
- 16 would not be religious or identify as being aligned with a particular faith
- 12 would speak Chinese
- 6 would speak Spanish
- 4 would speak Hindi
- 3 would speak Arabic
- 3 would speak Bengali
- 3 would speak Portuguese
- 2 would speak Russian
- 2 would speak Japanese
- 60 would speak other languages
- 86 would be able to read and write
- 14 would not
- 90% of males would be able to read and write
- 10% of males would not be able to read and write
- 82% of females would be able to read and write
- 18% of females would not be able to read and write
- 78% of eligible males would have a primary school education
- 76% of eligible females would have a primary school education
- 66% of eligible males would have a secondary school education
- 63% of eligible females would have a secondary school education
- 7 would have a college degree
- 54 would be urban dwellers
- 46 would be rural dwellers
- 91 would have access to safe drinking water
- 9 would use unimproved water
- 11 would be undernourished
- 1 would have HIV/AIDS
- 1 would have tuberculosis
- 11 would live on less than US$1.90 per day
- 82 would have electricity
- 18 would not
- 65 would be cell phone users
- 47 would be active internet users
- 95 would live in an area with a mobile-cellular network
- 68 would have improved sanitation
- 14 would have no toilets
- 18 would have unimproved toilets.

The above is a version of ‘If the World Were 100 People’ that was updated in 2016.

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8.1 HIGH-, MIDDLE- AND LOW-INCOME COUNTRIES

The World Bank classifies countries based on their income levels of low income, lower-middle income, upper-middle income or high income. The World Bank income classification uses **Gross National Income (GNI) per capita** converted from local currency into US dollars using the Atlas method. The purpose of the Atlas conversion factor is to reduce the impact of exchange rate fluctuations in the comparison of income between countries by looking at exchange rates over three years. GNI does not provide a complete overview of a country's overall development, but it is a useful and easily comparable indicator that does reflect other non-financial development measures such as life expectancy and education rates. A significant limitation of using GNI is that it does not reflect any inequality in income distribution within a country.

Gross National Income (GNI) per capita: Value of country's total annual income, expressed in US dollars, and divided by its population to indicate the average income of the country's citizens.



For the purpose of VCE Health and Human Development, these World Bank income classifications will be referred to more simply as high, middle and low income. For the 2020 financial year, low-income countries are classified as having a GNI per capita of US$1025 or less in 2018, middle-income are those with a GNI per capita between US$1026 and US$12 375 and high-income countries are those with a GNI per capita of US$12 376 or more. It is important to note that these figures are updated at the beginning of each financial year.

AOS 1

Characteristics of high-, middle- and low-income countries

A wide range of characteristics are shared by many countries within each income classification because differences in GNI can significantly impact on the services and resources that a country experiences. However, not all countries in each income classification share the same characteristics (especially in the middle-income countries, where there is a significant range of income levels). Furthermore, there are a number of economic, environmental and social characteristics that can be associated with each income classification.

Low-income countries

Low-income countries face significant disadvantages because they are often unable to provide the social support and opportunities for increasing income that people need to help them to build a life free from poverty.

Throughout this chapter, the focus will be on the following low-income countries: Afghanistan, Chad, Mozambique, Nepal, Sierra Leone and Zimbabwe.

FIGURE 8.1 Freetown in Sierra Leone



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TABLE 8.1 Characteristics of countries

ECONOMIC CHARACTERISTICS	ENVIRONMENTAL CHARACTERISTICS	SOCIAL CHARACTERISTICS
Level of debt Income Trade opportunities Poverty Welfare support Industry	Infrastructure Access to clean water Access to improved sanitation Access to food Agricultural productivity Energy use Resource use	Social support Employment Birth rates Education levels Healthcare system Access to technology Legal and political systems Living standards Social justice

Characteristics of low-income countries include:

- a lack of social support such as welfare
- low levels of educational attainment
- high population growth
- poor access to improved sanitation
- lower agricultural productivity; lower levels of food security
- poor access to healthcare
- less infrastructure.

Middle-income countries

With a variation in income between US$1026 and US$12 375 per capita, the characteristics of middle-income countries are very diverse. Middle-income countries include a range of countries of varying size, population, infrastructure, industry and income levels. According to the World Bank, middle-income countries are home to five billion of the world's seven billion people and 73 per cent of the world's poor. At the same time, middle-income countries represent about one-third of global **Gross Domestic Product** and are major engines of economic growth. The characteristics of middle-income countries tend to depend on their income. For example, the characteristics of middle-income countries with a lower income close to the bottom of the range for middle-income countries, such as Bangladesh and Cambodia, tend to more closely reflect the characteristics of low-income countries, while characteristics of middle-income countries such as Malaysia, Argentina and Turkey, which have incomes closer to those of high-income countries, tend to reflect the characteristics of high-income countries.

It is important to note that there is progression in middle-income countries as they work to transition to high income. Characteristics such as increasing economic growth and increasing infrastructure exist in many middle-income countries and as previously mentioned, middle-income countries contribute greatly to global gross domestic product. Research suggests that the move from low income to middle income for countries is more rapid than the transition from middle to high income. The World Bank continues to develop partnerships with middle-income countries to provide tailored services (such as loans and advisory services) to assist them in the progression to high income.

Throughout this chapter, the focus will be on the following middle-income countries: Bangladesh, Cambodia, Argentina, Malaysia, Turkey and Vanuatu.

Gross Domestic Product: The total value of goods produced and services provided in a country during one year.

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ACTIVITY 8.1: MIDDLE-INCOME COUNTRIES

Papua New Guinea was classified as a middle-income country in 2019 with a GNI per capita of US$2386. The World Bank has been working with Papua New Guinea to improve economic development as well as health outcomes for its residents. Watch the YouTube Video *Increasing employment and skills for Papua New Guinea's Youth*.

1 Explain how this program has impacted on Lorzah, Norman and Jonathon's health and wellbeing.
2 Explain how increasing youth employment can benefit Papua New Guinea's economic development and health status and assist the progression to high-income status.
3 Explain how having an income has impacted on the health outcomes of Lorzah's family.

High-income countries

High-income countries are better able to provide a range of services to support the population to live a prosperous life. They have more financial resources to be able to provide a wider range of services to promote development such as healthcare, education and social security.

Throughout this chapter, the focus will be on the following high-income countries: Australia, Canada, Japan, New Zealand, Singapore and the United States.

Characteristics of high-income countries include:

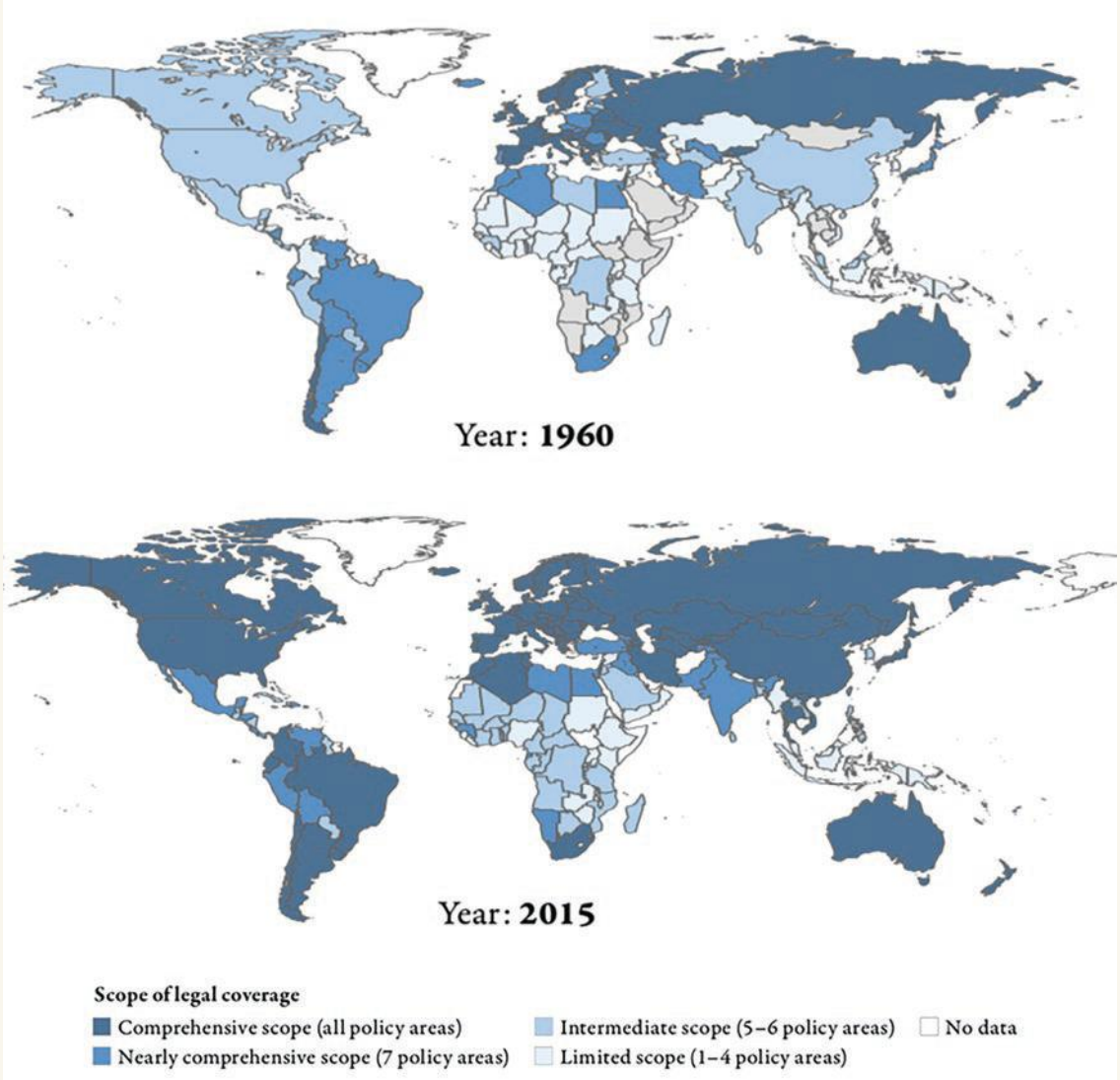
- availability of social support services such as social welfare
- higher levels of education attainment
- lower population growth
- access to improved sanitation
- higher agricultural productivity
- improved food security
- access to healthcare
- improved infrastructure.



FIGURE 8.2 Characteristics of high-income countries

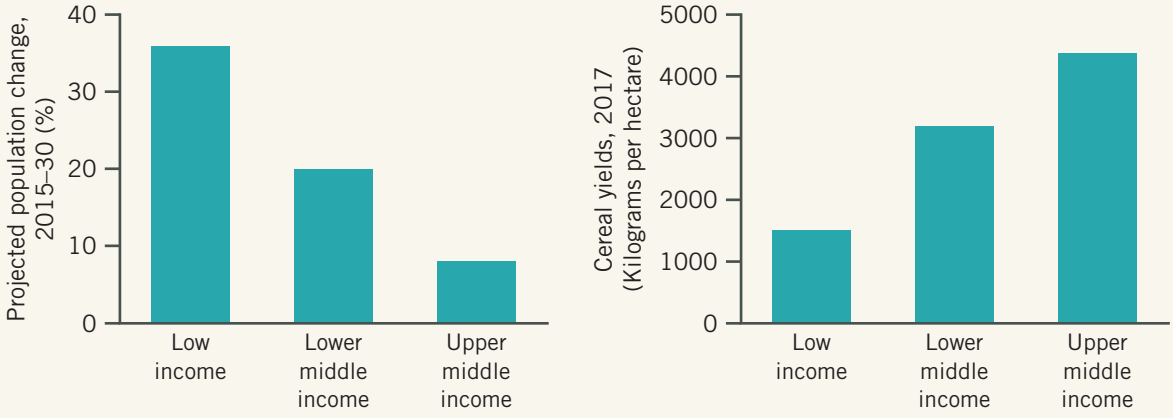
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SOURCE: World Social Protection Report (2017–19) (International Labour Organization)

FIGURE 8.3 Global social protection coverage, 1960 and 2015

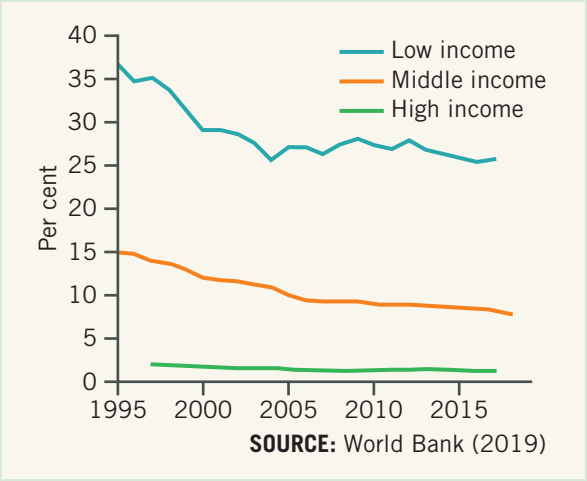


SOURCE: United Nations Population Division (2018)

FIGURE 8.4 Population growth is projected to be the highest where agriculture productivity is the lowest.

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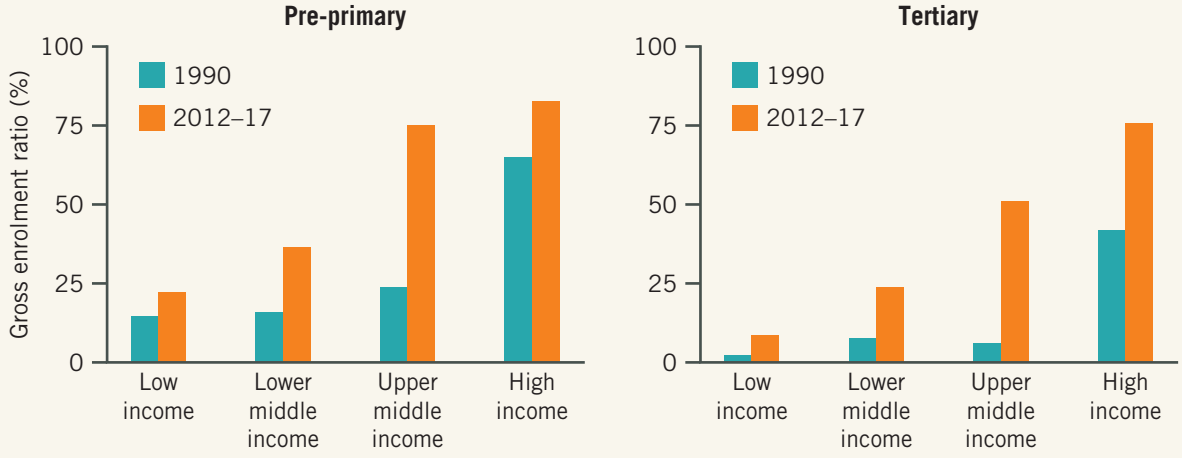
EXTENSION QUESTION 8.1



SOURCE: World Bank (2019)

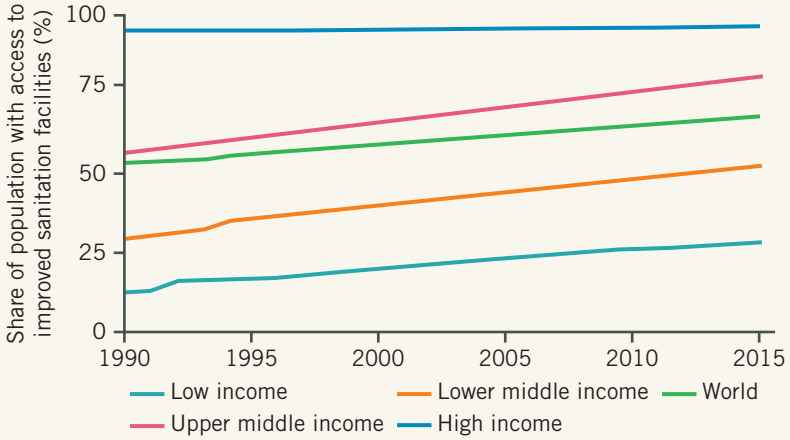
Consider the impact that a greater reliance on agriculture could have on a country. Explain why the greater reliance on agriculture is a problem for low-income countries.

FIGURE 8.5 Percentage of GDP from agriculture, fishing and forestry, 1995–2015, high-, middle- and low-income countries



SOURCE: United Nations Educational, Scientific and Cultural Organization Institute for Statistics

FIGURE 8.6 Not all children have the same opportunities to improve their education, as can be seen from this data showing enrolment ratios in 1990 and again in 2012–17.



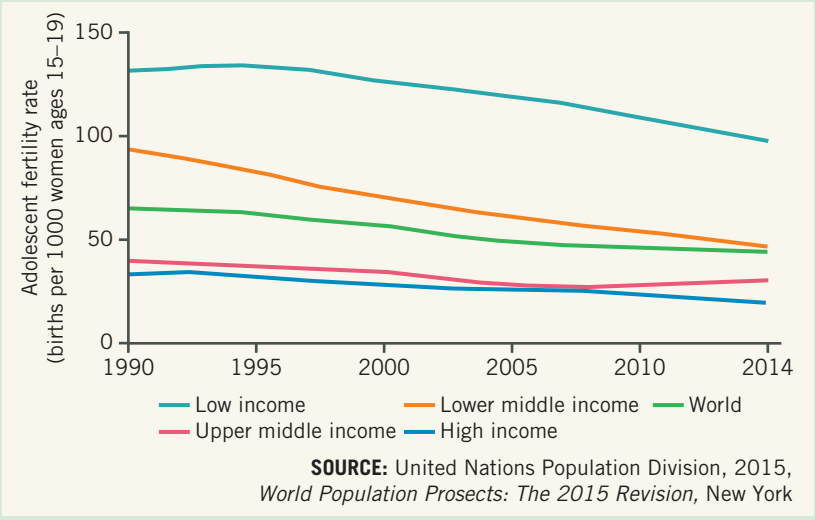
SOURCE: World Health Organization – United Nations Children's Fund Joint Monitoring Programme for Water Supply and Sanitation

FIGURE 8.7 Only 68 per cent of the world's population has access to improved sanitation facilities.

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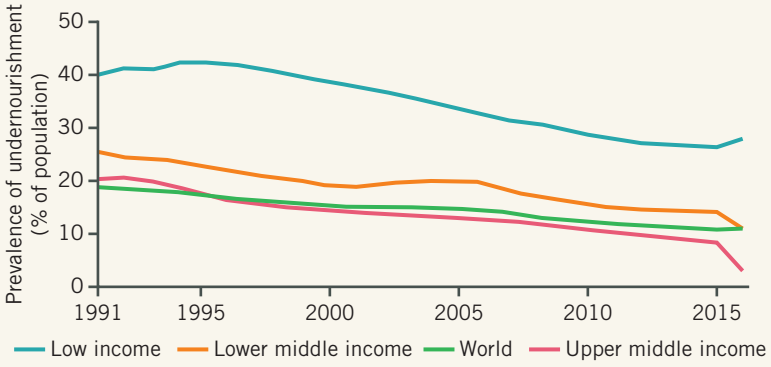
EXTENSION QUESTION 8.2



SOURCE: United Nations Population Division, 2015, *World Population Prosects: The 2015 Revision,* New York

Explain how high adolescent fertility rates can impact on the health status of the individual as well as the nation.

FIGURE 8.8 While the adolescent fertility rate has decreased in low-income countries since 1995, it remains high in comparison to high- and middle-income countries.



Note: Data refer to the middle year of three-year intervals. For example, data for 2015 are the estimate for 2014–16.
SOURCE: Food and Agriculture Organization Food Security Indicators database

FIGURE 8.9 Undernourishment has declined globally but remains highest in low income countries.

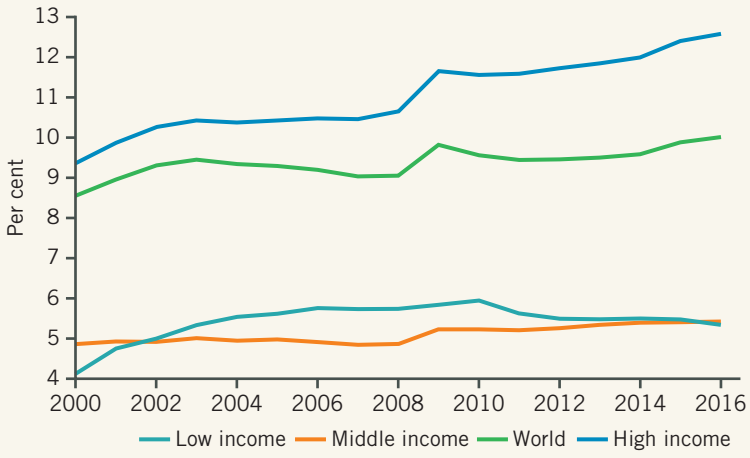


FIGURE 8.10 Health expenditure in middle- and low-income countries is much lower than in high-income countries.

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TABLE 8.2 Characteristics of low-, middle- and high-income countries

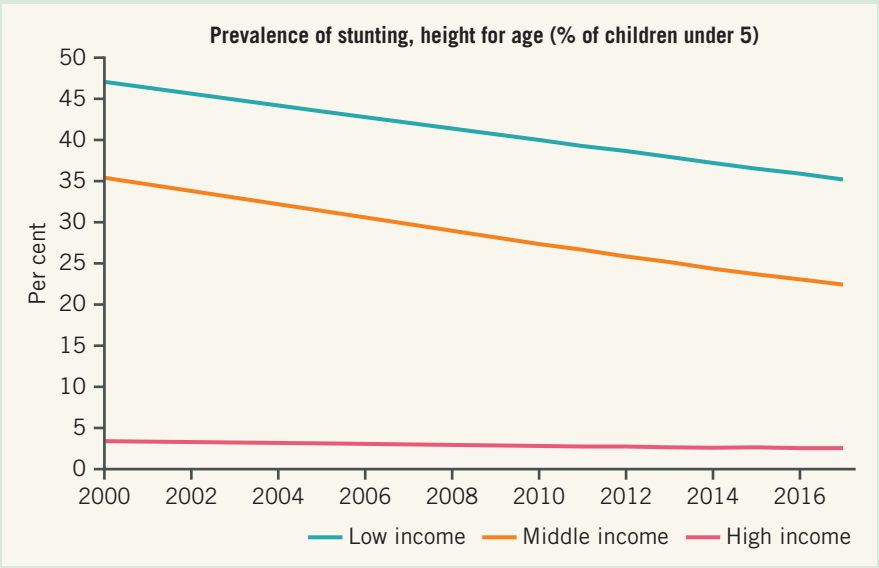
	POPULATION GROWTH (ANNUAL %) 2018	GNI PER CAPITA, ATLAS METHOD 2018	MORTALITY RATE, UNDER-5 (PER 1000 LIVE BIRTHS) 2017	IMPROVED WATER SOURCE (% OF POPULATION WITH ACCESS) 2015	IMPROVED SANITATION FACILITIES (% OF POPULATION WITH ACCESS) 2015	URBAN POPULATION GROWTH (ANNUAL %) 2018	MILITARY EXPENDITURE (% OF GDP) 2018	MOBILE CELLULAR SUBSCRIPTIONS (PER 100 PEOPLE) 2017	ADULT LITERACY RATE, POPULATION 15+ YEARS, BOTH SEXES (%) 2016
High-income countries									
Australia	1.575	53190	3.5	100.0	100.0	1.7	1.892	112.689	–
Canada	1.409	44860	5.1	99.8	99.8	1.484	1.253	86.536	–
Japan	–0.203	41340	2.6	100.0	100.0	–0.114	0.924	135.538	–
New Zealand	1.893	40820	5.3	100.0		1.976	1.161	136.002	–
Singapore	0.47	58770	2.8	100.0	100.0	0.47	3.144	146.823	97.05 (2016)
United States	0.619	62850	6.6	99.2	100.0	0.86	3.163	120.693	–
Middle-income countries									
Bangladesh	1.109	12370	32.4	86.9	60.6	3.186	1.365	91.665	72.893 (2017)
Cambodia	1.49	1380	29.2	75.5	42.4	3.25	2.206	116.042	80.526 (2015)
Argentina	1.016	12370	10.4	99.1	96.4	1.148	0.855	139.815	99.125 (2016)
Malaysia	1.353	10460	7.9	98.2	96.0	2.13	0.984	133.88	93.735 (2016)
Turkey	1.49	10380	11.6	100.0	94.9	2.157	2.504	96.353	96.167 (2016)
Vanuatu	2.48	2970	26.9	94.5	57.9	2.92		82.542	84.7 (2014)
Low-income countries									
Afghanistan	2.385	550	67.9	55.3	31.9	3.35	0.985	67.351	31.741 (2011)
Chad	3.024	670	123.2	50.8	12.1	3.899	2.13	42.659	22.312 (2016)
Mozambique	2.913	440	72.4	51.1	20.5	4.406	0.994	40.027	56.039 (2015)
Sierra Leone	2.137	500	110.5	62.6	13.3	3.138	0.798	87.665	32.426 (2013)
Zimbabwe	1.411	1790	50.3	76.9	36.8	1.324	2.17	85.252	88.693 (2014)
Nepal	1.654	960	33.7	91.6	45.8	3.722	1.443	123.175	59.627 (2011)

SOURCE: World Bank

Note: – indicates that there is no data for these countries.

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EXTENSION QUESTION 8.3



Explain how a high prevalence of stunting can impact on health status.

FIGURE 8.11 The prevalence of child stunting has decreased since 2000, but is still highest in low-income countries.

ACTIVITY 8.2: INCOME LEVELS

1 Outline the relationship evident in Table 8.3 between income levels and life expectancy.

2 Most of the low-income countries in Table 8.3 are in the Sub-Saharan African region. Identify reasons that might contribute to Sub-Saharan countries having lower incomes.

3 Middle-income countries include a diverse range of countries of varying sizes, populations and income levels. Outline why this is important to consider when comparing middle-income countries.

4 Referring to Figure 8.12, identify the geographical regions where most low- and most high-income countries are located. Based on just location, outline possible factors that may contribute to the income levels of these countries.

5 Outline other possible barriers that low-income countries face in relation to increasing their income.

TABLE 8.3 Region, income group, life expectancy and GNI of select countries

	LIFE EXPECTANCY AT BIRTH (2017)	REGION	INCOME GROUP	GNI PER CAPITA, US$ (ATLAS METHOD) 2018
Australia	82.5	East Asia & Pacific	High income	53 190
Canada	82.47	North America	High Income	44 860
Japan	84.1	East Asia & Pacific	High Income	41 340
United States	78.54	North America	High Income	62 850
New Zealand	81.66	East Asia & Pacific	High Income	40 820
Singapore	82.9	East Asia & Pacific	High Income	58 770
Bangladesh	72.81	South Asia	Middle income	12 370
Cambodia	69.33	East Asia & Pacific	Middle income	1380

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TABLE 8.3 *(Continued)*

	LIFE EXPECTANCY AT BIRTH (2017)	REGION	INCOME GROUP	GNI PER CAPITA, US$ (ATLAS METHOD) 2018
Argentina	76.74	Latin America & Caribbean	Middle income	12370
Malaysia	75.45	East Asia & Pacific	Middle income	10460
Turkey	76	Europe & Central Asia	Middle income	10380
Vanuatu	72.33	East Asia & Pacific	Middle income	2970
Zimbabwe	61.71	Sub-Saharan Africa	Middle income	1790
Afghanistan	64.05	South Asia	Low income	550
Chad	53.21	Sub-Saharan Africa	Low income	670
Mozambique	58.87	Sub-Saharan Africa	Low income	440
Sierra Leone	52.21	Sub-Saharan Africa	Low income	500

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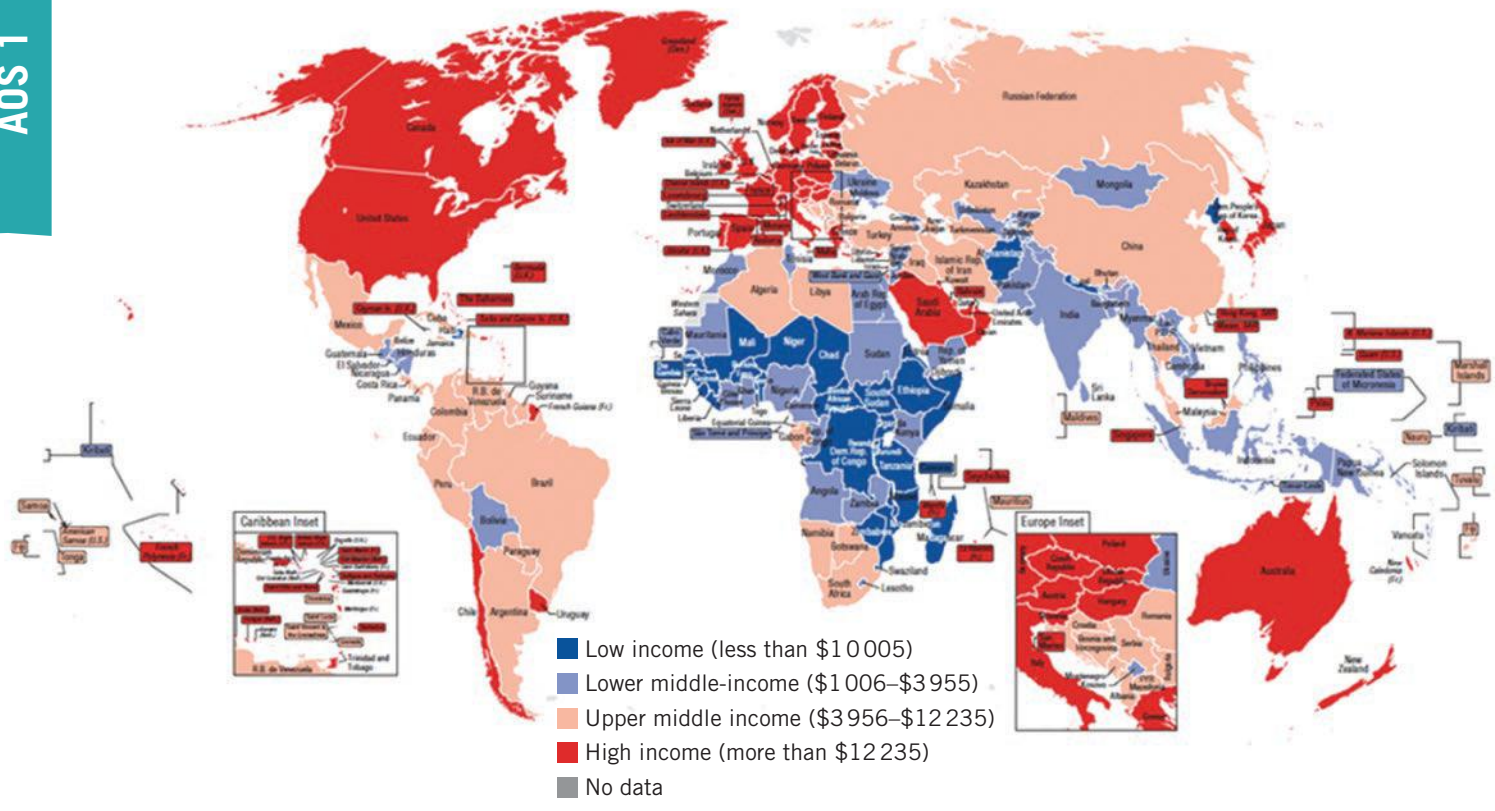


FIGURE 8.12 The world by income – World Bank Classifications, 2018

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8.2 SIMILARITIES AND DIFFERENCES IN HEALTH STATUS

When making comparisons in health status between high-, middle- and low-income countries, it is important to remember that there can often be significant diversity between countries within the same income group. This is especially true in middle-income countries. It is to be expected that there would be significant differences in the health status of middle-income countries with an income of US$1026 per capita compared with a country with an income of US$12 375 per capita.

Life expectancy

As stated in Chapter 1, the AIHW defines life expectancy as 'an indication of how long a person can expect to live. It is the average number of years of life remaining to a person at a particular age if death rates do not change'. Life expectancy at birth refers to the number of years a newborn child can be expected to live, based on current mortality rates for that country.

It makes sense that high-income countries experience better health status and longer life expectancy compared with lower-income countries, due to the better access to health resources that a stronger economy is able to provide.

High-income countries average a life expectancy of 80.7 years; middle-income countries, 71.5 years and low-income countries, 63.2 years. (Refer to the data in Table 8.3.)

Infant mortality rates

The infant mortality rate refers to the number of deaths that occur in the first year of life. They are reported by the actual number of deaths per 1000 live births. Australia, like many other high-income countries, has a low infant mortality rate compared with many low-income countries. In 2017, the infant mortality rate in Australia was three per 1000 live births compared with a rate of 81.7 per 1000 live births in Sierra Leone in the same year. This relatively low infant mortality rate contributes to Australia's life expectancy. Infant mortality rates are vastly different when considering the World Bank income groups. In 2017 the average mortality rate for high-income countries was five deaths per 1000 live births, middle-income countries experienced 28 deaths per 1000 live births, and low-income countries experienced 49 deaths per 1000 live births. There was great disparity between upper-middle- and lower-middle-income countries: 12 per 1000 live births and 37 per 1000 live births respectively; again indicating the major differences in the middle-income group.



Under-5 mortality rates

Under-5 mortality rates (U5MR) refer to the number of deaths that occur in the first five years of life. As with infant mortality, they are reported by the actual number of deaths per 1000 live births. In 2017 in Australia, the under-5 mortality rate was 4 per 1000 live births. This is a low rate, especially when compared with low-income countries such as Chad, where the under-5 mortality rate was 123 per 1000 live births in 2017.

The world has made great progress in the reduction of under-5 mortality rates in the past few decades, in particular between 2000 and 2017. However, the number of recorded child deaths in 2017 was alarming at 5.4 million, approximately half of which occurred in Sub-Saharan Africa.

Inequalities in child mortality between high- income and low-income countries remain significant. The under-5 mortality rate (per 1000 live births) was 69.1 in low-income countries in 2017, compared to 5.4 deaths per 1000 live births in high-income countries.

When considering the under-5 mortality rate, it is important to remember that it is presented as a number or ratio per 1000 live births, so it takes into account the difference in the number of babies being born. This means that because the number of babies being born in Chad is much higher than in Australia, the actual

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number of under-5 deaths is also significantly higher than may be apparent when the figure is presented as a ratio.

It is also interesting to note that the leading causes of under-5 mortality differ significantly between countries. For example, in Australia in 2017, the leading cause of under-5 mortality was congenital anomalies, causing 27.1 per cent of deaths under 5 years. In Sierra Leone, which has a far greater under-5 mortality rate, congenital anomalies contributed to only 1.1 per cent of deaths. The greatest contributor to under-5 mortality was malaria, causing 22.5 per cent of deaths. This does not mean that there are many more children in Australia being affected by congenital anomalies compared with Sierra Leone; in fact, the ratio of children suffering from congenital anomalies is reasonably consistent across the globe. The main reason for the higher percentage in Australia is that the data are presented as a percentage, and because Australia experiences a low under-5 mortality rate, with few children dying of any cause, the reasons why they do die make up a larger percentage.

low birthweight: The weight of a baby at birth that is less than 2500 g.

In low-income countries, many children do not survive to the age of 5. Some die as a result of complications during birth, or due to prematurity or **low birthweight**, and many others die from preventable causes, such as diarrhoea and under-nutrition, or diseases such as measles, whooping cough, tetanus or tuberculosis, from which they could have been protected with vaccinations.

AOS 1

EXTENSION QUESTION 8.4



FIGURE 8.13 Increasing the number of children who are vaccinated in low-income countries will help to reduce under-5 mortality rate.

Consider possible barriers to increased immunisation rates in low-income countries. Explain how these barriers could be addressed to increase immunisation rates.

ACTIVITY 8.3: CAUSES OF UNDER-5 MORTALITY

1 Referring to Table 8.4, compare the leading causes of under-5 mortality between high-income and low-income countries.
2 Outline possible reasons for the differences identified.
3 Explain why the percentage of under-5 deaths attributed to congenital anomalies is so much higher in high-income countries compared with low-income countries.
4 Explain why the percentage of under-5 deaths due to measles is reasonably low in all income levels.

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TABLE 8.4 Causes of under-5 mortality (%)

COUNTRY	YEAR	DEATHS OF CHILDREN UNDER 5 YEARS OF AGE DUE TO (%):						
		AIDS	CONGENITAL	DIARRHOEA	INJURY	MALARIA	MEASLES	PNEUMONIA
Australia	2017	0.0	27.1	0.6	6.8	0.0	0.0	3.0
Canada	2017	0.0	23.5	0.3	6.0	0.0	0.0	1.7
Japan	2017	0.0	41.4	1.7	8.9	0.0	0.0	6.6
New Zealand	2017	0.0	26.2	0.7	12.2	0.0	0.0	6.5
Singapore	2017	0.0	36.4	1.1	7.0	0.0	0.0	8.3
Argentina	2017	0.1	29.3	1.1	6.5	0.0	0.0	6.5
Bangladesh	2017	0.0	9.1	7.4	7.9	0.0	1.9	13.5
Cambodia	2017	0.1	10.1	7.4	8.8	0.8	0.2	14.2
Malaysia	2017	0.0	27.9	1.4	7.6	0.0	0.0	5.6
Turkey	2017	0.0	33.7	0.9	4.8	0.0	0.0	4.2
Vanuatu	2017	0.0	17.4	10.8	5.4	0.0	0.0	17.3
Afghanistan	2017	0.0	6.4	7.8	5.8	0.1	1.8	14.9
Chad	2017	0.8	4.5	12.6	5.9	8.4	0.1	23.7
Mozambique	2017	8.5	5.8	6.9	5.4	12.6	0.4	12.9
Sierra Leone	2017	1.1	4.5	8.8	5.1	22.5	0.2	13.2
Nepal	2000	0.1	5.0	10.7	4.7	0.0	8.7	18.7
Zimbabwe	2000	39.3	3.7	7.2	2.6	2.5	0.3	11.2

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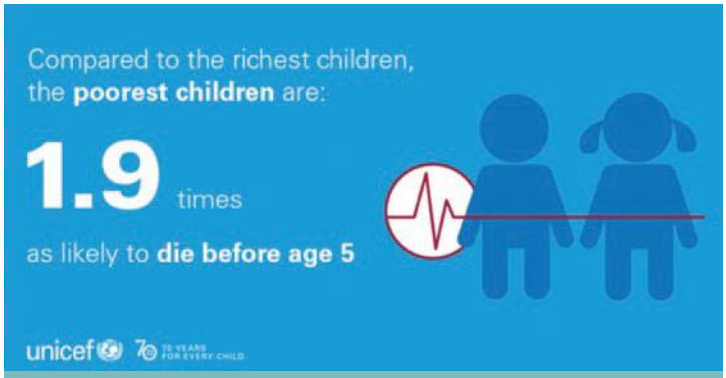


FIGURE 8.14 Children in low-income countries are more likely to die under the age of 5 years.

Maternal mortality

Maternal mortality refers to the number of deaths of women due to pregnancy or childbirth-related complications. Maternal mortality is another aspect of health status that shows a significant disparity between low- and high-income countries, with a significantly higher maternal mortality ratio in low-income countries. The WHO reports that 99 per cent of all maternal deaths occur in developing countries. Maternal mortality is also higher for adolescent mothers and women living in rural areas, and among poorer communities in low-income countries.

Skilled care before, during and after childbirth can save the lives of women and newborn babies.

Complications arising during pregnancy and childbirth lead to the deaths of many women in low-income countries, due in part to their lack of access to medical care at this time. Globally, 86 per cent of pregnant women access antenatal care with a skilled health professional at least once; however, only 62 per cent receive the recommended minimum four antenatal visits. The proportion of women receiving antenatal care is of a particular concern in Sub-Saharan Africa and South Asia with 52 per cent and 46 per cent (respectively) of mothers accessing at least four antenatal visits. These regions have some of the highest rates of maternal mortality.

In contrast, close to 100 per cent of women in Australia receive excellent antenatal care and have highly skilled attendants at the birth of their baby. Their doctor, nurse or midwife provides them with immunisation; promotes the importance of good nutrition, hygiene and adequate rest; and is likely to detect potential complications. Also, rest is strongly encouraged, and many women take time off in the lead-up to the birth and a minimum of six weeks off work to recover after giving birth. As a result, the maternal mortality ratio is very low.

Globally, maternal mortality worldwide dropped by about 44 per cent between 1990 and 2015; however, the number is still very high, with an estimated 303 000 women dying during and following pregnancy and childbirth in 2015. Almost all of these deaths occurred in low-resource settings, and most could have been prevented.

The high number of maternal deaths in some parts of the world highlights the gap between rich and poor, and is a reflection of the inequalities in access to health services.

Most maternal deaths are preventable, with appropriate access to health care and trained health personnel. After birth, severe bleeding can cause death and the risk of this is increased with the absence of a trained health professional. Furthermore, a number of infections that cause death of a mother could be reduced with trained health personnel and increased hygiene practices.

Other causes of maternal mortality include high blood pressure and conditions associated with birth and delivery. Again, the risk of death from these conditions can be reduced with access to antenatal care. For example, in Australia a mother's blood pressure is monitored regularly and care plans are put into place if there is any risk. The remainder of maternal deaths have been reported to be caused by AIDS and malaria during pregnancy.

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ACTIVITY 8.4: SOCIAL, ECONOMIC AND ENVIRONMENTAL CHARACTERISTICS CONTRIBUTING TO DIFFERENCES IN HEALTH STATUS

1 Using Table 8.5, make comparisons between health status of one high-, one middle- and one low-income country.
2 Identify and explain how a social characteristic could have contributed to the differences in health status outlined in Question 1.
3 Identify and explain how an environmental characteristic could have contributed to the differences in health status outlined in Question 1.
4 Identify and explain how an economic characteristic could have contributed to the differences in health status outlined in Question 1.

TABLE 8.5 Comparisons of health status between high-, middle- and low-income countries.

	LIFE EXPECTANCY AT BIRTH (2017)	UNDER-5 MORTALITY RATE PER 1000 LIVE BIRTHS (2017)	INFANT MORTALITY RATE PER 1000 LIVE BIRTHS (2017)	MATERNAL MORTALITY RATIO: LIFETIME RISK OF MATERNAL DEATH ONE IN: (2015)
High-income countries				
Australia	82.5	3.5	3	8700
Canada	82.47	5	4.5	8800
Japan	84.1	3	1.9	13400
United States	78.54	7	5.7	3800
New Zealand	81.66	5	4.4	4500
Singapore	82.9	3	2.2	8200
Middle-income countries				
Bangladesh	72.81	32	26.9	240
Cambodia	69.33	29	25.1	210
Argentina	76.74	10	9.2	790
Malaysia	75.45	8	6.7	1200
Turkey	76	12	10	3000
Vanuatu	72.33	27	22.6	360
Low-income countries				
Afghanistan	64.05	68	51.5	52
Chad	53.21	123	73.4	18
Mozambique	58.87	72	53.3	40
Sierra Leone	52.21	111	81.7	17
Zimbabwe	61.7	50	36.5	52
Nepal	70.6	34	27.8	150

SOURCE: World Bank

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CASE STUDY: MATERNAL MORTALITY

‘Catastrophic’ healthcare costs put mothers and newborns at risk

3 June 2019

Pregnant women are putting their lives and their babies at risk because of ‘catastrophic’ and prohibitive healthcare costs before, during and after childbirth, UNICEF said on Monday.

In a new report highlighting how few of the world’s poorest pregnant women have a doctor, nurse or midwife at their side when they need them most, the UN Children’s Fund said that more than 800 women die every day from complications, while many more mothers live with ‘debilitating’ outcomes.

At least 7000 stillbirths also occur every day – half being babies who were alive when labour began – while 7000 babies also die in the first month of life, UNICEF said.

‘For far too many families, the sheer costs of childbirth can be catastrophic. If a family cannot afford these costs, the consequences can even be fatal,’ said UNICEF Executive Director Henrietta Fore. ‘When families cut corners to reduce maternal health care costs, both mothers and their babies suffer.’

More than five million families across Africa, Asia, Latin America and the Caribbean spend at least 40 per cent of their non-food household expenses for the entire year just on maternal health services, according to UNICEF.

Approximately 1.9 million of these families are in Africa, while around three million are in Asia. Compared with most rich countries, where a skilled birth attendant is present at almost all deliveries, the tally drops significantly in least developed countries, the UNICEF research shows.

These States include Somalia (9.4 per cent) and South Sudan (19.4 per cent), along with Madagascar (44.3 per cent), Papua New Guinea (53 per cent), Afghanistan (58.8 per cent) and Myanmar (60.2 per cent), based on 2013–18 data.

Within countries, the gap is also stark between those who can afford help and those that who cannot. In South Asia, for example, three times as many wealthy women receive four or more antenatal care visits than women from poorer families.

When it comes to women giving birth at a facility, the gap between the poorest and the richest women is more than double in West and Central Africa, according to UNICEF.

‘Wide gaps’ persist

‘Although global coverage of skilled birth attendance has shown impressive gains in recent years, wide gaps in coverage across countries persist,’ UNICEF said in a statement.

According to UNICEF’s analysis, from 2010 to 2017, health personnel increased in many countries. However, this increase was ‘minimal’ in the world’s developing countries, where maternal and neonatal mortality levels have been highest.

For example, from 2010 to 2017, coverage increased from four to five health workers per 10 000 people in Mozambique, and from three to nine in Ethiopia. In contrast, Norway saw that number increase from 213 to 228 health personnel over the same period.

‘Doctors, nurses and midwives play a critical role in saving mothers, yet millions of births occur every year without a skilled attendant,’ UNICEF said. Focusing on uneven access to emergency care across the world, the UN agency underscored the lifesaving value of a caesarean section (or C-section).

Globally, around 30 million C-sections were carried out in 2015 – almost double the number in 2000, but their prevalence in Latin America and the Caribbean – in 44 per cent of all births in 2015 – was more than 10 times higher than in West and Central Africa.

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'This low percentage of C-sections in West and Central Africa is alarming, suggesting a dire lack of access to this potentially lifesaving intervention,' UNICEF warned. Globally, the report also notes that pregnancy-related complications are the number one cause of death among girls between 15 and 19 years old.

Child brides at greater risk

This is partly because adolescent girls are still growing and are at great risk of complications if they become pregnant. Yet the report finds that child brides are less likely to receive proper medical care while pregnant or to deliver in a health facility, compared to women who married as adults.

In Cameroon, Chad and the Gambia, more than 60 per cent of girls now aged 20–24 who married before turning 15 have three or more children, compared to less than 10 per cent of women at the same age who married as adults.

Despite its concerns, the UN agency maintains that overall, the number of women and girls who die each year from issues related to pregnancy and childbirth has dropped more than 40 per cent in the past 20 years, from 532 000 in 1990, to 303 000 in 2015.

The UN agency also expressed hope that the inclusion of a skilled healthworker in the Sustainable Development Goal (SDG) 2030 Agenda would spur efforts to reach universal health coverage and reduce maternal and newborn deaths.

In an effort to protect the world's newborns, UNICEF's Every Child ALIVE campaign calls for greater investment in health systems, recruitment and training of doctors, nurses and midwives; clean and functional health facilities with water, soap and electricity for every mother and baby, life-saving drugs and equipment during delivery, and for the empowering of adolescent girls and families to demand quality care.

SOURCE: UN News (2015)

1. Explain what is meant by maternal mortality.
2. Explain what is meant by stillbirth.
3. Explain how lack of access to skilled birth attendants can result in increased risk of maternal mortality.
4. Explain the connection between the lower percentage of C-sections and increased risk of maternal mortality in West and Central Africa.
5. Explain why child brides are at a greater risk of maternal mortality.
6. Conduct research into the 'debilitating' outcomes that occur for mothers in low-income countries. Consider the impact of Obstetric Fistula and one other debilitating condition and explain how these conditions could impact on the health and wellbeing of mothers in low-income countries.

Causes of mortality

Many of the leading causes of death in low-income countries are associated with under-nutrition. Causes of death such as **perinatal conditions**, diarrhoeal disease, and infectious and parasitic diseases have been common in many low-income countries for some time.

In addition, many of these countries are now experiencing an increase in the number of deaths from non-communicable conditions, such as cancer and cardiovascular ischaemic heart disease. Low-income countries are now facing a double burden of disease; that is, the

perinatal condition: A condition occurring in the baby during the period shortly before or after birth (usually up to 28 days after).

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FIGURE 8.15 Global mortality rate of non-communicable diseases

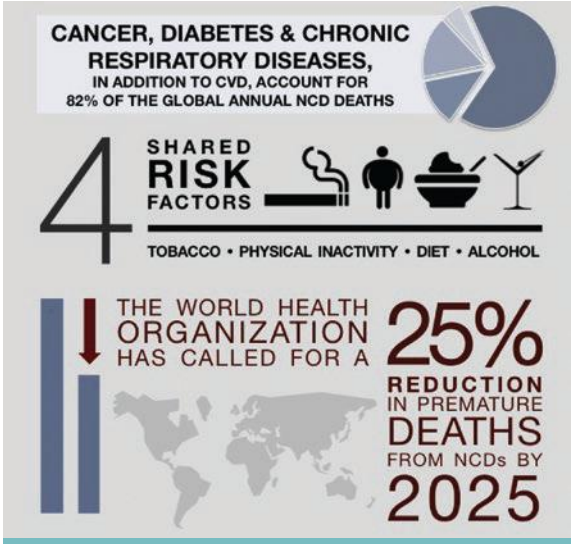


FIGURE 8.16 Non-communicable diseases are a global concern because they affect both high- and low-income countries in increasing numbers.

issue of under-nutrition and communicable diseases existing alongside the issue of non-communicable disease, particularly for those in urban areas. For example, the WHO reports that cardiovascular disease, diabetes, cancer and chronic respiratory disease are now leading causes of death world wide, with deaths in Africa from these conditions rising faster than anywhere else in the world.

- Over three quarters of cardiovascular disease deaths occur in low- and middle-income countries.
- Approximately 7 per cent of deaths from cancer occur in low- and middle-income countries.
- More than 90 per cent of deaths from COPD occur in low- and middle-income countries.

High-income countries tend to have lower rates of deaths from all causes compared with low-income countries; for example, in Australia in 2016 there were 15.6 deaths per 100 000 population due to communicable causes, 292.6 deaths per 100 000 for non-communicable causes and 27.4 per 100 000 for injuries. These rates are much lower than for low-income countries such as Sierra Leone, where there were 853.8 deaths per 100 000 population due to communicable causes, 985.7 per 100 000 for non-communicable causes and 147.3 per 100 000 for injuries.

Most deaths in high-income countries tend to be from non-communicable causes such as cancer and cardiovascular disease, while most deaths in low-income countries tend to be from communicable causes. The number of deaths from non-communicable causes in low-income countries is increasing and, while the rate per 100 000 is lower than for communicable causes, the rate for non-communicable causes is actually higher in low-income countries compared with high-income countries. Most deaths from non-communicable diseases occur in low- and middle-income countries (where the majority of the world's population live) and tend to occur at early ages compared to high-income countries.

Adults in low-income countries are increasingly facing a number of the same health concerns as those in high-income nations. This is due partly to a change in lifestyle behaviours. In many low-income countries, such as Chad and Cambodia, the gap between communicable and non-communicable causes is narrowing. According to the WHO, in low-income countries, non-communicable conditions such as depression and heart disease are fast replacing such traditional enemies as infectious diseases and under-nutrition.

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TABLE 8.6 Mortality rate by cause (per 100 000 population)

	COMMUNICABLE	NON-COMMUNICABLE	INJURIES
High-income countries			
Australia	14	303	28
Canada	23	318	31
Japan	34	244	40
United States	31	413	44
New Zealand	18	314	33
Singapore	66	265	17
Middle-income countries			
Bangladesh	235	549	64
Cambodia	227	394	62
Argentina	69	467	51
Malaysia	117	563	63
Turkey	44	555	39
Low-income countries			
Afghanistan	363	846	169
Chad	1071	713	114
Mozambique	998	594	175
Sierra Leone	1327	964	150
Zimbabwe	711	599	82
Nepal	252	678	89

SOURCE: WHO world health statistics data (2012)

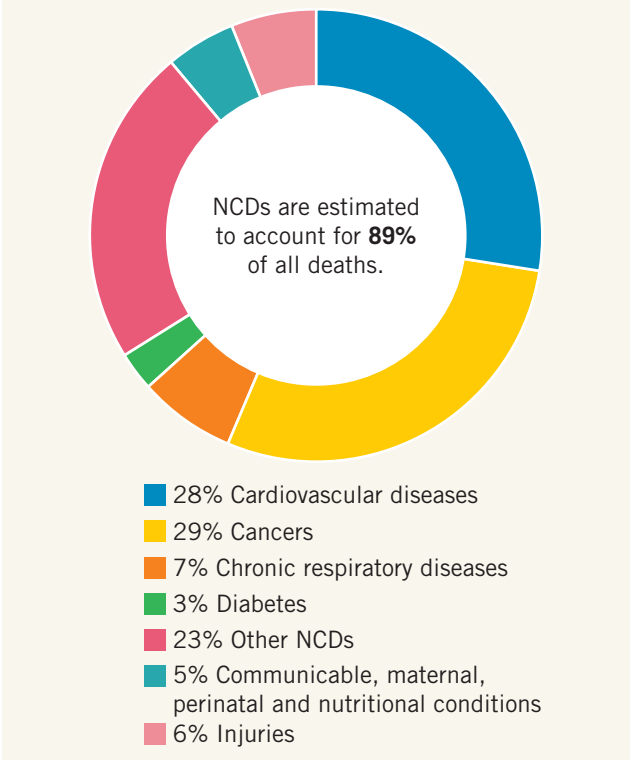


FIGURE 8.17 Proportional mortality in Australia, 2016

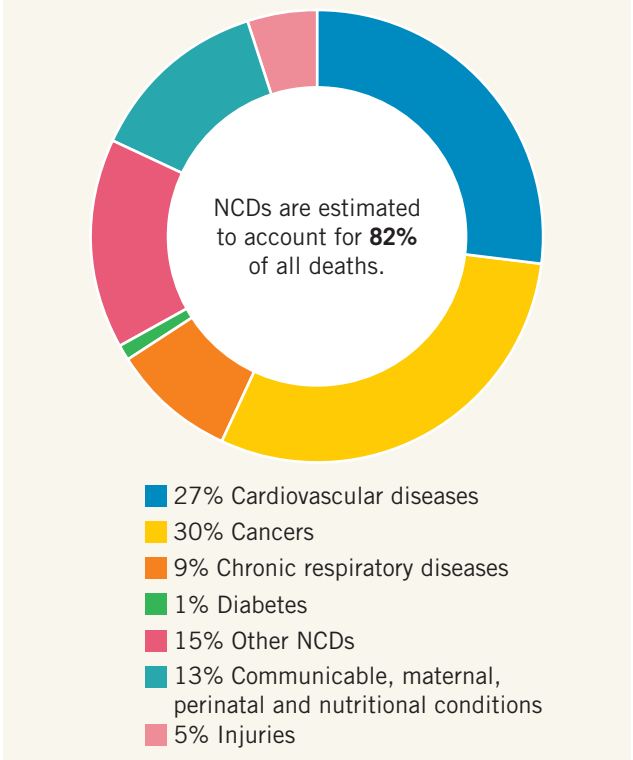


FIGURE 8.18 Proportional mortality in Japan, 2016

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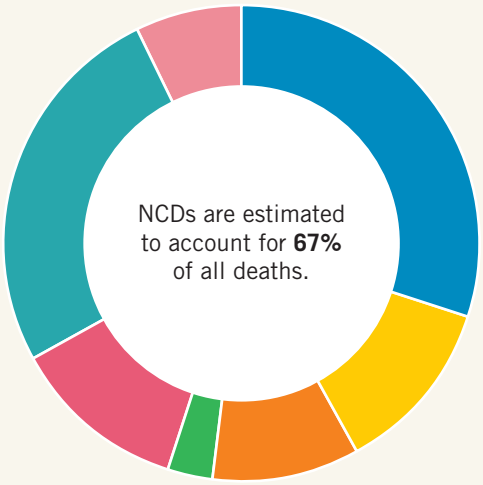


FIGURE 8.19 Proportional mortality in Bangladesh, 2016

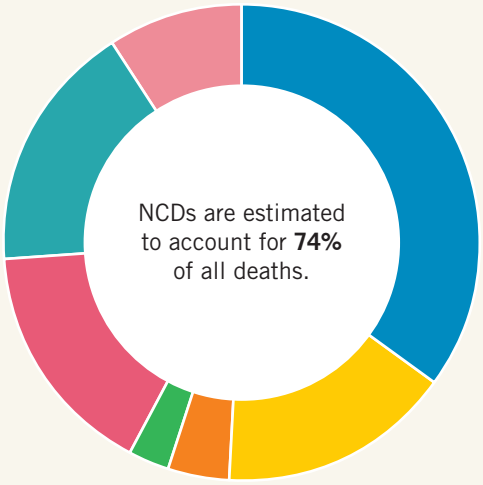


FIGURE 8.20 Proportional mortality in Malaysia, 2016

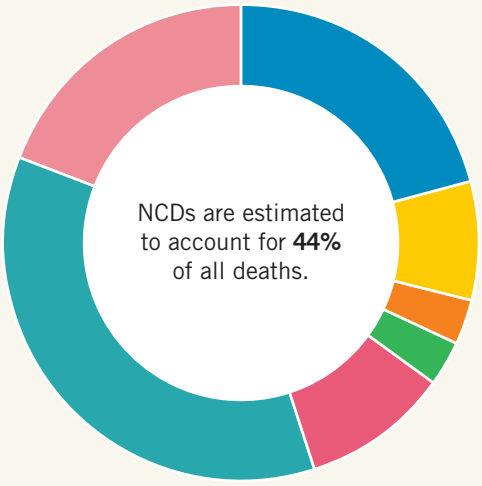


FIGURE 8.21 Proportional mortality in Afghanistan, 2016

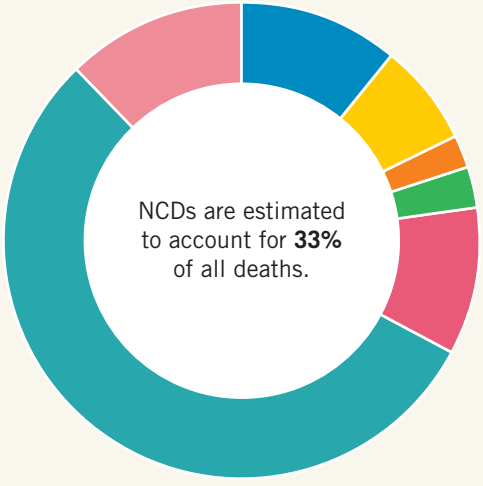


FIGURE 8.22 Proportional mortality in Zimbabwe, 2016

SOURCES: (FIGURES 8.17–8.22): WHO (2019)

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As can be seen from the data in Figure 8.17, in Australia, 89 per cent of deaths are from non-communicable causes, while communicable, perinatal, maternal and nutritional causes and injuries are responsible for only 5 per cent and 6 per cent of deaths respectively.

It is a completely different story in Zimbabwe (Figure 8.22), where only 33 per cent of deaths are attributed to non-communicable causes, 55 per cent are due to communicable, perinatal, maternal and nutritional causes and 12 per cent due to injuries.

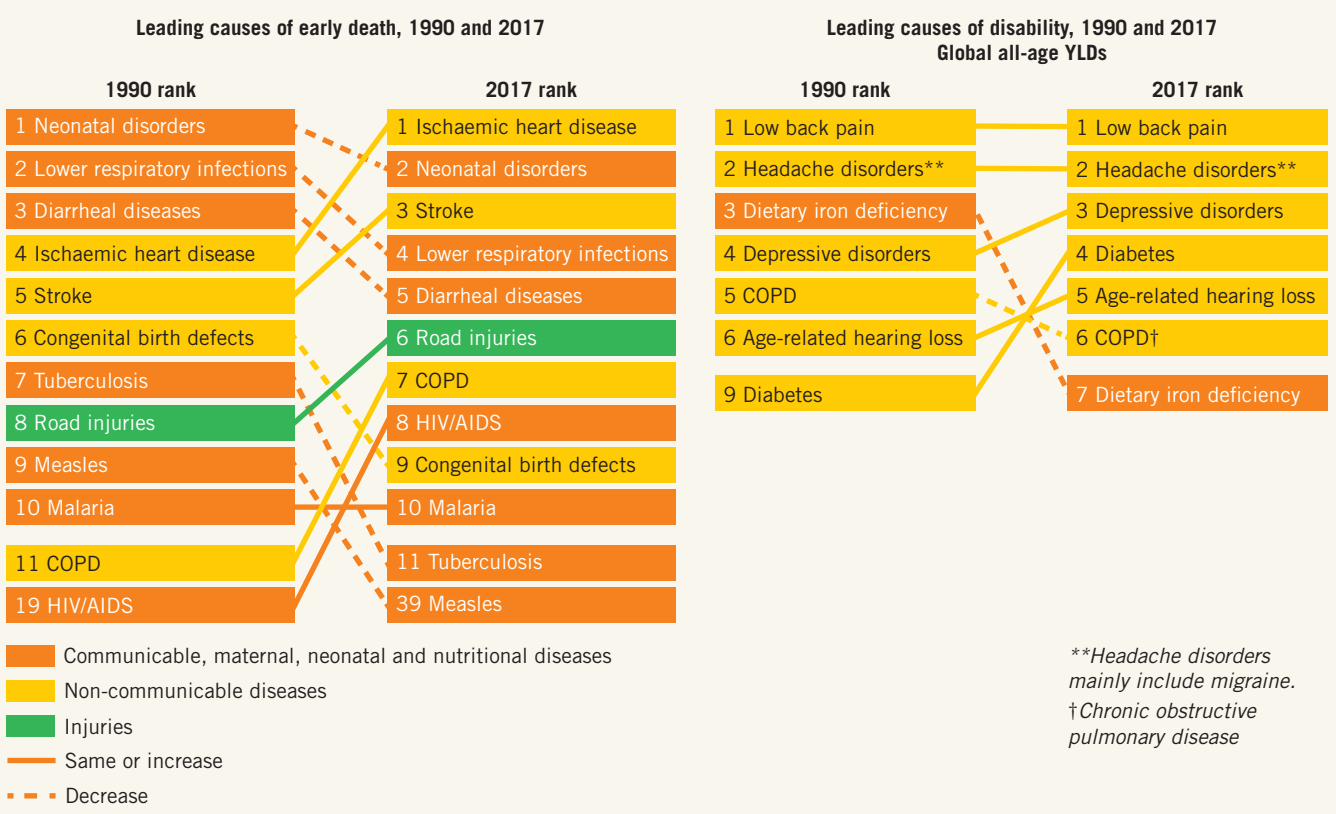
Morbidity

The term **morbidity** refers to ill-health caused by a disease or illness in an individual or levels of ill-health in a population. It is difficult to gather data on levels of ill-health, and therefore morbidity is often measured in terms of prevalence and incidence. Much of the information collected on morbidity is reflected by the burden of disease; however, burden of disease also includes mortality rates.

Burden of disease

As discussed in Chapter 1, the term 'burden of disease' refers to the impact of a particular disease in relation to healthy life lost due to ill-health and disability, or death experienced by a country's population. It is measured using the Disability Adjusted Life Year or DALY. One DALY is one lost year of healthy life. Causes of burden of disease can be both fatal and non-fatal.

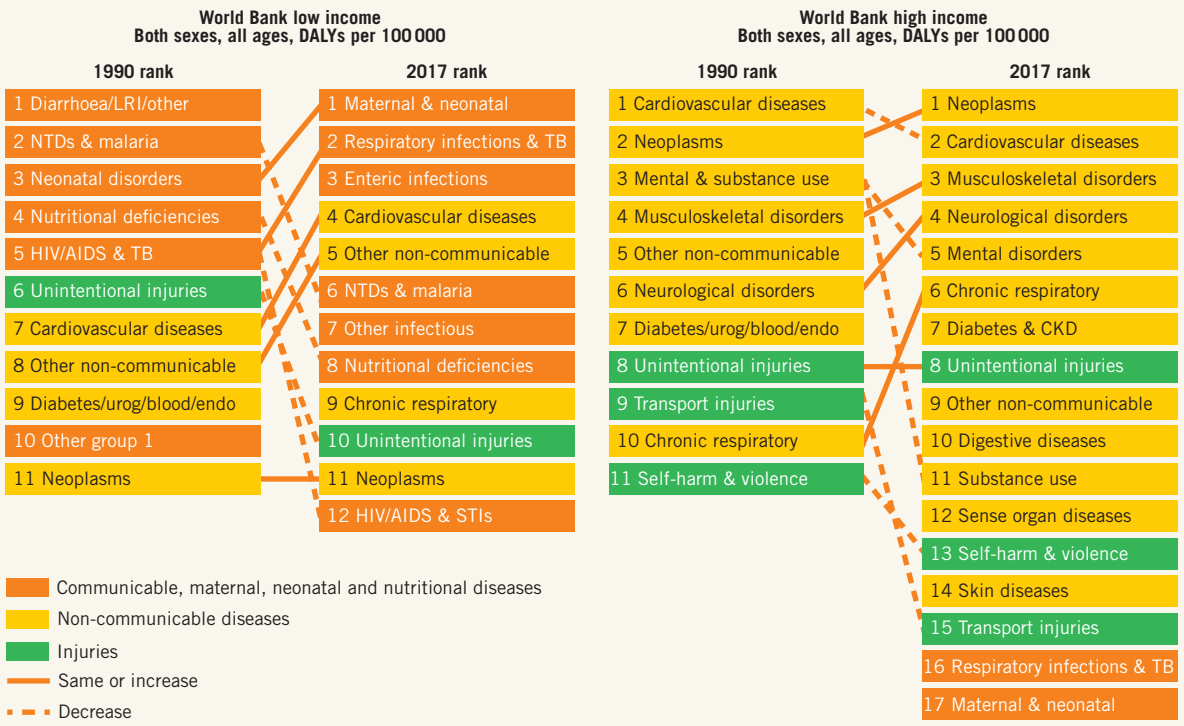
morbidity: 'Refers to ill-health in an individual and the levels of ill-health in a population or group' (AIHW, 2008).



SOURCE: *Global Burden of Disease Study 2017* , Institute for Health Metrics and Evaluation, Seattle (2018)

FIGURE 8.23 Global Causes of DALY, 1990 and 2017

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SOURCE: Institute for Health Metrics and Evaluation, Seattle (2019)

FIGURE 8.24 DALYs, high- and low-income countries, 1990, 2015 and 2017

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TABLE 8.7 Estimated YLL ('000) by cause, 2016

	COMMUNICABLE (COMMUNICABLE, MATERNAL, PERINATAL AND NUTRITIONAL CONDITIONS)	NON-COMMUNICABLE	INJURIES
High-income countries			
Australia	148.1	2447.1	303.4
Canada	298.8	4052.9	486.3
Japan	2005.4	16 308.6	1639.1
United States	3882.4	49 795.1	7310.8
New Zealand	31.3	494.9	69.1
Singapore	99.4	451.3	39.4

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TABLE 8.7 *(Continued)*

	COMMUNICABLE (COMMUNICABLE, MATERNAL, PERINATAL AND NUTRITIONAL CONDITIONS)	NON-COMMUNICABLE	INJURIES
Middle-income countries			
Bangladesh	11 890.7	16 214.9	3483.9
Cambodia	1367.8	1830.6	506.7
Argentina	1306.0	5421.7	1008.2
Malaysia	993.5	2899.5	644.2
Turkey	1101.2	9866.6	1455.0
Low-income countries			
Afghanistan	7255.5	4118.0	3226.0
Chad	8406.0	2135.4	1094.0
Mozambique	11 249.4	2644.5	1242.8
Sierra Leone	3706.3	1265.7	503.2
Zimbabwe	4533.4	1592.5	954.0
Nepal	2391.5	3270.7	774.5

SOURCE: WHO world health statistics data (2016)

There are significant differences in the leading causes of disease burden between countries. The WHO reports that between 2000 and 2016, DALYs per 1000 population decreased in all regions. Globally, 29 per cent of DALYs were caused by communicable, maternal, neonatal and nutritional causes in 2016, with the African region having a higher proportion (61 per cent) compared to other regions. In contrast, in the European region and Western Pacific region, at least 80 per cent of DALYs was caused by non-communicable diseases.

ACTIVITY 8.5: COUNTRY PROFILE

To allow for better comparisons, this chapter focuses on the high-, middle- and low-income countries as shown in Table 8.8. Select one country from each income group and prepare a country profile presented as a digital infographic. Your profile should cover the following information:

- a map showing its location
- the area of the country
- population data
- GDP



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- a relevant history of the country
- information on climate and agriculture
- under-5 mortality and infant mortality rate
- data on access to clean water and sanitation
- literacy rate
- information on the number of doctors, health services and systems
- immunisation rates
- life expectancy
- leading causes of death and disease burden.

The following websites may assist you with your research:

- World Vision – Country Profiles
- UNICEF – State of the World's Children
- World Bank
- CIA: The World Factbook
- World Health Organization – Countries

TABLE 8.8 Examples of select high-, middle- and low-income countries

HIGH INCOME	MIDDLE INCOME	LOW INCOME
Australia	Bangladesh	Afghanistan
Canada	Cambodia	Chad
Japan	Argentina	Mozambique
United States	Malaysia	Sierra Leone
New Zealand	Turkey	Zimbabwe
Singapore	Vanuatu	Nepal

Non-communicable diseases

There are four main types of non-communicable diseases: cardiovascular diseases (such as coronary heart disease, heart-attacks and stroke); chronic respiratory diseases (for example, COPD and asthma); cancers; and diabetes mellitus. These non-communicable diseases contribute significantly to burden of disease in high-, middle- and low- income countries. Non-communicable diseases are not passed from person to person; rather, they are due to the damage caused to the body from a range of risk factors, including biological factors (gender, age, blood pressure, body weight, blood cholesterol or blood glucose levels), sociocultural factors, environmental factors and behaviours (diet, physical activity levels, sun protection behaviours, tobacco and alcohol use) or a combination of these. The WHO reports that each year 15 million people die from a non-communicable disease (ages 30–69) and over 85 per cent of these deaths occur in low- and middle-income countries. It is important to remember, however, that the population is also much larger in many of these countries, which will also contributes to the higher death rates. As previously mentioned, many low-income countries are facing a 'double burden of disease' due to the increasing impacts of non-communicable disease existing alongside the impacts of communicable diseases.

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Obesity

Obesity is a risk factor for a number of other conditions, such as cardiovascular disease, diabetes and some cancers. Increases in the prevalence of obesity globally will impact on the leading causes of mortality and disease burden in the future.

Worldwide obesity has more than doubled since 1980 and, according to WHO, in 2016, 650 million adults were obese and 41 million children under the age of 5 were obese. Overweight and obesity are a leading risk for global deaths because they are a major risk factor for many non-communicable diseases such as cardiovascular disease and type 2 diabetes mellitus.

HIV/AIDS

HIV/AIDS is a serious social, economic and medical issue in many low- and middle-income countries and a significant cause of mortality and morbidity. Human immunodeficiency virus (HIV) causes damage to the body's immune system, and usually results in Acquired Immuno-Deficiency Syndrome (AIDS). Once a person has been infected, they are able to pass the virus on to others under certain circumstances – most commonly through sexual behaviours and shared needle and syringe use. Those at greatest risk of contracting the virus are people in low-income countries who are living in poverty because they have little access to healthcare, education or information

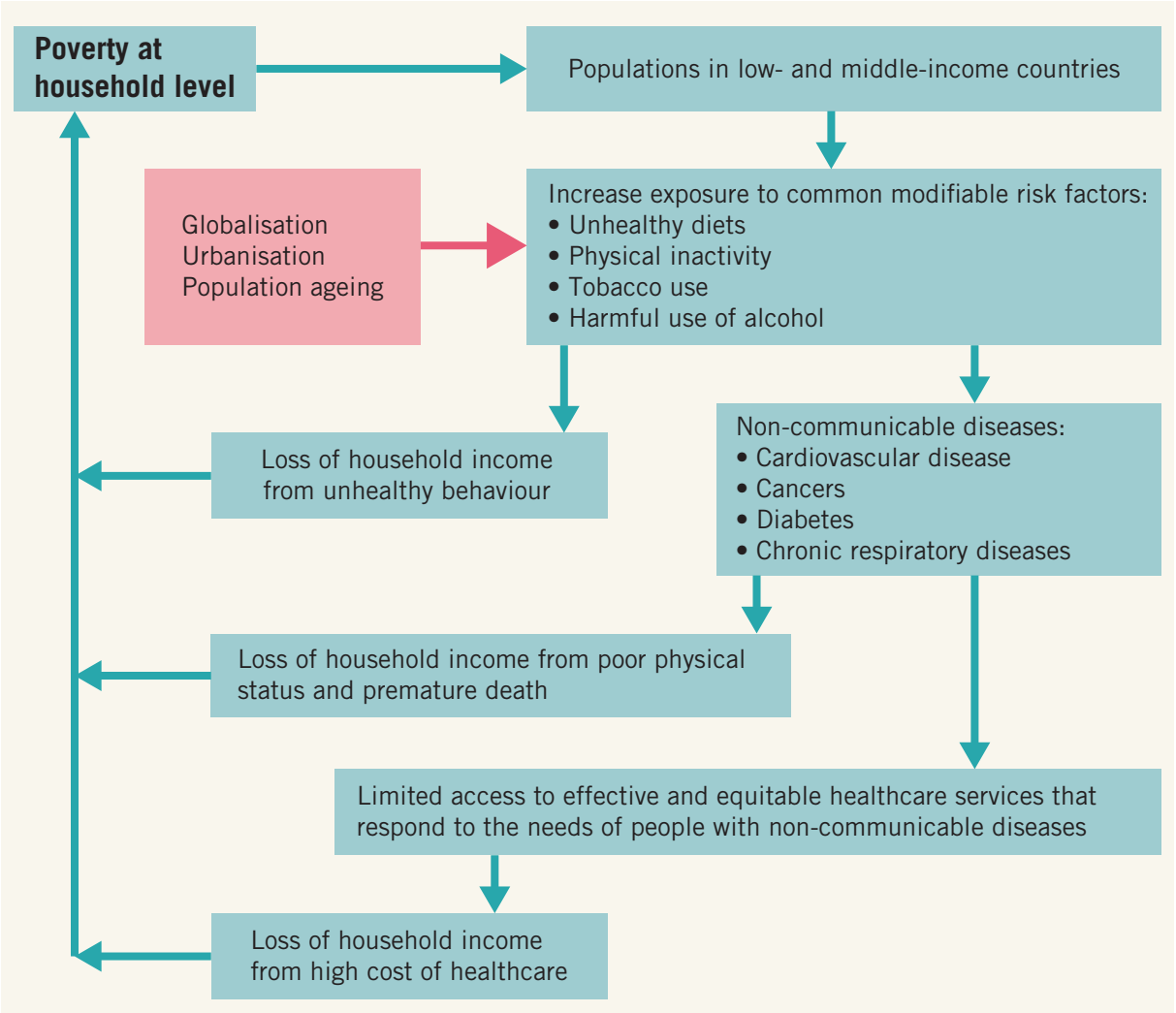


FIGURE 8.25 A cycle of poverty and non-communicable diseases exists; poverty increases non-communicable disease risk and prevalence of non-communicable disease increases poverty.

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about HIV/AIDS. The countries worst affected by HIV/AIDS are in Sub-Saharan Africa, including Swaziland, Zimbabwe, Botswana, Zambia, Malawi, South Africa and Namibia. HIV is transmitted mainly via sexual contact in these areas, and the infection rates are much higher among women. The impact of the AIDS epidemic on women in Africa is exacerbated by the social and economic inequalities that exist between men and women. Children of women who have HIV are also at high risk due to the risk of transmission during pregnancy or birth, or through breastmilk. HIV/AIDS has the highest infection rate among people aged 15–49 years; however, the highest rate of mortality in low-income countries is among the elderly and children.

HIV/AIDS is one of the factors contributing to ongoing poverty in low-income countries. The members of the community who are responsible for growing crops or doing paid work to provide income for their families are the ones most likely to contract the virus. Families therefore suffer from food shortages and loss of income. Often coping without one or both parents, they need to find alternative ways to earn money and purchase food. This may lead to young women turning to dangerous work such as prostitution, which increases their chance of contracting HIV themselves. Individuals with HIV are more susceptible to health problems such as respiratory infection, diarrhoea, fever, weight loss and cancer. People living with the condition in poor countries face a number of other fundamental problems, including loss of income, inability to afford medical attention, feelings of shame and guilt, and difficulty providing the basic necessities for their families. As the access to anti-retroviral therapy increases, the population living with HIV is also expected to increase as fewer people die from AIDS-related causes.

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FIGURE 8.26 HIV/AIDS is a major concern in Africa.

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EXTENSION QUESTION 8.5

Explain possible reasons why women in rural areas are more commonly married before the age of 18.



8.3 ROLE OF SUSTAINABILITY IN THE PROMOTION OF HEALTH AND WELLBEING

While economic growth has lifted many millions of people out of a life of poverty in recent decades, in many cases it has come at the expense of the environment and the world's poorest people. The Earth's natural resources have been used inefficiently and in ways that have been economically and environmentally wasteful. While natural resources have been used to promote development, the depletion of these resources has had a damaging impact on the environment. It has also left many population groups behind, without the essential resources they need to promote health and sustain life – such as electricity, food and safe drinking water. Sustainability is about recognising that to reduce global poverty now and in the future, growth and development must be inclusive and environmentally sound. It is about careful planning and making efficient use of natural resources to meet the needs of the current generation and continue to provide long-term benefits for the planet and future generations.

According to the United Nations (UN), 'sustainability' means 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' (UN, 1987). It embraces concern for quality of life (not just based on income growth), for equity between people (including the prevention of poverty), for intergenerational equity (providing future generations with the environment we enjoy, if not improved) and for the social and ethical dimensions of human welfare.

The UN definition of sustainability has two key aspects: first, it focuses on the notion or concept of needs, specifically the needs of low-income countries. These needs include the most basic things that humans require for survival (such as shelter, food and clean water) and more complex needs, such as access to healthcare and education. Priority must be given to meeting these essential needs for sustainability to occur. The second aspect is the concept of limitations and the fact that sustainability requires society to acknowledge and respect the limitations of the environment in meeting the needs of the present, and also future needs.

An example of how sustainability can be promoted is the education of farmers to produce successful crops without going into debt and at the same time teaching them about crop rotation so they do not exhaust their land. This will help meet the need for food for the current generation, and will also promote social sustainability through education and protect the economic and environmental resources to enable future generations to meet their needs in the long term.

According to the World Bank, there are three dimensions of sustainability: social, economic and environmental. All three of these dimensions are equally important, and need to be balanced in order to achieve the goal of sustainability:

- **Economic sustainability** involves the efficient and responsible use of available resources to ensure that all financial obligations over time can be met.
- **Environmental sustainability** involves making decisions and implementing practices that minimise the degradation of the planet and having an awareness of natural resources and fragility of the physical environment.

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- **Social sustainability** is about equitably meeting and promoting the needs of all people now and in the future.

Recycling is an example of something that can be done to promote sustainability. While this is typically associated with environmental sustainability because it conserves natural resources and energy, it can also promote economic sustainability because it provides employment opportunities for people to sort materials, and requires less money to be spent on the disposal of rubbish. Recycling also promotes social sustainability because, with local governments spending less money on garbage collection and disposal, more money can be spent on social priorities such as education.

TABLE 8.9 Examples of increasing sustainability

ECONOMIC SUSTAINABILITY	ENVIRONMENTAL SUSTAINABILITY	SOCIAL SUSTAINABILITY
• Managing debt • Increasing incomes • Increasing opportunities for trade • Building industry • Increasing opportunities for employment	• Responsible development of infrastructure • Responsible use of nonrenewable resources and energy • Responsible agricultural productivity • Reducing emissions	• Social support systems • High employment • Sustainable birth rates • Investing in education • Development of healthcare systems • Increasing access to technology • Development of legal and political systems • Improving living standards • Strong social justice

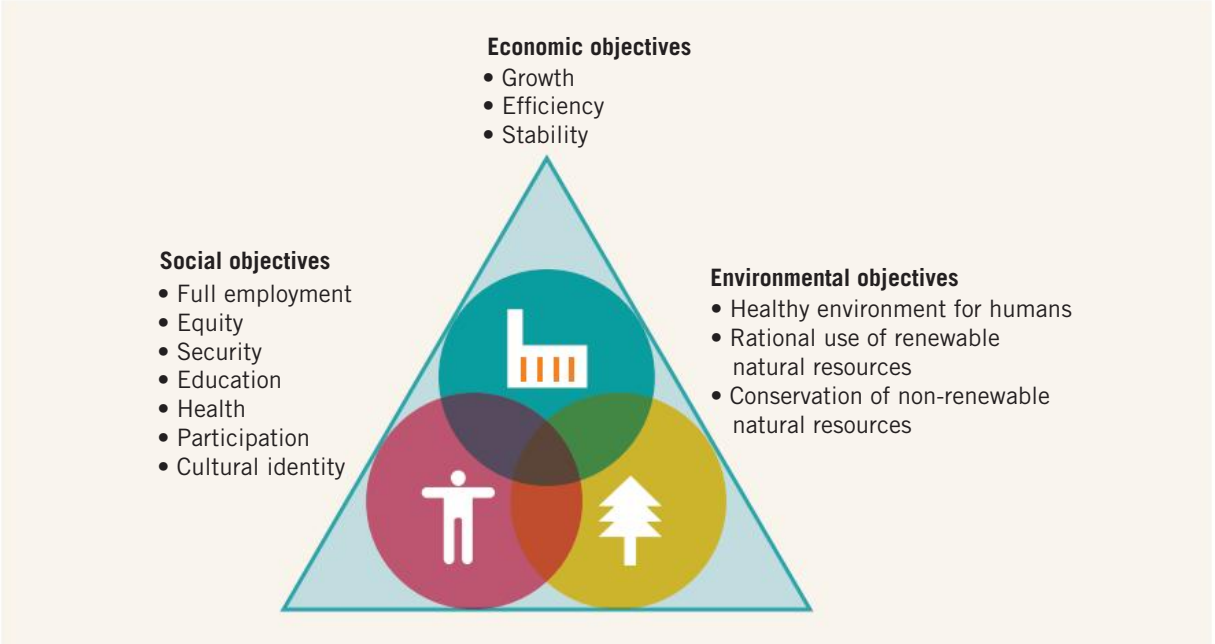


FIGURE 8.27 Objectives of sustainable development

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It is important to understand the difference between sustainability and sustainable development. As mentioned earlier, sustainability refers to meeting the needs of the present without compromising the ability of future generations to meet their needs. Using this definition, sustainability can be viewed as a goal, while sustainable development is more about the many examples of action that can be taken as part of a broad process, plan or pathway to achieve this goal.

Achieving social sustainability involves:

- empowering people to take control of their lives
- respecting the values and knowledge of people
- promoting equity by including all people in decisions and activities that will impact on their community.

Achieving economic sustainability involves:

- ensuring employment opportunities and the payment of a fair wage for goods and services
- promoting economic growth at the national and international level
- investing in education and improving the skills and knowledge of the workforce
- having access to appropriate technology, transport, communication systems, tools and energy.

Achieving environmental sustainability involves:

- protecting natural resources
- reducing energy usage and promoting greater efficiency in the use of energy
- reducing pollution
- encouraging industry and agriculture to use natural resources responsibly.

EXTENSION QUESTION 8.6

Explain why sustainable development is particularly important for low income countries.

How sustainability promotes health and wellbeing

- Ensuring that the needs of the current generation are being met for essential resources such as food, shelter and access to a safe water supply helps to promote the physical health and wellbeing of the population now.
- Ensuring that these resources are not depleted and are therefore available for future generations to meet their needs means that physical health and wellbeing will also be promoted in future generations.
- Promoting economic sustainability by increasing income at a national level through trade means that governments have more money to invest in services such as education and healthcare. This improves physical health and wellbeing as people enjoy improved access to the treatment they need, which reduces the impact of illness.
- Increasing income at a personal level gives individuals and families better access to the resources they need, such as food and shelter, and services such as healthcare and education. This promotes physical health and wellbeing by reducing malnutrition and infectious disease.

ACTIVITY 8.6: IMPACT OF SUSTAINABILITY ON HEALTH AND WELLBEING

Select one example of each type of sustainability and explain how they might impact on health and wellbeing.

EXTENSION QUESTION 8.7

There is an old proverb from the First People of Northern America: 'We do not inherit the Earth from our ancestors, we borrow it from our children.'

Discuss what this means in relation to sustainability.

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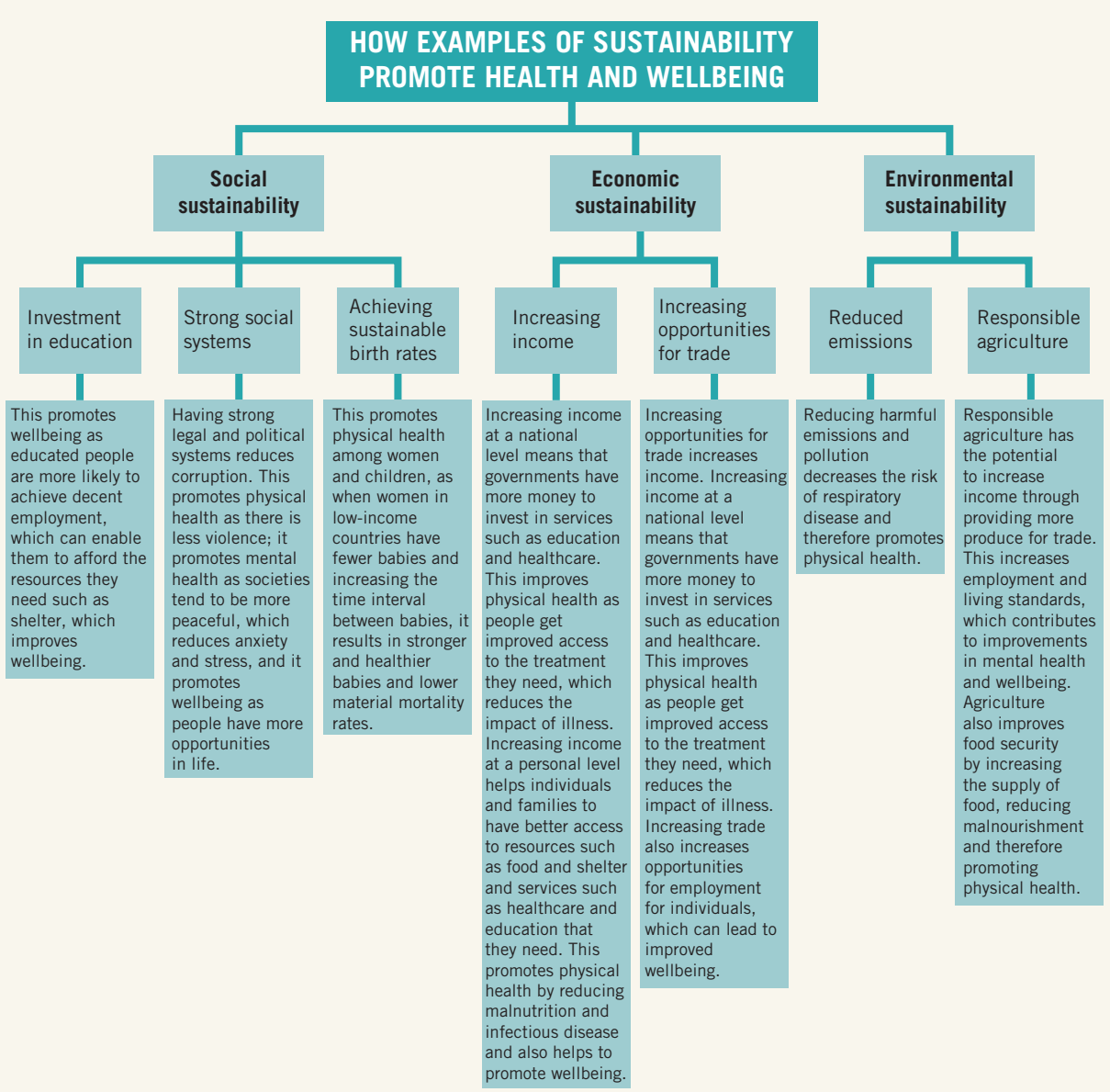


FIGURE 8.28 The dimensions of sustainability interact with one another and impact on health and wellbeing.

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Trying to improve sustainable development in one dimension of sustainability can sometimes have a negative impact on other dimensions and on the health and wellbeing of people. One area in which we should use caution is the attempts of high-income countries like Australia to try to find alternative fuel options to counter the recent rise in the global price of fuels such as biofuels. These fuels are made from biological materials such as maize, sugar cane and soybeans. While biofuels appear to be an environmentally sustainable option, they actually contribute to ongoing food shortages in some parts of the world. Corn (maize) has been seen by some as more valuable as a source of fuel than as a food source, yet many people rely on it as a staple food. The demand for biofuels is not only reducing food supply, which can then impact negatively on physical health and wellbeing; it is also contributing to higher food costs and global warming.

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8.4 HUMAN DEVELOPMENT CONCEPT

According to the United Nations, **human development** refers to the creation of an environment in which people can develop to their full potential and lead productive, creative lives in accord with 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 the decisions affecting their lives.

Human development is based on the three basic elements that each individual requires for development: adequate nutrition, education and a decent standard of living. Many of the world's poorest people are denied these simple requirements, impacting their health and development. The greatest inequalities in global health can be found in countries where individuals and communities experience poverty and inequalities in the basic aspects of human development.

human development: The process of increasing the opportunities and freedoms that people have to develop to their full potential and lead productive, creative lives in accord with their needs and interests (adapted from the UN Development Programme, 1990).

The concept of human development was created from global discussions on the link between economic growth and development, moving away from a focus on economic growth as an indicator of wellbeing. The human development approach focuses on people, opportunities and choices, rather than assuming that economic growth will automatically lead to greater opportunities for all.



FIGURE 8.29 Human development is about people and focuses on lives rather than money.

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People, opportunities and choice are central themes in the human development concept:

- **people:** rather than focusing on economic growth and assuming that this will result in improvements in wellbeing for all, human development has a focus on improving the lives of people. In this way, human development views economic growth as a means to achieve human development rather than as the end goal.
- **opportunities:** providing people with more freedom to live a life that they value is also a central theme in the human development concept. It is about providing people with a range of skills and abilities and the opportunities to use them.
- **choice:** happiness and satisfaction in life can't be guaranteed, nor can we ensure that all people will always make the right choices in life. Central to human development is the idea that people need to be provided with opportunities and have the choice to make use of them.

In order to create human development that is sustainable, a fundamental focus is on creating environments in which people have the opportunity to fulfil their potential – as do their children and future generations – through improving people's choices and enhancing capabilities. Factors of health that deny human development, such as poverty, food insecurity, conflict and a lack of access to health services, must be addressed and improved or eradicated. By breaking these vicious cycles and adopting inter-sectoral approaches and initiatives such as the Sustainable Development Goals, health will be placed at the centre of the human development agenda, and individuals and communities will experience increased and sustainable human development.

The issues and themes currently considered most central to human development include:

- **social progress:** access to knowledge, better nutrition and services
- **economic:** the importance of economic growth for increased human development
- **efficiency:** the use and availability of resources

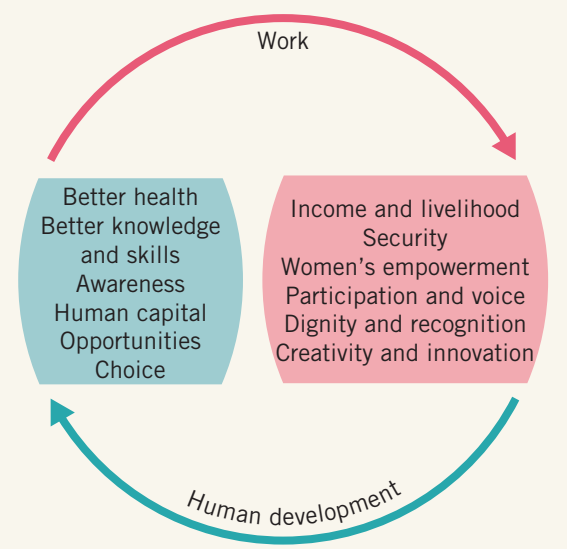


FIGURE 8.30 Cycle of work and human development

- **equity:** equality of opportunity
- **participation and freedom:** with an emphasis on empowerment and gender equality
- **sustainability:** environmental, economic and social
- **human security:** security in daily life against chronic threats such as violence, disease and famine.

The extent of human development impacts the health status of individuals and communities. Conversely, the level of wellbeing of communities and individuals can also affect human development. This may result in either a reduced chance of sustainable human development or increased opportunities for sustainability. There is a strong relationship between health outcomes and human development. In countries that are not experiencing positive human development, the lack of choice and resources will have a negative impact on all dimensions of health and wellbeing. For example, having fewer choices about education and healthcare can directly impact physical health and wellbeing by decreasing health literacy and knowledge about health-promoting behaviours; it can also reduce diagnosis and treatment of diseases. Fewer choices in these areas can also impact negatively on social health and wellbeing. For example, not having the choice to attend

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school may reduce the ability of the individual to interact with others their own age. There may also be a negative impact on mental health and wellbeing due to the increase in stress that may be associated with the lack of choices available to improve one's situation.

If a population is generally suffering from poor physical health and wellbeing, it will impact their ability to reach individual potential and participation in life, therefore contributing negatively to human development. For example, if an individual is suffering the effects of being undernourished, they may find it difficult to work, care for their family or attend school. Populations that are undernourished and unhealthy will therefore find human development difficult to achieve.

The United Nations developed the Human Development Index to reflect the levels of human development in countries.

Human Development Index

The Human Development Index (HDI) is a relatively new tool, introduced by the United Nations, that is used to assess the health and developmental outcomes of a nation. In the past, development was measured using economic data and, while income and the wealth of a nation are indicators of progress and do have an impact on health and wellbeing, such wealth is not always distributed evenly and therefore does not provide an accurate indication of the level of wellbeing or development of a nation. Human development is seen as a resource for promoting the wellbeing of a population and promoting an environment where people can live long, healthy and productive lives. However, since the concept of human development encompasses more than simple economics, a new way of calculating and reflecting levels of human development has been introduced, using the HDI.

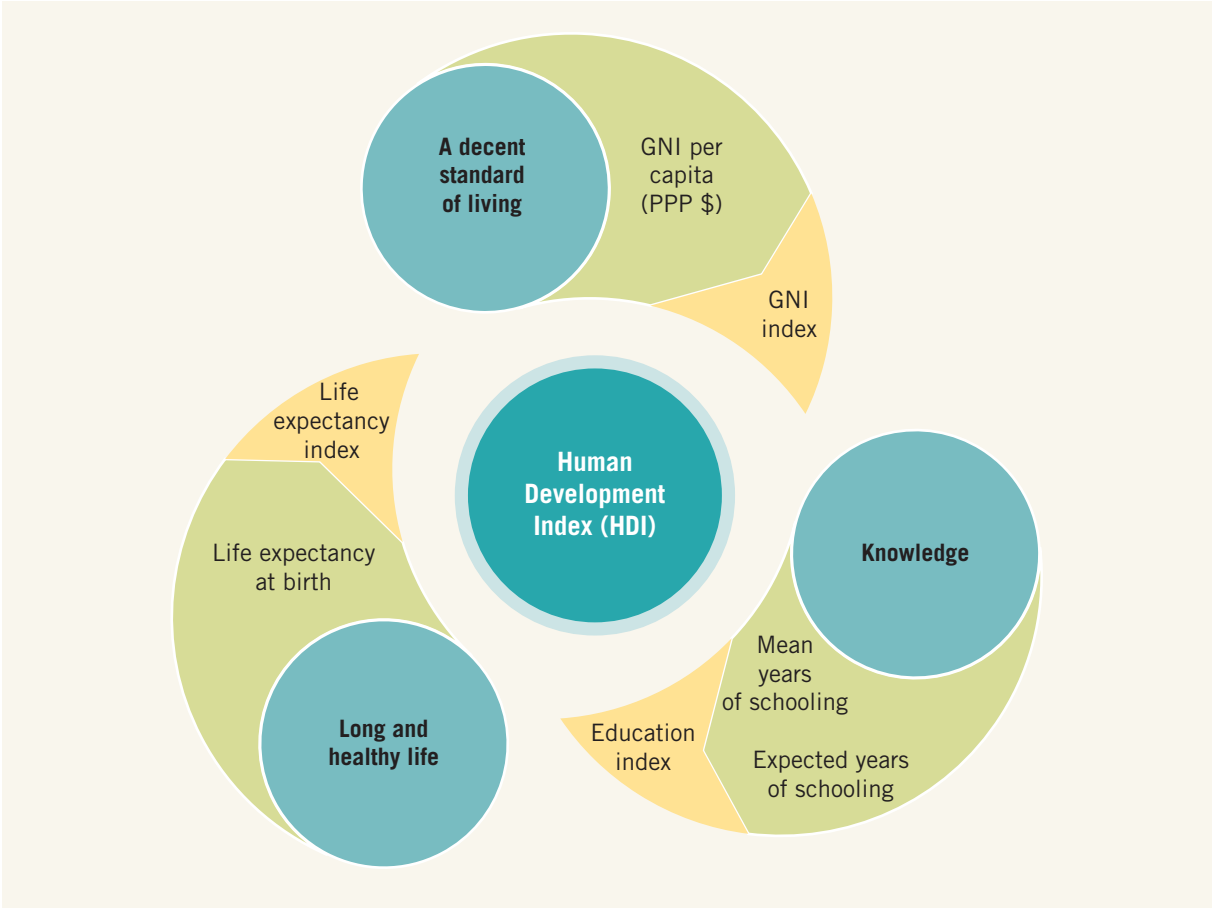


FIGURE 8.31 The Human Development Index encompasses three dimensions and four indicators.

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Each year since 1990, the Human Development Report Office has published the HDI, which looks beyond GDP to a broader definition of wellbeing. It identifies human development as being about enhancing people's choices, allowing them to develop their full potential and lead productive, creative lives in dignity and in accordance with their needs and interests. By ranking countries in this way, the HDI report has helped to shift the debate away from GNI per capita as the only measure of development.

It is important to remember that The HDI simplifies human development and only captures part of what the concept of human development involves. It is not viewed as a complete reflection of human development because it does not reflect inequalities in poverty, human security or empowerment. It does, however, provide a broadened perspective of viewing human progress and the complex relationship between income and wellbeing.

The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living.

These three broad dimensions of human development use the following indicators to measure human development (see Figure 8.31):

- **a long and healthy life:** measured by life expectancy at birth
- **being knowledgeable:** measured by mean years of schooling, which is the average number of years of school completed by people aged 25 years and over, and by expected years of schooling, which is the total number of years of schooling expected for a child of school entry age
- **a decent standard of living:** having a decent standard of living (measured by GNI per capita constant purchasing power parity, PPP). This gross national income (GNI) figure is used because of the diverse economic nature of the different countries being ranked.

To compare economic statistics, the data need to be converted into a common currency and this figure better reflects people's living standards.

These indicators are combined and countries are ranked by their index between 0 and 1. The closer they are to 1, the higher their level of human development is considered to be. The HDI uses this combination of indicators to provide a more detailed overview of the level of development in a country, allowing for comparisons between countries and monitoring of progress over time.

All countries ranked are classified into one of four clusters of achievement. In 2017 these were:

- very high human development (an HDI of 0.800 or above)
- high human development (an HDI of 0.700 to 0.799)
- medium development (an HDI of 0.550 to 0.699)
- low human development (less than 0.550).

In 2017, Australia was ranked third out of 188 countries with an index of 0.939, firmly sitting in the very high human development category. As can be seen from Table 8.10, low-income countries such as Chad (0.404) and Mozambique (0.437) typically have a low HDI, while high-income countries such as Australia (0.939) Canada (0.926) and Japan (0.909) have a high HDI. In the past, economic factors were used as a measure of a country's resources, and this was the only factor used as a measure for a country's good health and improved development. It was economic factors that defined a country as developed or developing. With an understanding of the factors related to human development and the inequalities in health status of low- and middle-income countries, this tool is a more suitable means of measurement.

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TABLE 8.10 Human Development Index (HDI) and indicators

	RANK		HDI VALUE		LIFE EXPECTANCY AT BIRTH		MEAN YEARS OF SCHOOLING (YEARS)		EXPECTED YEARS OF SCHOOLING (YEARS)		GNI PER CAPITA (ATLAS METHOD $US)	
	2015	2017	2015	2017	2015	2017	2015	2017	2015	2017	2015	2017
High-income countries												
Australia	2	3	0.939	0.939	82.5	83.1	13.2	12.9	20.4	22.9	60500	51600
Canada	10	12	0.920	0.926	82.2	82.5	13.1	13.3	16.3	16.4	47590	42960
Japan	17	19	0.903	0.909	83.7	83.9	12.5	12.5	15.3	18.9	38840	38470
United States	10	13	0.920	0.924	79.2	79.5	13.2	13.4	16.5	16.5	56720	54030
New Zealand	13	16	0.915	0.917	82.0	82.0	12.5	12.5	19.2	18.9	40600	38470
Singapore	5	9	0.925	0.932	83.2	83.2	11.6	11.5	15.4	16.2	53120	54200
Middle-income countries												
Bangladesh	139	136	0.579	0.608	72.0	72.8	5.2	5.8	10.2	11.4	1220	1570
Cambodia	143	146	0.563	0.582	68.8	69.3	4.7	4.8	10.9	11.7	1060	1240
Argentina	45	47	0.827	0.825	76.5	76.7	9.9	9.9	17.3	17.4	12600	13120
Malaysia	59	57	0.789	0.802	74.9	75.5	10.1	10.2	13.1	13.7	10680	9940
Turkey	71	64	0.767	0.791	75.5	76.0	7.9	8.0	14.6	15.2	11960	10900
Vanuatu	134	138	0.597	0.603	72.1	72.3	6.8	6.8	10.8	10.9	2910	2880
Low-income countries												
Afghanistan	169	168	0.479	0.498	60.7	64.0	3.6	8	10.1	10.4	600	550
Chad	186	186	0.396	0.404	51.9	53.2	2.3	2.3	73	8.0	880	640
Mozambique	181	180	0.418	0.437	55.5	58.9	3.5	3.5	9.1	9.7	640	470
Sierra Leone	179	184	0.420	0.419	51.3	52.2	3.3	3.5	9.5	9.8	550	520
Zimbabwe	154	156	0.516	0.535	59.2	61.7	7.7	8.1	10.3	10.3	1280	1370
Nepal	144	149	0.558	0.574	70.0	70.6	4.1	4.9	12.2	12.2	780	860

SOURCE: Human Development Report (2018)

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EXTENSION QUESTION 8.8

Compare the 2015 and 2017 data and discuss the changes in rankings that have occurred in different countries. Discuss possible reasons for this.

EXTENSION QUESTION 8.9

With reference to Table 8.10 and data on health status, explain the interrelationship that exists between the income level of a country and the level of human development.

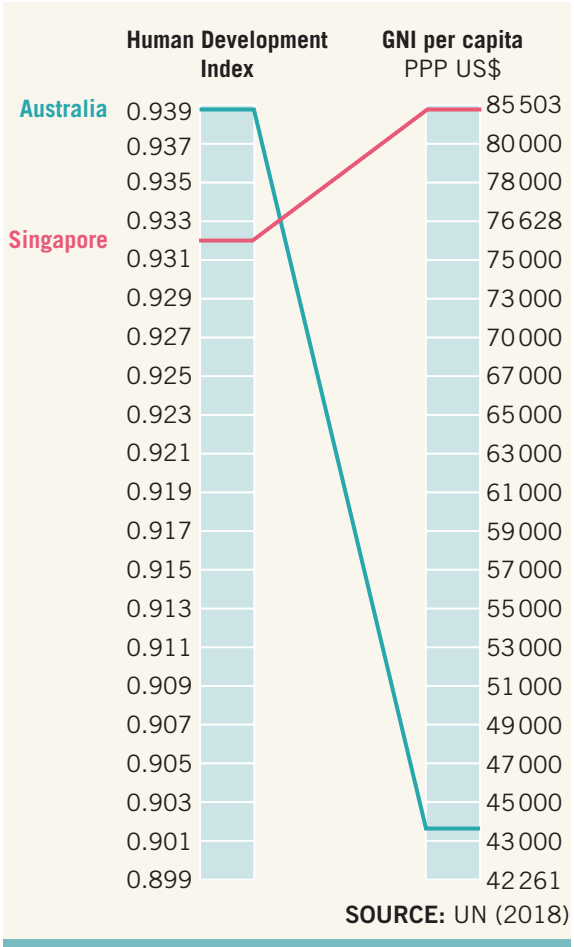


FIGURE 8.32 A higher GNI does not necessarily mean that a country will have a higher HDI.

EXTENSION QUESTION 8.10

With reference to Figure 8.32 explain why the HDI in Singapore is lower than Australia, when the income is higher than Australia.

ACTIVITY 8.7: DATA ANALYSIS USING THE HUMAN DEVELOPMENT INDEX

1. Select one country from each of the income levels. For each of the countries selected, identify its HDI and state whether it has a very high, high, medium or low level of human development.
2. Compare the indicators of HDI between the three countries selected.
3. Discuss how GNI might impact human development.
4. Discuss how mean years of schooling and expected years of schooling might impact human development.
5. Explain how middle-income countries such as Argentina have a very high HDI while other middle-income countries have a medium HDI.

Advantages and disadvantages of the Human Development Index

One of the limitations of the HDI is that not all countries around the world are able to receive a ranking. Statistics are based on national data collections, and if data are not available or are missing, estimates are made. The nature of the HDI requires that data adjustments are made in order to analyse and rank countries consistently. These factors may result in inconsistencies between international and national data estimates.

The index is not a complete reflection of human development because it does not include important indicators such as gender, income inequality within a country or more difficult-to- measure indicators such as respect for human rights or political freedom.

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It does, however, provide a broader perspective of evaluating human progress and the complex relationship between income and wellbeing. Aspects of human development are certainly a factor when these conclusions are being drawn.

An advantage of using the HDI is that, while it doesn't capture all the elements of the broader understanding of human development, it does provide a more accurate indication of levels of human development than simply using income or life expectancy alone. The HDI enables comparisons of the levels of human development between countries. As this index is a single statistical measure of a country's average achievement in the fundamentals of human development, clear and accurate evaluations can be made. The HDI also puts human development on the political agenda and encourages governments to work towards improving resources to improve levels of human development.

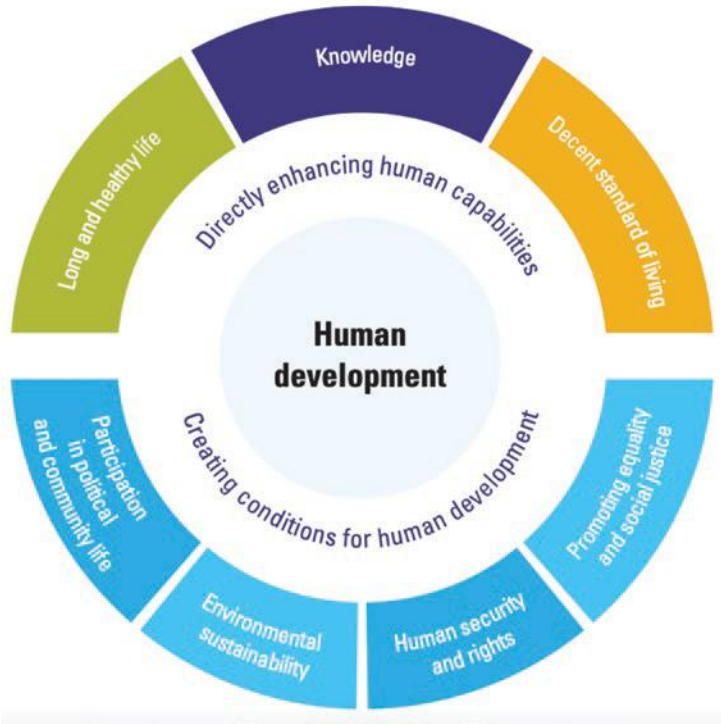


FIGURE 8.33 Dimensions of human development

CHAPTER SUMMARY

- The World Bank classifies countries based on income levels:
  - Low income – GNI per capita of US$1025 or below
  - Middle income – GNI per capita between US$1026 and $12375
  - High income – GNI per capita of US$12376 or above
- The characteristics of countries differ based on income levels:
  - Low income – high population growth, low level of education, less infrastructure and food insecurity
  - Middle income – increasing industry, increasing education levels
  - High income – high levels of educational attainment, adequate infrastructure, improved food security.
- Human development refers to the creation of an environment in which people can:
  - develop to their full potential
  - lead productive, creative lives in accord with their needs and interests.
- Human development is about:
  - expanding people's choices and enhancing capabilities
  - giving people access to knowledge, health and a decent standard of living
  - enabling people to participate in the life of their community and the decisions affecting their lives.

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- The Human Development Index (HDI) is a tool developed by the United Nations to measure and rank a country's level of social and economic development.
- The HDI combines three broad dimensions of human development:
  - a long and healthy life
  - knowledge
  - a decent standard of living.
- HDI is measured by four indicators:
  - life expectancy at birth
  - mean years of schooling
  - expected years of schooling
  - GNI per capita.
- Sustainability means 'meeting the needs of the present without compromising the ability of future generations to meet their own needs'.
- According to the World Bank, there are three dimensions of sustainability:
  - Economic sustainability involves the efficient and responsible use of available resources to ensure that all financial obligations over time can be met.
  - Environmental sustainability involves making decisions and implementing practices that minimise the degradation of the planet and having an awareness of natural resources and fragility of the physical environment.
  - Social sustainability is about equitably meeting and promoting the needs of all people, now and in the future.

KEY QUESTIONS

SUMMARY QUESTIONS

1 Identify three countries in each income level and provide examples of characteristics for these income levels.

2 Explain the concept of sustainability and identify the three dimensions of sustainability. Provide examples of each of the dimensions.

3 Explain how improving a country's sustainability can promote health and wellbeing.

4 Explain what the human development index (HDI) is and identify the dimensions and indicators.

5 Outline the advantages and limitations of the HDI.

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EXTENDED RESPONSE QUESTION

SOURCE 1

TABLE 8.11 Human Development Index (HDI) and indicators

	RANK 2017	HDI VALUE 2017	LIFE EXPECTANCY AT BIRTH 2017	MEAN YEARS OF SCHOOLING (YEARS) 2017	EXPECTED YEARS OF SCHOOLING (YEARS) 2017	GNI PER CAPITA (PPP $US) 2017
Australia	3	0.939	83.1	12.9	22.9	51 600
Nepal	149	0.574	70.6	4.9	12.2	860

SOURCE: Human Development Indices and Indicators 2018 Statistical Update

SOURCE 2

TABLE 8.12 Comparison of health status

	LIFE EXPECTANCY AT BIRTH (2017)	UNDER-5 MORTALITY RATE PER 1000 LIVE BIRTH (2017)	INFANT MORTALITY RATE PER 1000 LIVE BIRTH (2017)	MATERNAL MORTALITY RATE: LIFETIME RISK OF MATERNAL DEATH ONE IN: (2015)
Australia	82.5	3.5	3	8700
Nepal	70.6	34	27.8	150

SOURCE: World Bank

QUESTION

All three dimensions of the HDI are equally important in promoting Human Development and Health Status. Using the information above, discuss to what extent you agree with this statement. (10 marks).

EXAMINATION PREPARATION QUESTIONS

The 2017 Human Development Index of Australia and Mozambique were 0.939 and 0.437 respectively.

A Describe the Human Development Index. (3 marks)

B Outline two likely differences in human development between Australia and Mozambique, based on their respective HDIs. (4 marks)

C It is possible for a country to have a higher GNI but a lower HDI. For example, Australia's HDI was 0.939 and Kuwait's HDI was 0.803 in 2017. However, Australia's GNI per capita was US$43 560 and Kuwait's was US$70 524. Explain how this is possible. (2 marks)



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9 FACTORS CONTRIBUTING TO DIFFERENCES IN HEALTH

KEY KNOWLEDGE

- 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.
- 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 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.
- Analyse the implications for health and wellbeing of particular global trends.

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INTRODUCTION

Worldwide, there are many factors that contribute to the similarities and differences in health status and burden of disease. The first part of this chapter focuses specifically on 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. You will need to understand each of these factors and be able to analyse how each one can contribute to the differences and similarities in health status and burden of disease within low-, middle- and high-income countries.

The second part of this chapter investigates the impacts of various global trends and the implications these have for health and wellbeing. Changes that we are experiencing in our world and global trends include climate change, conflict and mass migration, increased world trade and tourism, and the use of digital technologies to enable sharing of knowledge. You will need an understanding of each of the global trends and be able to explain the implications for health and wellbeing.

What you need to know

- A detailed understanding of each factor – 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
- How each factor can contribute to health status and burden of disease
- A detailed understanding of each global trend (climate change, conflict and mass migration, increased world trade and tourism and digital technologies)
- How each global trend can impact health and wellbeing
- Health status indicators and burden of disease
- The dimensions of health and wellbeing



FIGURE 9.1 Life for women in low- and middle-income countries is often difficult.

AOS 1

What you need to be able to do

- Explain each factor – 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.
- Analyse how each factor can contribute to the differences and similarities in health status and burden of disease.
- Explain each global trend (climate change, conflict and mass migration, increased world trade and tourism and digital technologies).
- Explain how each factor may impact the dimensions of health and wellbeing.
- Describe how each global trend may impact the dimensions of health and wellbeing.

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9.1 SIMILARITIES AND DIFFERENCES IN GLOBAL HEALTH

The similarities and differences in health status and burden of disease that are experienced by people around the world are the result of many factors. In high-income countries, many of these are often lifestyle factors that can be said to be within an individual's control, such as diet, exercise, smoking, alcohol consumption and food intake that is high in fat, salt and sugar.

Similarly, in many low- and middle-income countries, these factors also have a major influence on health status and burden of disease. However, in many low- and middle-income countries, resources that are taken for granted in high-income countries – such as a safe water supply – are not readily accessible or available. Such factors can be seen to be largely outside an individual's control. The absence of a resource like clean, safe water can have a significant negative impact on the health outcomes of individuals, entire communities and ultimately a whole country. According to the WHO, in the year 2016, water, sanitation and hygiene was responsible for 829 000 annual deaths from diarrhoea, and 1.9 per cent of the global burden of disease (in disability-adjusted life years or DALYs). Health status of those living in low- and middle-income countries is also affected by political situations such as discrimination based on race, religion and gender identity, poverty, poor access to sanitation and the unequal treatment of women. Likewise, in many high income countries people can also experience discrimination, food insecurity, and lack the economic resources to improve living standards, thereby contributing to similarities in health status globally.

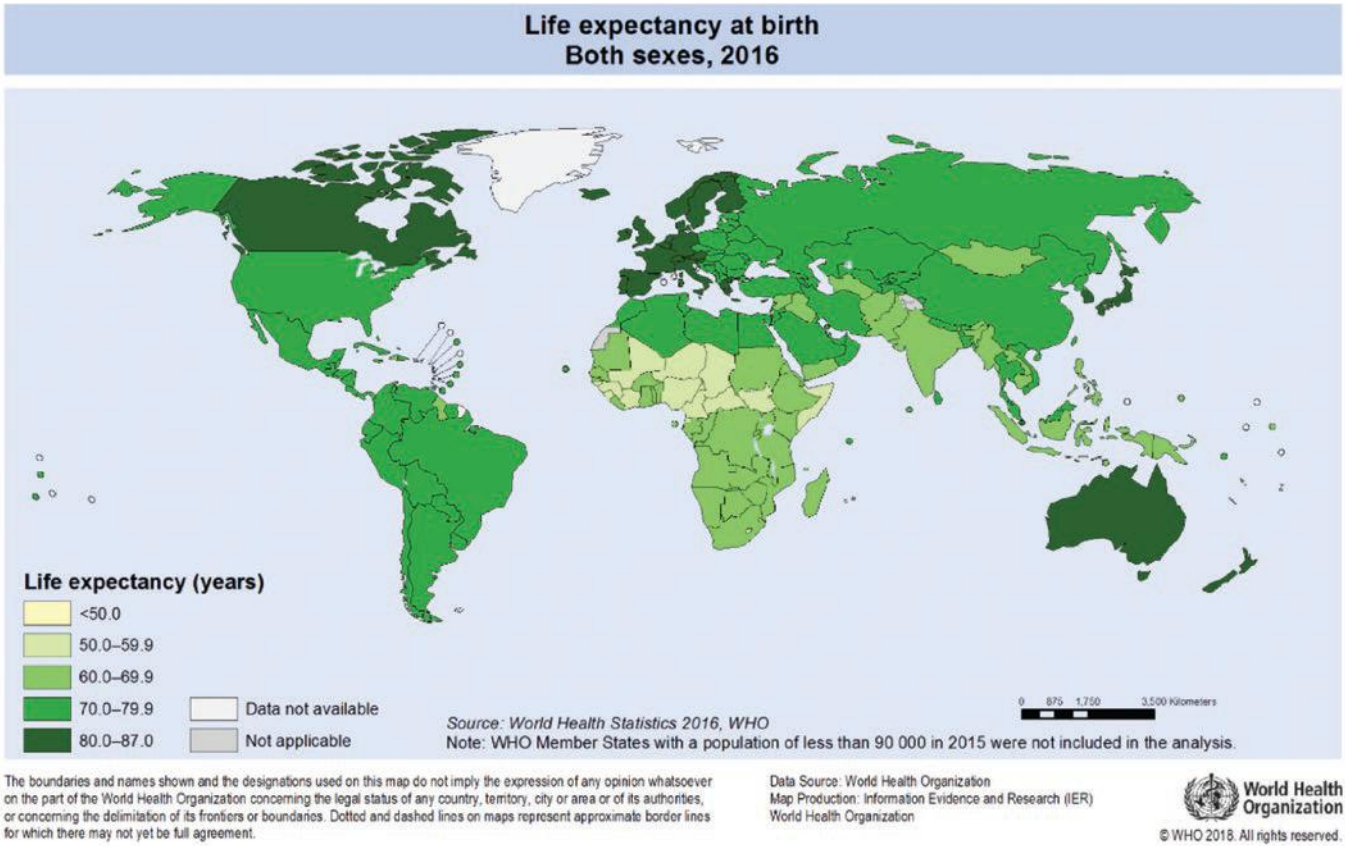


FIGURE 9.2 Life expectancy at birth for males and females globally, 2016

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DISCUSS

TABLE 9.1: Life expectancy at birth for males and females, 2016

		LIFE EXPECTANCY	HALE	LIFE EXPECTANCY	HALE
		At birth (years)		At 60 years (years)	
Global	Male	69.8	62.0	19.0	14.8
	Female	74.2	64.8	21.9	16.8
	Both sexes	72.0	63.3	20.5	15.8
World Bank income group (both sexes)	LI	62.7	54.9	17.1	12.9
	LMI	67.9	59.1	18.0	13.2
	UMI	75.2	67.0	20.2	15.8
	HI	80.8	71.2	24.3	19.0

SOURCE: WHO, Global Health Observatory data

With reference to the data in Table 9.1, discuss similarities and differences in life expectancy and health-adjusted life expectancy (HALE) experienced globally.

AOS 1

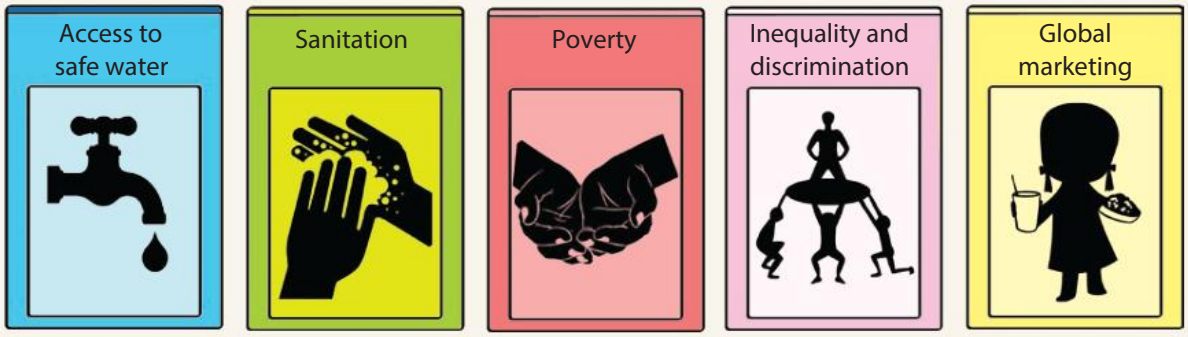


FIGURE 9.3 Key factors contributing to the similarities and differences in health status and burden of disease

9.2 ACCESS TO SAFE WATER AND SANITATION

A safe water supply and good sanitation are fundamental to improving global health. In 2010, the United Nations General Assembly recognised that access to clean water and sanitation is a basic human right.

Access to safe water

Access to safe water can be considered as access to water that, when consumed, will not be detrimental to health and is free from any form of contaminants. Everyone has the right to sufficient, continuous, safe, acceptable, physically accessible, and affordable water for

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personal and domestic use (see Key Water Facts in the box below.)

The provision of adequate access to sustainable clean water – whether it is for drinking, washing, cleaning, cooking, food production or recreation purposes – is needed by all people to reduce the spread of illness and improve health status worldwide. Having access to safe drinking water has often been taken for granted by people in high-income countries. However, today, with concerns about diminishing water supplies, those in high-income countries are beginning to appreciate just how precious water is and the consequences of living in water-stress areas. Having enough water is one concern, but having access to water that is safe is another concern for those in low- and middle-income countries.

The United Nations, through its Sustainable Development Goals (SDGs) – which will be discussed in Chapter 10 – has a goal specifically focused on achieving universal and equitable access to safe and affordable drinking water for all by 2030. Accordingly, a safely managed drinking water service is defined as one located on premises, available when needed and free from contamination.

EXTENSION QUESTION 9.1



With access to safe water, a significant number of deaths in children under 5 years old could be prevented.

Explain to what extent you agree with this statement.

KEY WATER FACTS

- In 2017, 71 per cent of the global population (5.3 billion people) used a safely managed drinking water service – that is, one located on premises, available when needed, and free from contamination.
- 90 per cent of the global population (6.8 billion people) used at least a basic service. A basic service is an improved drinking water source within a round trip of 30 minutes to collect water.
- 785 million people lack even a basic drinking water service, including 144 million people who are dependent on surface water.
- Globally, at least 2 billion people use a drinking water source contaminated with faeces.
- Contaminated water can transmit diseases such diarrhoea, cholera, dysentery, typhoid, and polio. Contaminated drinking water is estimated to cause 485 000 diarrhoeal deaths each year.
- By 2025, half of the world's population will be living in water-stressed areas.
- In least developed countries, 22 per cent of healthcare facilities have no water service, 21 per cent no sanitation service, and 22 per cent no waste management service.

SOURCE: WHO (2019)

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While improvements in access to safe water have been achieved globally, there are vast inequalities in terms of the quality of water services, accessibility and availability of safe water. According to WaterAid, one in nine people do not have access to safe water close to their home and 114 million drink untreated surface water, from sources such as ponds and streams (WHO/UNICEF, 2019). World Data indicates that unsafe water is responsible for 1.2 million deaths every year and 6 per cent of deaths in low-income countries are due to unsafe water.

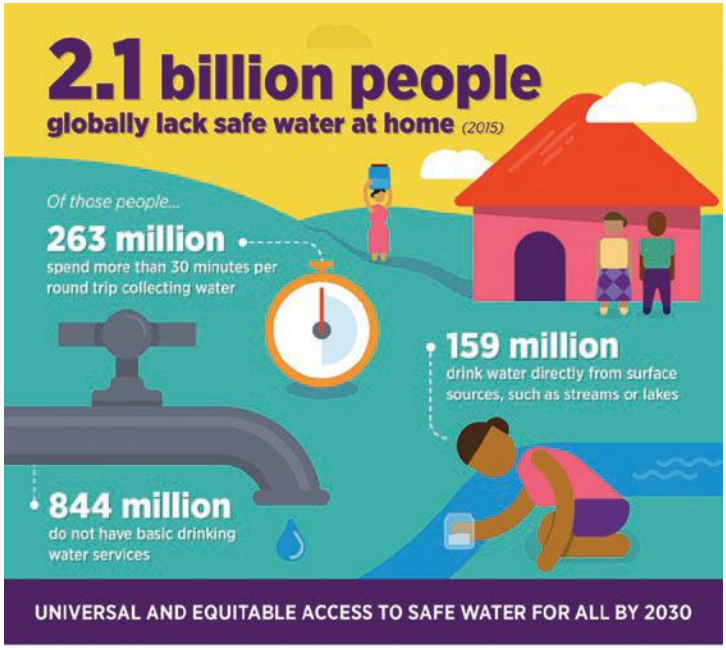


FIGURE 9.4 Vast inequalities exist in terms of access to safe water between low-, middle- and high-income countries.

Unsafe drinking water can result in the spread of illnesses such as diarrhoea, cholera, malaria and hookworm. The WHO has estimated that 80 per cent of all sickness and disease in the world is attributable to inadequate water or sanitation. Even when water is safe to drink, it is not an endless resource: drought, over-use and pollution all pose a threat. According to UNICEF, 36 countries are currently facing extremely high levels of water stress while, according to the UN, over 2 billion people live in countries experiencing high water stress (UN, 2018) and this is predicted to increase. Warmer temperatures, rising sea levels, increased floods, droughts and melting ice affect the quality and availability of water, as do the availability and quality of sanitation systems.

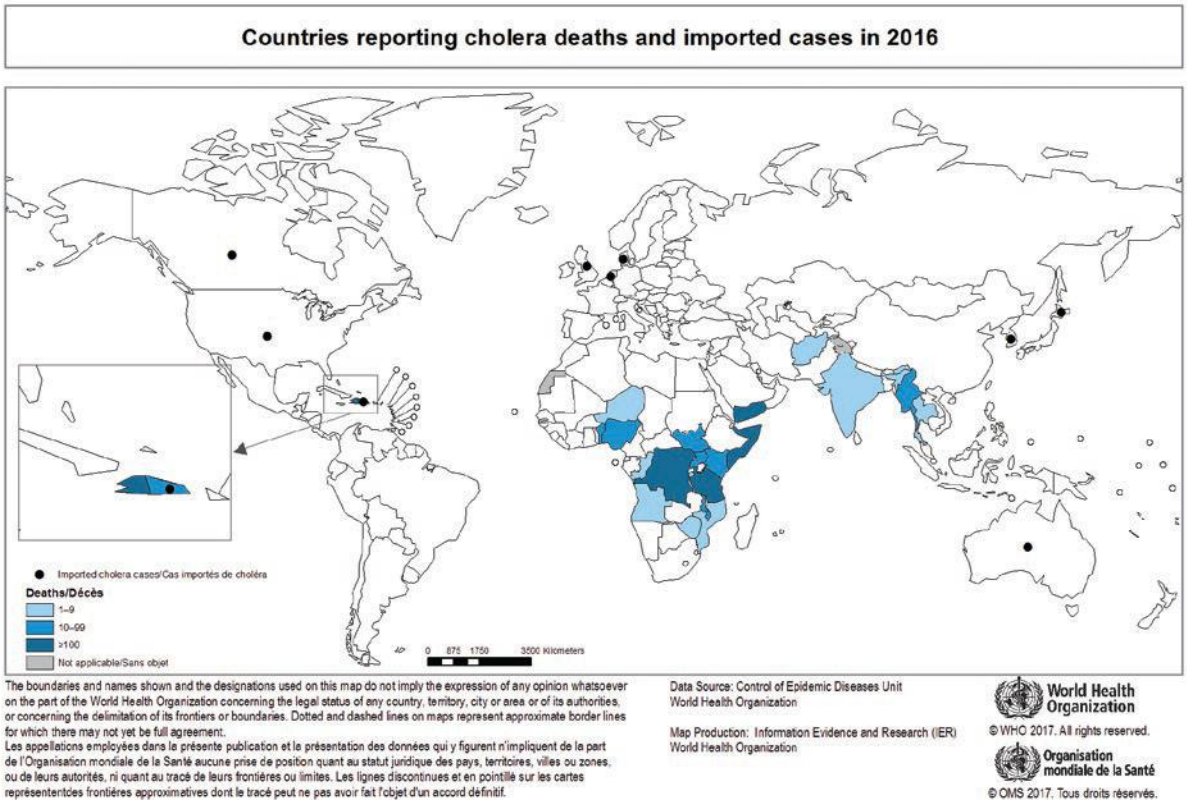
Many children, particularly in drought-affected areas, spend hours every day collecting water and missing out on the chance to go to school, which reduces literacy and numerous skills and therefore their future career opportunities. The poorest and most vulnerable children are the most impacted by water stress and a lack of access to safe water, leading to higher rates of under-5 mortality.

Cholera is an acute bacterial infection of the intestinal tract and is associated with contaminated water and unhygienic environments. Cholera causes severe attacks of diarrhoea that, without treatment, can lead to acute dehydration and death in both adults and children within hours. It can be prevented by access to safe drinking water and sanitation. Cholera remains a major public health problem affecting mainly low-income populations with no proper access to adequate water and sanitation. In 2016, 2420 cholera deaths were reported to the WHO, representing an 86 per cent increase as compared to 2015 (WHO, 2016).

Not having access to a safe water supply does more than just spread disease. As a consequence of drought, rural communities often lack sufficient water to grow food or to keep their livestock alive. Without this essential resource, farms can wither and incomes reduce, malnutrition increases and for people already struggling to survive, life becomes even harder.

Those living in rural areas, low-income areas or illegal settlements or slums, usually have less access to safe water and consequently experience poorer health status than those living in higher income areas with improved drinking water sources.

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SOURCE: WHO

FIGURE 9.5 Countries reporting cholera deaths and imported cases, 2016

ACTIVITY 9.1: SAFE WATER

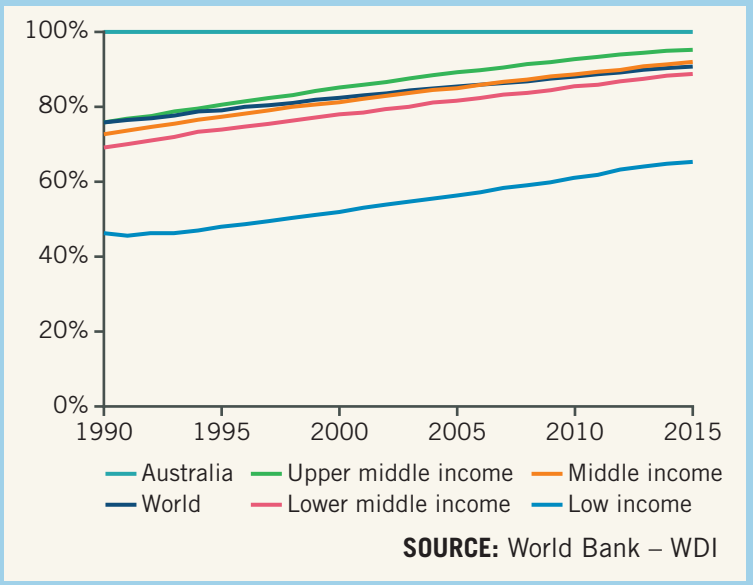
1 Explain what is meant by 'safe water'.

2 Using information from the graph in Figure 9.6, identify a trend in the data.

3 With reference to the graph in Figure 9.6, explain how access to improved drinking water can reduce burden of disease in low-, middle- and high-income countries.

4 Discuss how access to improved drinking water may impact on health and wellbeing.

5 Explain how access to safe water is a resource for optimal health and wellbeing globally.



SOURCE: World Bank – WDI

FIGURE 9.6 Proportion (%) of population with access to improved drinking water, 1990–2015

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IMPACT OF A LACK OF ACCESS TO SAFE WATER



- Children and women spend hours collecting water rather than going to school or working.
- Inability to grow crops or keep livestock leads to lack of food and inability to earn an income.
- Lack of safe water increases risk of using contaminated water sources.
- Healthcare facilities that lack access to safe water place staff and patients at increased risk of developing infections and diseases.

IMPACT ON HEALTH AND WELLBEING

- A lack of access to safe water can reduce physical health and wellbeing by increasing the risk of developing waterborne diseases such as cholera which can contribute to dehydration and malnutrition.
- Collecting water may take children and women many hours and can be dangerous due to increased risk of injury, assault and is exhausting work, reducing physical health and wellbeing.
- A lack of access to safe water may decrease mental health of mothers due to the stress and anxiety experienced when family members develop water-related illnesses.
- The time taken by young children and women, particularly girls, to collect water is time away from school and work, limiting opportunities for developing relationships with peers and participating in the community or employment, reducing social health and wellbeing.
- The lack of infrastructure and access to safe water can decrease the ability of farmers to grow crops and keep livestock alive, which may reduce the sense of belonging to the community in which they live, decreasing spiritual health and wellbeing.

IMPACT ON HEALTH STATUS AND BURDEN OF DISEASE

- Increased rates of infant mortality due to communicable diseases such as cholera through using unsafe water in infant formula.
- Increased spread of illnesses such as diarrhoea, cholera, malaria and hookworm, increasing rates of morbidity.
- Young children, particularly those under 5, have a significant chance of developing diarrhoea as a result of consuming contaminated water, increasing U5MR.
- Deaths from waterborne diseases such as diarrhoea, cholera and typhoid increase rates of DALYs attributed to life lost as a result of premature death.
- A lack of clean drinking water causes dehydration and under-nutrition, increasing burden of disease attributed to healthy years lost due to disease (YLD).
- As a result of using unsafe water to prepare infant formula, children can develop waterborne diseases such as cholera, increasing rates of infant mortality.

FIGURE 9.7 Lack of access to safe water has many significant impacts on health and wellbeing, health status and burden of disease in low-income countries.

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EXTENSION QUESTION 9.2

Explain how inequalities in access to safe water between low-, middle- and high-income countries can lead to differences in health outcomes.

Sanitation

According to UNICEF, 'sanitation' can be understood as interventions that reduce human exposure to diseases by providing a clean environment in which to live. It involves both behaviours and facilities, which work together to form a hygienic environment by safely separating human waste from human contact. The use of flushing toilets, latrines, facilities for washing hands, elimination of open defecation, wastewater management and regular collection and safe disposal of garbage are also vital to a sanitary environment.

Being able to live in a sanitary way is also closely linked to having an adequate water supply – whether from wells, rivers, dams or taps. Factors that contribute to an unsanitary environment include poor access to amenities for washing, cooking and going to the toilet; overcrowded living conditions, inappropriate housing and poor drainage; a lack of developed sewerage systems; open defecation which contaminates water, soil and food; and insufficient knowledge about the spread of infectious diseases. Around the world today, over half of the global population (or 4.2 billion people) lack safe sanitation (WHO/UNICEF, 2019) and 673 million people defecate in the open due to a lack of toilet facilities.

EXTENSION QUESTION 9.3

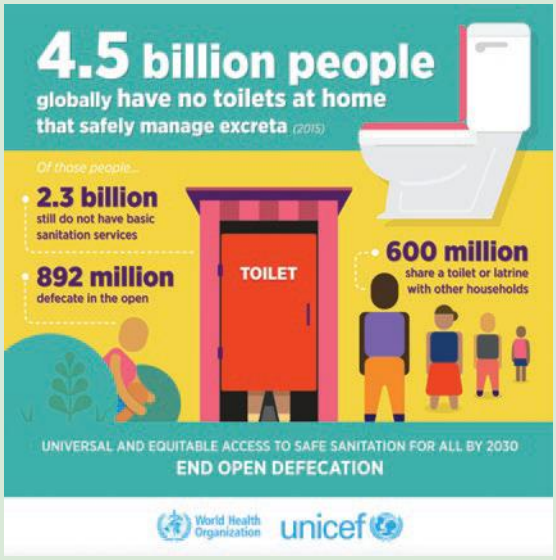


FIGURE 9.8 Billions of people worldwide lack access to sanitation, reducing health and wellbeing.

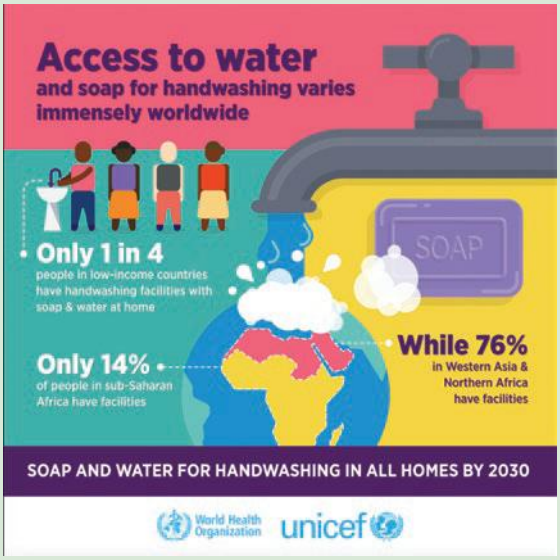


FIGURE 9.9 Access to clean water and soap for handwashing reduces spread of infectious disease, reducing burden of disease.

Outline two impacts on health status worldwide that may be attributed to improvements in sanitation.

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Ensuring access to safe sanitation systems in schools is important to ensure that children (particularly young girls who are menstruating) can continue to attend classes and improve their education outcomes. Likewise, ensuring access to effective sanitation systems in healthcare facilities globally (such as improved toilets, handwashing facilities, waste management and sterilisation systems) reduces the spread of infectious disease to healthcare workers, patients and the community, thereby improving overall health outcomes.

Inadequate sanitation in low-and middle-income countries is estimated to cause over 280 000 deaths annually and diarrhoea remains a significant contributor to deaths of children under 5 years. Tropical disease, trachoma, intestinal worms, cholera and malnutrition are all associated with poor sanitation in low- and middle-income countries. In addition to these diseases, without adequate toilets, women and girls often wait until night to find a place outside, away from the home, to defecate which leaves them susceptible to abuse, injury and sexual assault.

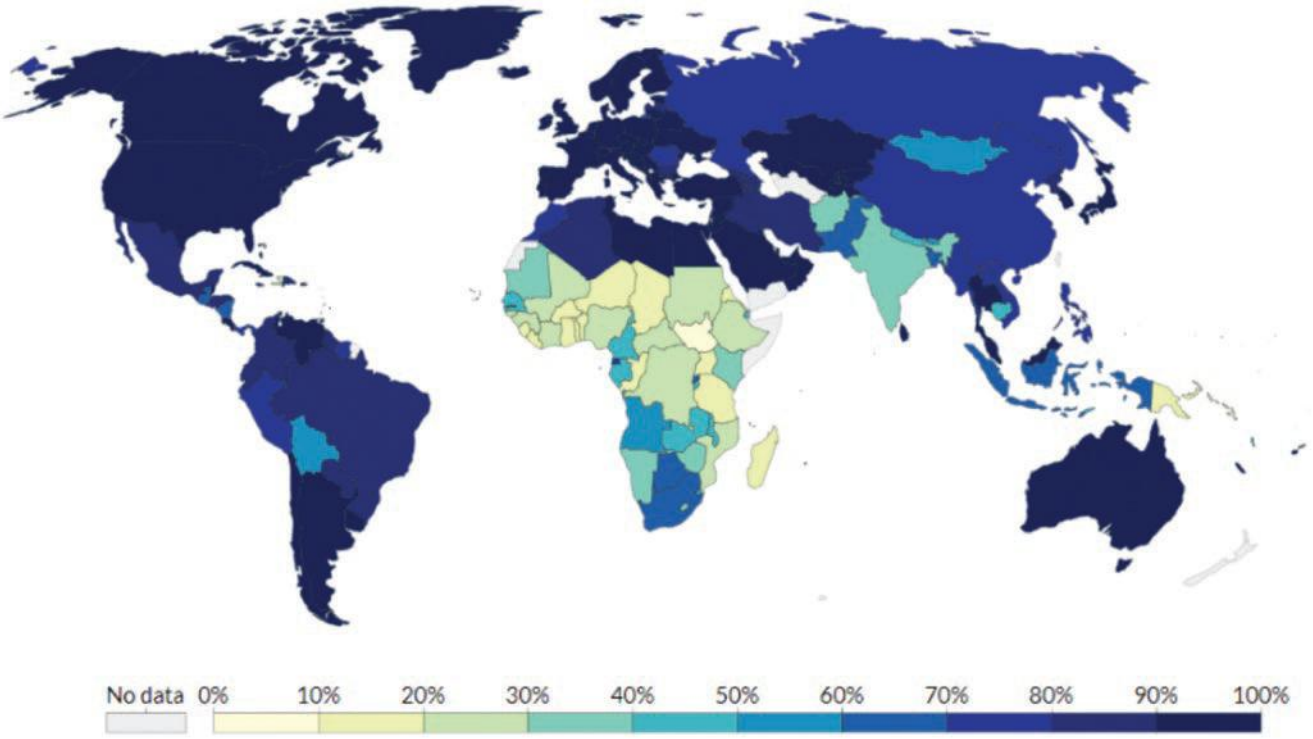


FIGURE 9.10 Share of population with improved sanitation facilities, 1990–2015



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IMPACT OF A LACK OF SANITATION



- A build-up of garbage creates an unsanitary environment.
- Lack of access to appropriate toilets is particularly dangerous for women.
- Poor sewage removal increases risk of using contaminating water that people will consume.
- Poor sewage removal and open defecation increases the risk of contaminating water sources that people will consume.
- Unsanitary environments reduce the amount and quality of land available for housing, food production and safe play areas for children.

IMPACT ON HEALTH AND WELLBEING

- A lack of access to sanitation can reduce physical health and wellbeing as it increases the risk of developing diseases such as cholera, diarrhoeal disease and infections.
- Unsanitary toilets or lack of sewage systems may mean people practise open defecation and often women wait until late in the evening for privacy reasons, which can be dangerous due to increased risk of assault or injury from animals, reducing physical health and wellbeing.
- A lack of access to a sanitary environment and the use of unsterile equipment may decrease mental health of mothers due to the stress, anxiety and worry about developing infections following childbirth.
- Young children who play in an unsanitary environment are likely to develop many infections, diarrhoeal disease and illnesses, taking time away from school, reducing time spent developing relationships with friends and reducing social health and wellbeing.
- An unsanitary environment due to open defecation and animal wastes can contribute to contamination of waterways and this unsafe water can be used for irrigation and drinking, increasing risk of illness from food and water consumption, decreasing physical health and wellbeing.

IMPACT ON HEALTH STATUS AND BURDEN OF DISEASE

- Increased rates of child mortality due to communicable diseases such as cholera through playing in unsanitary environments.
- Increased spread of illnesses such as diarrhoea, cholera, malaria and hookworm, increasing rates of morbidity.
- Young children, particularly those under 5, have a significant chance of developing diarrhoea due to a lack of sewage removal infrastructure, increasing U5MR.
- Deaths from waterborne diseases such as diarrhoea, cholera and typhoid increase rates of DALYs attributed to life lost as a result of premature death.
- Women and children in low-income countries can often earn an income as street cleaners or scavengers/collectors of rubbish, which involves working work in an unsanitary environment increasing burden of disease attributed to healthy years lost due to disease (YLD).

FIGURE 9.11 Lack of access to sanitation has many significant impacts on health and wellbeing, health status and burden of disease in low-income countries.

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CASE STUDY: FOR HER FARM AND FAMILY

Grace is wise and driven. She is recognised by her husband, many in her community, and across Kenya, as an exemplary farmer and businesswoman. Grace credits her success to financing and the opportunities small, affordable loans make possible – like safe water for her farm and family.

Grace first used a micro-loan from Equity Bank to purchase a few chicken coops. She raised small flocks of hens and sold them at the local market. Eventually, with wisdom and determination, Grace grew her farm from just dozens of chickens to acres with hundreds of chickens. Grace was so impressed with how affordable the financing process made it for her to start and grow a chicken farming business that she attended and graduated from a financial program offered by Equity Bank. After graduation, she became an advocate for the bank to help expand financing services to others in her community.

Equipped with an understanding of financing, when Grace and the members of her Self-Help Group discussed their struggles to get access to water at home, she shared her experience with financing to start her chicken farm. The Self-Help Group, which is a small voluntary association of people who come together for the purpose of solving their common struggles, considered the opportunity to finance water solutions for their homes.

Because access to water is a challenge for all members of the group, they decided to use the power of their Self-Help Group and their savings to establish a consistent source of water at each of their homes. Together the group approached Equity Bank in Kenya for a loan to obtain water storage tanks.

Equity Bank is one of Water.org's partners. The bank lent the group 800 000 Kenyan shillings (KES) to purchase 18 water storage tanks – enough for each household to have at least one storage tank. The loan repayment period is three years. Grace and Joshua's portion of the loan covered the cost of two storage tanks and requires them to make a monthly payment of 2000 KES. This amount is equal to about US$20 per month.



FIGURE 9.12 Grace discusses how water is captured in one of her rain storage tanks.

With access to water on her property, Grace can feed her chickens, grow food in her garden, and use the water to cook, bathe, and do laundry. These are daily tasks she once struggled to accomplish because she lacked a nearby water source. Without water at home, Grace and Joshua paid high prices for water to be drawn from a local pond and carted to their property. The smart businesswoman did not want to continue putting money into this short-term approach. She drew upon her wisdom and experience with financing to not only give her family access to water at home but to help provide it for many others in her village as well.

SOURCE: *For her farm and family,* Water.org

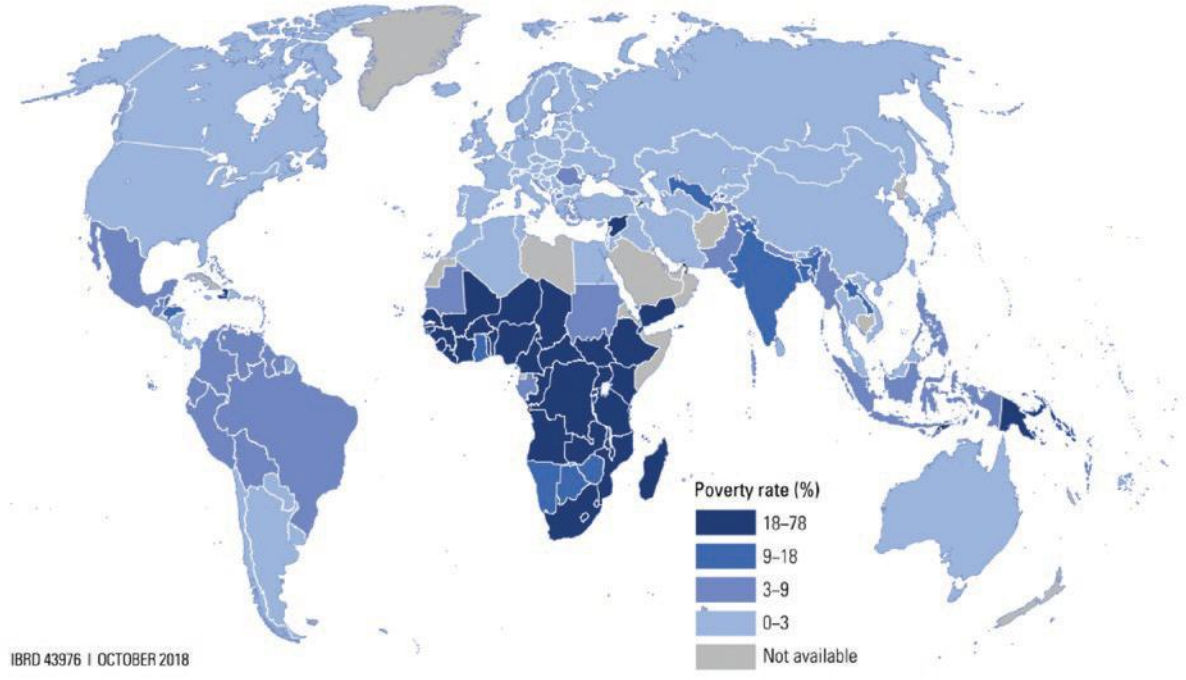
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1 Visit the Water.org website and research the country facts for Kenya. How many people lack access to safe water and sanitation?
2 Explain the barriers to access to safe water and sanitation for Joshua and Grace and their family.
3 Outline the issues caused by lack of access to safe water and sanitation.
4 Describe how having access to safe water has improved Joshua and Grace's health and wellbeing.
5 Create your own flow chart like the one in Figure 9.11, discussing the impact of sanitation on health and wellbeing, health status and burden of disease.
6 With reference to the case study, explain the importance of partnerships with financial institutions (such as the Equity Bank) in achieving access to safe water.

9.3 POVERTY

The World Bank identifies poverty by using dollars and values, suggesting that people who live on less than US$1.90 a day are living in abject or extreme poverty. But poverty is not just a low income; it is also a lack of access to resources such as food, safe water and sanitation, healthcare services, shelter and essential goods – all basic human requirements. There is a direct link between poverty and ill-health. The consequences of poverty are far reaching and long lasting, including increased mortality, morbidity, child deaths and mental health issues.

While extreme poverty rates have been cut by more than half since 1990, still one in five people in low-income countries lives in extreme poverty. Around the world, the poorest of the poor have the worst health status. This is seen in low-, middle- and high-income countries.



Source: PovcalNet (online analysis tool), World Bank, Washington, DC, http://iresearch.worldbank.org/PovcalNet/.

SOURCE: World Bank

FIGURE 9.13 Poverty rate by country, 2015

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POVERTY FACTS AND FIGURES

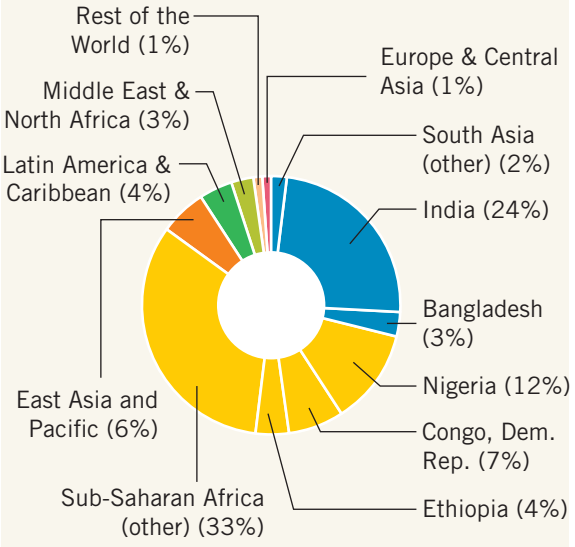
- 783 million people live below the international poverty line of US$1.90 a day.
- In 2016, almost 10 per cent of the world's workers and their families lived on less than US$1.90 per person per day.
- Most people living below the poverty line belong to two regions: Southern Asia and Sub-Saharan Africa.
- High poverty rates are often found in small, fragile and conflict-affected countries.
- As of 2016, only 45 per cent of the world's population was effectively covered by at least one social protection cash benefit.
- There are 122 women aged 25 to 34 living in poverty for every 100 men of the same age group, and more than 160 million children are at risk of continuing to live in extreme poverty by 2030.

SOURCE: United Nations

AOS 1

Half of the world's poor live in just 5 countries

Share of poor people in the world by region or country, 2015



SOURCE: World Bank (2018)

FIGURE 9.14 The highest percentage of the world's poor live in Sub-Saharan Africa. *Note:* the colours on this graph correspond to the regions and colours in Figure 9.15.

Poverty is multi-dimensional and has an effect at the country, family and individual level. A country that is experiencing poverty is generally unable to provide basic infrastructure services and resources such as safe water and sanitation, education, social security and adequate healthcare for its citizens. The consequences include low literacy and immunisation rates, high maternal and infant mortality, and high rates of infectious diseases, decreasing health status and increasing burden of disease.

According to the World Bank, of the world's 736 million extreme poor in 2015, 368 million – half of the total – lived in just five countries. The overwhelming majority, more than half, of all people living in poverty live in Sub-Saharan Africa followed by South Asia and then East Asia and the Pacific region. The five countries with the highest number of extreme poor are (in descending order) India, Nigeria, Democratic Republic of Congo, Ethiopia and Bangladesh.

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The number of extremely poor people continues to rise in Sub-Saharan Africa, while falling rapidly in all other regions. New poverty estimates by the World Bank suggest that the number of extremely poor people – those who live on $1.90 a day or less – has fallen from 1.9 billion in 1990 to about 736 million in 2015. However, the number of people living in extreme poverty is on the rise in Sub-Saharan Africa. Forecasts also indicate that by 2030, nearly 9 in 10 extremely poor people will live in Sub-Saharan Africa (World Bank, 2018).

A family's income may also impact on differences in health status and burden of disease. In low- and middle-income countries, many families are living in poverty and often have limited access to resources such as adequate shelter with electricity, food, water, healthcare and education needed to meet basic living standards, nor do they have the opportunity and choice to improve their quality of life. Every year, millions of children are born into poverty, a life of poor health, missed education and increased violence, insecurity and discrimination, reduced dignity and future productive employment opportunities. For young children, lack of adequate food and essential nutrition can result in stunting and poor growth (increasing burden of disease attributable to disability), as well as malnutrition and preventable diseases, increasing under-5 mortality.

Families living in poverty or who have low incomes (even when members are in employment) have few opportunities and choices to improve their situation. Often the children are not able to attend school (or only for a few years) because they are needed to help at home or earn money for the family to survive. Without an education, these children lack opportunity to earn a decent income and will most likely remain in poverty throughout their adult lives. The cycle of poverty, with the deprivation that results, is very difficult to break, reducing health and wellbeing. Without an education, health literacy is also reduced,

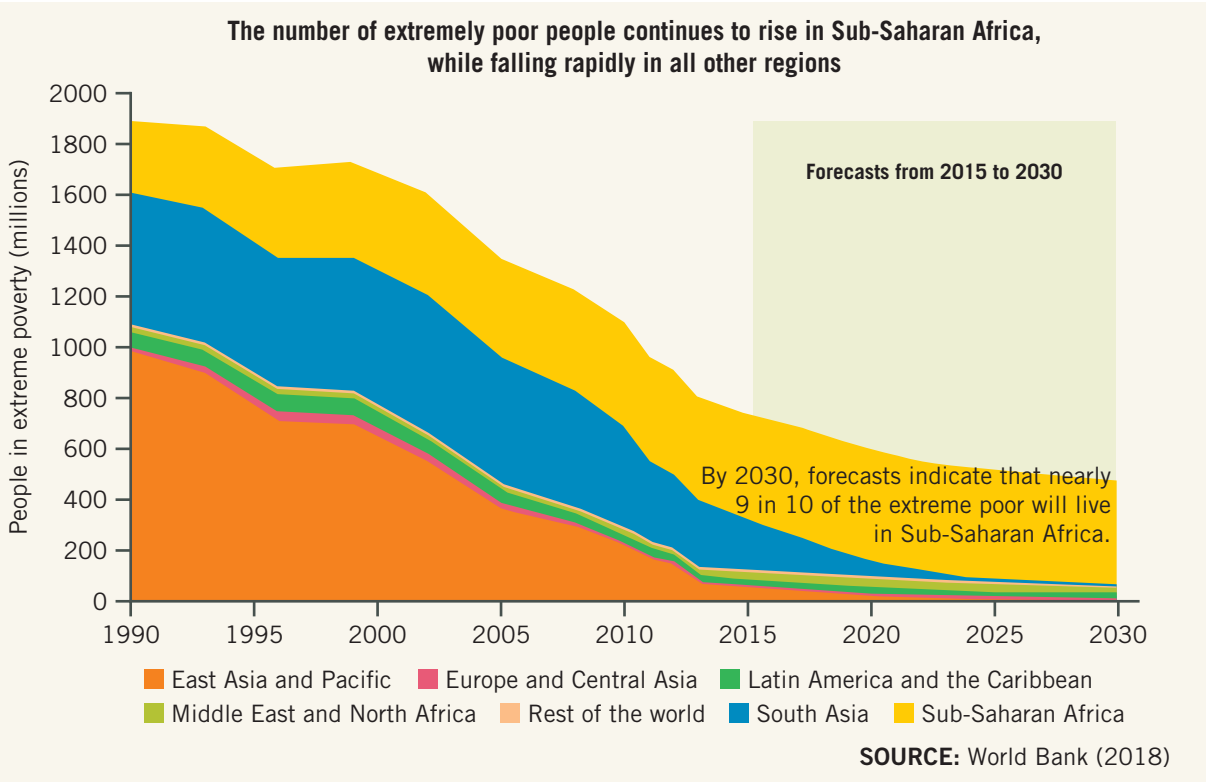


FIGURE 9.15 Despite falls in poverty, the number of people living in extreme poverty is on the rise in Sub-Saharan Africa.

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increasing the risk of developing preventable diseases such as HIV/AIDS and decreasing life expectancy. However, in high-income countries such as Australia, education is compulsory from the ages of 5 to 15–16 years and public education is generally funded by the government so that families are not forced to choose between spending money on essential life-sustaining resources or educating children. With greater levels of education, skills and knowledge, the burden of disease is reduced.

Low- and middle-income countries are not the only ones where people experience poverty, however. The number of rich countries with significant numbers of poor people has grown, changing the poverty map. Today, 70 per cent of the world's poor live in middle-income countries. Some 30 million children are growing up poor in the world's richest countries.

Growing inequalities in income and wealth have been identified as the single most significant trend that will shape global development in the next 10 years.

In Australia and other high-income countries, there are many families living in poverty for reasons associated with, for example, low wages or unemployment, disability or being a sole-parent family. An insufficient income can have a flow-on effect for families, contributing to difficulties with accessing adequate food and shelter. One significant difference for people who are living in poverty in low- and middle-income countries, compared with people who have a low income in high-income countries, is the provision of social protection such as social security, healthcare and education provided to citizens, which contributes to improved health status and health and wellbeing.

AOS 1

EXTENSION QUESTION 9.4



Poverty is responsible for the death of more than six million children before their fifth birthday and results in children becoming vulnerable to preventable diseases such as malaria and pneumonia, reducing physical health and wellbeing.

Outline another example of how poverty can contribute to under-5 mortality rates.

> The poor are exposed to greater personal and environmental health risks, are less well nourished, have less information and are less able to access healthcare; they thus have a higher risk of illness and disability. Conversely, illness can reduce household savings, lower learning ability, reduce productivity, and lead to a diminished quality of life, thereby perpetuating or even increasing poverty.
>
> **SOURCE:** Duke NUS Medical School (2015)

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IMPACT OF POVERTY



- Poverty has a negative impact at the individual/family level and government level.
- People living in poverty often have reduced access to education, health services, food security, productive employment and lack a decent standard of living as a result of reduced access to life enhancing resources such as electricity, sanitation, safe drinking water, adequate housing including cooking facilities and ventilation.
- High rates of poverty result in less income generated through taxation for governments, leading to reduced spending on resources and infrastructure for their citizens, such as education systems, health care services/facilities and social protection services.
- Poverty leads to lower literacy rates which can result in unemployment, low-paid work and exploitation, child marriages, and child labour, making it difficult to break the poverty cycle.

IMPACT ON HEALTH AND WELLBEING

- When living in poverty people often lack the means to achieve a basic standard of living, which can lead to a diminished sense of hope and purpose, decreasing spiritual health and wellbeing.
- Poverty restricts the ability to afford a regular, nutritious food supply, leading to hunger and malnutrition, reducing physical health and wellbeing.
- Poverty can lead to under-nutrition and reduced functioning of the immune system, leading to illness. This results in children missing school and adults unable to attend employment, further contributing to poverty and social isolation, decreasing social health and wellbeing.
- Poverty can restrict access to safe water and sanitation, increasing the risk of diarrhoeal disease and death, particularly in children, and decreasing mental health and wellbeing due to feelings of stress and anxiety related to their child's health.
- With a lack of access to income, people may not be able to provide family members with the resources needed for everyday life, decreasing feelings of accomplishment, reducing emotional health and wellbeing.

IMPACT ON HEALTH STATUS AND BURDEN OF DISEASE

- Increases in burden of disease attributed to malnutrition and associated illnesses due to food insecurity.
- Low life expectancy due to reduced access to healthcare, food and a decent standard of living, which contribute to premature mortality.
- High infant and maternal mortality rates due to reduced access to health care services such as immunisations and adequate health care during pregnancy and birth.
- Lower rates of immunisations, increasing rates of communicable diseases, increasing DALYs.
- Lack of health literacy increases the risk of poor health behaviours, increasing the risk of diseases such as sexually transmitted infections, increasing morbidity.
- Lack of social protection services means individuals are not able to access resources such as sickness or disability benefits, reducing the ability to access life-sustaining resources such as medication, increasing burden of disease attributable to healthy years lost due to disease (YLD).

FIGURE 9.16 Living in poverty has many significant impacts on health and wellbeing, health status and burden of disease in low-income countries.

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9.4 INEQUALITY AND DISCRIMINATION

Discrimination

'All human beings are born free and equal in dignity and rights.' These are the first few words of the Universal Declaration of Human Rights, yet today the fight against **discrimination**, unjust treatment and the violation of such rights, is a daily struggle for millions around the world.

discrimination: When a person, or a group of people, is treated less favourably than another person or group because of their background or certain personal characteristics such as age, ethnicity, religion, gender, sexual orientation or socioeconomic status (Australian Human Rights Commission).

The United Nations has established a worldwide effort to end discrimination, including against people with minority gender identities and sexual orientation. Each year the United Nations International Day for the Elimination of Racial Discrimination focuses on advocating to reduce the issues that polarize communities. All people have the right to be free from discrimination. In high-income countries, there are laws and regulations to fight discrimination based on race, religion, gender and sex, but not all people living in low- and middle-income countries experience what should be their guaranteed human rights.



FIGURE 9.17 Human Rights Day advocates for everyone to stand up for their rights and those of others.

Race

Racial discrimination occurs when a person is treated less favourably, or not given the same opportunities, as others in a similar situation because of their race, the country they were born in, their ethnic origin or their skin colour (Australian Human Rights Commission).

Racial discrimination occurs throughout the world on a daily basis, in high-, middle- and low- income countries, hindering progress for millions of people. Yet the significant difference is the level of impact felt and health outcomes. All victims of racism can experience reduced social health and wellbeing from bullying and social exclusion, as well as poor physical health and wellbeing due to injury from violence and assaults, high blood pressure and cardiovascular disease. Ongoing racism increases psychological distress, with most people experiencing discrimination based on their race multiple times, reducing mental health and wellbeing.

Racial discrimination can fuel ethnic hatred that may lead to violence, genocide, racism and intolerance. This can lead to destroying lives and displacement of people from their homes and communities, which contributes to inequalities in health status. Many people who live in extreme poverty are also victims of discrimination and lack access to essential resources such as health care services, education, food, safe water and sanitation. Social exclusion that fuels violent conflict is the result of the worst cases of racial discrimination.

The struggle against racism is a matter of priority and is the focus of the work of the Office of the High Commissioner for Human Rights.

EXTENSION QUESTION 9.5

Explain how racial discrimination may contribute to similarities and differences in health status in low- and high-income countries.

AOS 1

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ACTIVITY 9.2: INTERNATIONAL DAY FOR THE ELIMINATION OF RACIAL DISCRIMINATION

Visit the UN website and research the current theme.

1 Describe the focus of the theme.

2 Justify the selection of this theme and describe its impact on global populations.

3 Discuss the contribution of this theme to the promotion of health and wellbeing.

4 Explain how this theme can contribute to health status and burden of disease.

Religion

Religious discrimination involves treating a person differently or unfavourably because of their religious beliefs. Many members of religious communities, in low-, middle- and high-income countries, face discrimination based on their beliefs. This can reduce access to human rights, including restrictions on civil, cultural, economic, political and social rights. For some, impacts also extend to discrimination with regard to access to education and healthcare, arrest or even death due to religious beliefs.

Religious discrimination can lead to increased rates of stress, anxiety, substance abuse and violence, decreasing health status and increasing burden of disease.

Sex

Sex refers to the biological characteristics that determine a person as man or woman. Being born a male or female has significant implications for health status; for example, females have higher life expectancy than males but females often do not have the same access to many of life's resources. Major differences exist in mortality and morbidity, particularly in low- and middle-income countries where females often experience poor health outcomes. In high- income countries, females experience most of the same opportunities as males. Equal opportunity and anti-discrimination laws that exist in these countries aim to ensure equal rights for both males and females and prevent discrimination



FIGURE 9.18 Discrimination based on religion, race, sex, sexual orientation or gender identity can lead to reduced feelings of worth, increased self-harm or physical harm by others, avoidance of social situations, high levels of stress and inability to make logical decisions, all of which directly impact health outcomes.



FIGURE 9.19 A third of women's employment globally is in agriculture and yet women farmers have significantly less access to, control over, and ownership of land compared to their male counterparts.

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based on factors such as race, religion, sex, sexual orientation or gender identity. This is not the case in all countries, however. In high-income countries, women's and girls' rights are protected against early marriage, child labour and exploitation. Yet in many low- and middle-income countries, the status and treatment of women lag behind those of men in almost all areas, including access to education, income, employment and legal rights such as land ownership. As a result, women have fewer opportunities in life, which means they are often denied access to resources that will keep their families and themselves healthy. This is also true for many vulnerable groups who experience discrimination and inequality.

Women are often expected to conform to their husbands' authority, which may be at the expense of their own health and wellbeing. Women in low- and middle-income countries often lack the ability to participate in decisions affecting their life, such as family planning and use of contraception. This can result in multiple and consecutive pregnancies rather than spacing births to ensure both mother and child are healthy, and it increases infant and maternal mortality.

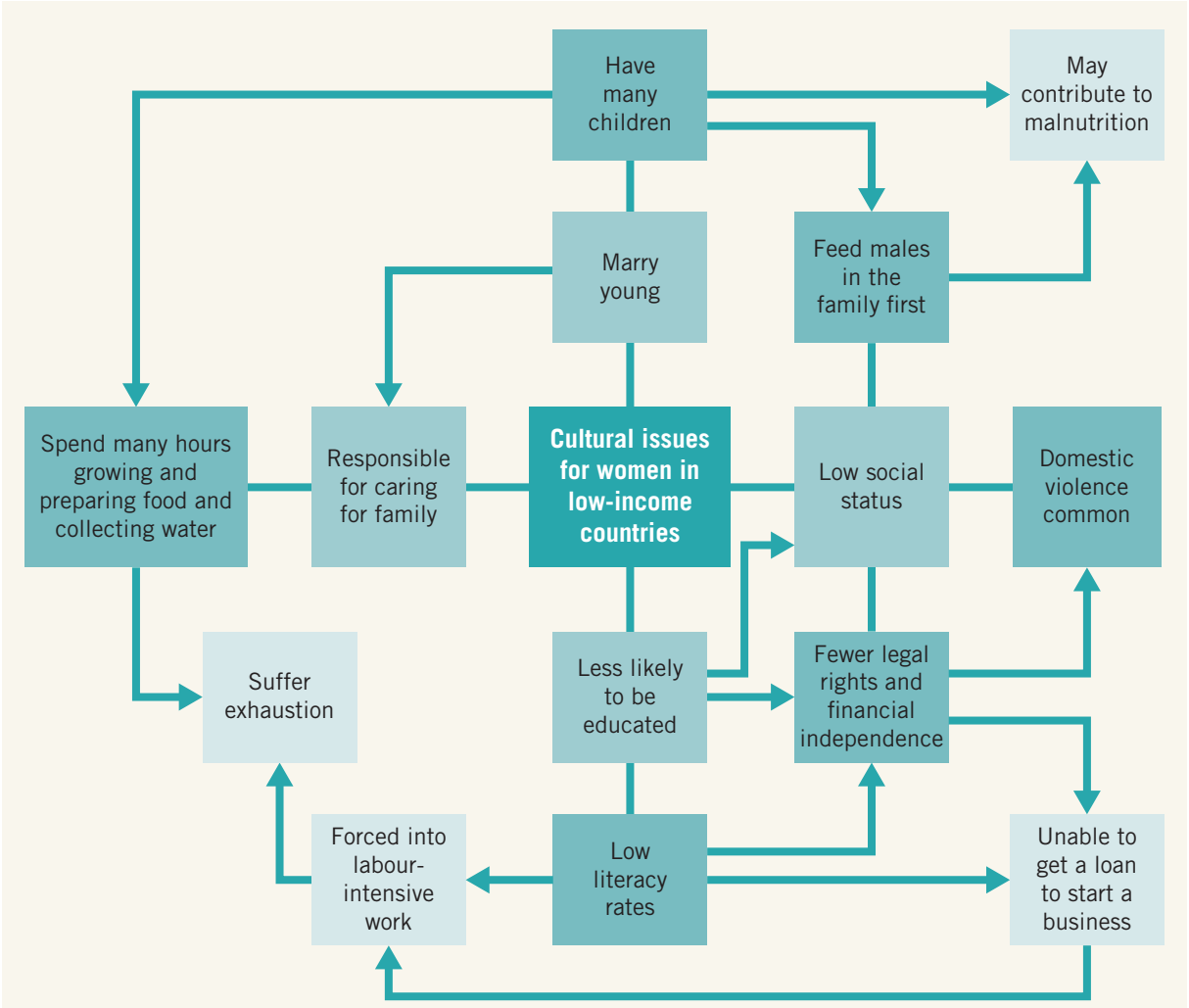


FIGURE 9.20 Cultural issues for women in low- and middle-income countries, causing inequalities in health status

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In low- and middle-income countries, gender inequalities are often caused by poverty and cultural issues. Many girls are forced into marriage at a very young age and become pregnant before their body is physically developed to give birth, leading to prolonged and obstructed labour. This increases morbidity due to conditions such as obstetric fistula and increases the rates of infant and maternal mortality. Females often lack the same opportunities to access education as males, which again increases the risk of early marriage, labour-intensive work and reduced health literacy, reducing health status. Girls and women are also at a greater risk of exploitation, child labour, or being trafficked or forced into prostitution and contracting sexually transmitted diseases such as HIV/AIDS. Females are also more likely to experience under-nutrition due to reduced access to food and higher rates of abuse and violence.

EXTENSION QUESTION 9.6

Outline how gender inequality impacts burden of disease in low-income countries compared to those living in high-income countries.

Sexual orientation and gender identity

The initials LGBTIQ are commonly used to mean lesbian, gay, bisexual, transgender, intersex and queer (or questioning). Lesbian, gay and bisexual all refer to sexual orientation – the gender a person is attracted to. **Transgender** (people with a range of gender identities that are different from the sex assigned at birth) and intersex (people with physical traits that do not fit gender norms) relate to gender identity. Queer is an umbrella term for gender and sexually diverse.

transgender: Describes someone who does not identify with their birth sex.

Rates of poverty, homelessness, joblessness, food insecurity, depression and suicide have been found to be far higher among LGBTIQ people than the rest of the population. Between half and two-thirds of LGBTIQ youth experience bullying during childhood, resulting in them skipping or dropping out of school. Experiences of bullying, violence, isolation and rejection all contribute to significantly reduced mental health and wellbeing and increase mortality due to suicide and self-harm.

There is a growing commitment in world health towards understanding and improving

FIGURE 9.21 Many girls are forced into household chores such as collecting water at the expense of being removed from school.



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FIGURE 9.22 Laws exist in many high-income countries that prevent discrimination based on sexual orientation and allow for same-sex marriages.

the health and wellbeing of transgender people and other gender minorities. While many countries and cultures, including Australia, India, Ireland, Germany, Nepal and Pakistan, recognise gender identity in both law and cultural traditions, this is not the case everywhere. Recent awareness and advocacy have highlighted the challenges to health outcomes faced by transgender populations.

EXTENSION QUESTION 9.7

Explain how sexual orientation and gender identity can contribute to variations in burden of disease for those in low-income countries compared to high-income countries.

AOS 1

Transgender people [have] the same health needs as the general population but may also have other specialist healthcare needs such as hormone therapy and surgery. Evidence suggests that transgender people experience a disproportionately high burden of disease, including mental, sexual and reproductive health. Exposure to discrimination, violence, victimisation and stigma are also higher in this population.

Greater barriers to accessing healthcare, such as education, employment and housing, are also experienced, which are largely the result of discrimination. People can also be mistreated and disowned by their own families. This issue affects all countries worldwide.

This group are also singled out for physical attack, beaten, sexually assaulted, tortured and killed. In 77 countries discriminatory laws criminalize private, consensual same-sex relationships, exposing individuals to the risk of arrest, persecution and imprisonment, and in at least five countries, the death penalty.

Human rights standards are calling for the availability and accessibility of quality health information, including for transgender and other gender minorities, and require services that treat people with respect and dignity, free from discrimination. Combatting this discrimination is a human rights priority.

SOURCE: Thomas et al., Ensuring an inclusive global health agenda for transgender people, WHO (2016)

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IMPACT OF INEQUALITY AND DISCRIMINATION (RACE, SEX, RELIGION, SEXUAL ORIENTATION AND GENDER IDENTITY)



- Discrimination and inequality mean not all people experience basic human rights.
- Discrimination and inequality due to race, religion, gender or sexual orientation can lead to a range of negative consequences including violence, exclusion, poverty, homelessness, and can restrict access to resources such as education, healthcare, food, land ownership and in extreme cases lead to arrest and even death.
- Globally, discrimination based on sex often results in women having reduced power, opportunities and access to resources compared to men.

IMPACT ON HEALTH AND WELLBEING

- Discrimination increases the chance of injury due to violence, self-harm or suicide and decreases physical health and wellbeing.
- Discrimination can lead to unemployment, social exclusion and social isolation, reducing the ability of people to form meaningful relationships and contribute to society in a productive manner, decreasing social health and wellbeing.
- Discrimination can lead to feelings of insecurity, worthlessness and a fear of expressing feelings and emotions openly.
- Questioning one's religion, beliefs and values while experiencing a sense of hopelessness can reduce spiritual health and wellbeing. Having a strong belief in a religion may cause the individual to hide choices for fear of ridicule and this may lead to a life lacking a true connection and sense of belonging, decreasing spiritual health and wellbeing.
- Psychological distress due to experiencing discrimination and a restriction in basic human rights such as an education can increase stress, anxiety and depression, reducing mental health and wellbeing.

IMPACT ON HEALTH STATUS AND BURDEN OF DISEASE

- Increased DALYs experienced due to malnutrition and associated illnesses due to discrimination, leading to reduced access to food.
- Decreased life expectancy due to reduced access to healthcare to treat mental illness and increased suicide rates.
- High maternal and infant mortality rates due to reduced ability to make decisions about access to health care services during pregnancy and birth as a result of discrimination against gender.
- Discrimination leading to reduced access to education decreases decent employment opportunities, leading to labour-intensive work and increasing risk of injury increasing burden of disease attributable to healthy years lost due to disease (YLD).
- Discrimination due to sexual orientation and gender identity can increase risk of homelessness, depression and suicide, increasing morbidity.

FIGURE 9.23 Implications of discrimination and inequality on health and wellbeing, health status and burden of disease

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EXTENSION QUESTION 9.8



Transgender people have higher rates of depression compared to **cisgender** people.
Explain possible reasons for this difference.

cisgender: Describes someone who feels they identify with their birth sex.

9.5 GLOBAL DISTRIBUTION AND MARKETING OF TOBACCO, ALCOHOL AND PROCESSED FOODS

The globalised marketing of unhealthy products has opened wide the entry point for an increase in lifestyle-related chronic conditions. Non-communicable diseases have overtaken infectious diseases as a leading cause of death worldwide, contributing to an increase in double burden of disease. The increased availability of products such as tobacco, alcohol and processed foods is the result of increased global distribution and marketing.

Global marketing refers to the advertising and selling of goods and services across the world. Multinational companies are able to distribute their products into global markets through the reduction of barriers to trade and transport as the result of an interconnected world.

Tobacco

The past 20 years have seen a dramatic increase in the number of people in low- and middle-income countries who have taken up smoking tobacco.

Tobacco is a leading cause of preventable death, illness and impoverishment. According to the WHO, the tobacco epidemic is one of

Leading risk factors causing early death and disability, by sex, 2017

Males*	Females*
1 Smoking	1 High systolic blood pressure
2 High systolic blood pressure	2 High fasting plasma glucose
3 High fasting plasma glucose	3 High body mass index
4 Alcohol use	4 Short gestation for birthweight
5 Short gestation for birthweight	5 Low birthweight for gestation

Metabolic risks
Behavioural risks

**Rank based on number of all-ages DALYs*

SOURCE: Findings from Global Burden of Disease Study (2017)

FIGURE 9.24 As of 2017, the leading global risk factors causing early death and disability for all ages were high blood pressure, smoking, and high blood sugar.

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EXTENSION QUESTION 9.9



Around 80 per cent of the more than 1.1 billion smokers worldwide live in low- and middle-income countries where the burden of tobacco-related illness and death is heaviest.

Explain how this statistic can contribute to the double burden of disease in low- and middle-income countries.

the biggest health threats the world has ever faced, killing around eight million people a year. More than seven million of those deaths are the result of direct tobacco use while more than 1.2 million deaths are the result of non-smokers being exposed to second-hand smoke. Tobacco is the only legal drug that kills many of its users when used exactly as intended by manufacturers.

Tobacco companies have moved their target away from high-income countries (because smoking rates have fallen in those nations) to more vulnerable low- and middle-income countries in a move to increase sales and revenue. Unfortunately, the rates of smoking are now increasing in lower-middle and upper-middle income countries where lower levels of education exist, where access to healthcare is often limited and where governments have been lax about regulating the tobacco industry. The cycle of poverty traps smokers, who contract illnesses and cannot afford decent healthcare, leading to premature death and increasing burden of disease.

Governments of low- and middle-income countries are being urged to adopt the same measures that many high-income countries have already taken to deter people from smoking and improve health status globally.

Many high-income countries, including Australia and the United States, have banned tobacco advertising on billboards, radio and television. They have stopped cigarettes from appearing as products in films and legalised the age at which a person can purchase tobacco products. The situation is different in low- and middle-income countries in South-East Asia and Africa, where the marketing of tobacco by multinational companies to a vulnerable population continues unregulated. As a result, the number of tobacco users in these countries is increasing. Low- and middle-income countries are easy targets because their governments often do not have, or enforce, laws to govern or regulate the sale of tobacco (the governments often earn money from the sale of tobacco) and they do not have health-promotion organisations to advocate against or educate people about the risks of tobacco smoking.

Western culture and behaviours are also promoted and accepted by many people in low- and middle-income countries as being glamorous and desirable, contributing to increased smoking rates. Also, tobacco companies are using strategies such as selling individually heat-sealed cigarettes from perforated reels to make cigarettes more affordable for those with low incomes. An increasing concern (in low- and middle-income countries) is the fact that cigarettes are the only ingested substance not governed by laws on content, which explains how tobacco companies can add ammonia to cigarettes to help the nicotine reach the brain faster.

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ACTIVITY 9.3: TOBACCO IN LOW- AND MIDDLE-INCOME COUNTRIES

TABLE 9.2 Prevalence of tobacco use by sex and type of tobacco, global and WHO region, 2018, age-standardised rates

	MALES			FEMALES			BOTH SEXES		
	ANY TOBACCO	SMOKED TOBACCO	CIGARETTES	ANY TOBACCO	SMOKED TOBACCO	CIGARETTES	ANY TOBACCO	SMOKED TOBACCO	CIGARETTES
World Bank country income group									
Global	38.6	32.4	27.5	8.5	5.5	4.8	23.6	18.9	16.1
High-income	30.2	27.3	24.2	18.7	17.8	16.1	24.5	22.5	20.2
Upper middle-income	43.0	39.0	35.6	6.1	4.9	4.4	24.5	21.9	20.0
Lower middle-income	42.3	30.8	22.9	8.8	1.9	1.3	25.5	16.4	12.1
Low-income	25.2	21.3	18.6	5.4	2.7	2.0	15.3	12.0	10.3

Use the data in Table 9.2 and Figure 9.25 to complete the following:

1 Describe two trends in the data.

2 Explain possible reasons why people in low- and middle-income countries are deciding to take up smoking when the lethal health consequences of smoking have been discovered.

3 Explain why governments in low- and middle-income countries may not be addressing the increase in tobacco use.

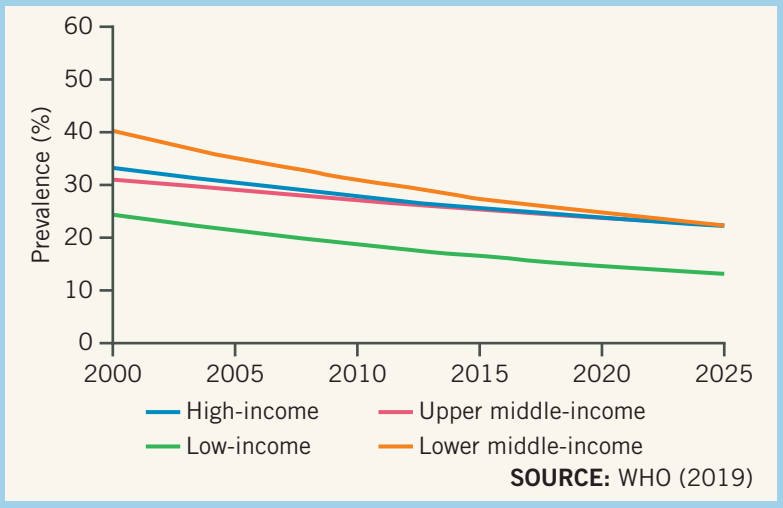


FIGURE 9.25 Trends in tobacco use among people aged ≥ 15 years, both sexes

4 Suggest and justify three steps that can be taken in low- and middle-income countries to reduce the number of tobacco smokers.

Tobacco users who die prematurely deprive their families of income, raise the cost of healthcare and hinder economic development. When money is spent on tobacco, less money is spent on food, leading to under-nutrition in some cases. Tobacco use also has an impact on the environment. The wood needed to cure the tobacco is leading to deforestation, and the land that multinational corporations are using to grow tobacco in low- and middle-income countries is depleting the soil of nutrients and occupying land that could be used to grow food. Tobacco use also has a number of direct consequences for health, such as contributing to an increased risk of respiratory disease, cancer and cardiovascular disease, which are leading causes of death in high-income countries and becoming more prevalent in low- and middle-income countries.

AOS 1

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In low- and middle-income countries, populations often experience lower levels of education and also a reduced level of public awareness about the consequences of smoking and second-hand smoking. As a result, fewer people understand the specific health risks of tobacco use. It is also often those earning low incomes and children who are taken out of school to work on the tobacco farms who are exposed to nicotine and toxic chemicals and experience health risks such as nausea, vomiting, headaches, heat illness and injury from heavy lifting.

Governments in high-income countries have employed a range of techniques in an attempt to control and reduce tobacco use. These approaches are part of the WHO Framework Convention on Tobacco Control (WHO FCTC) and support Sustainable Development Goal 3 (Good health and wellbeing).

In line with the WHO FCTC, WHO introduced the MPOWER measures that help countries reduce demand for tobacco. These measures have been successful in saving lives and reducing healthcare costs associated with tobacco. These measures include monitoring tobacco use and prevention strategies:

- Protecting people from tobacco smoke
- Offering help to quit tobacco use
- Warning people about the dangers of tobacco
- Enforcing bans on tobacco advertising, promotion and sponsorship
- Raising taxes on tobacco.

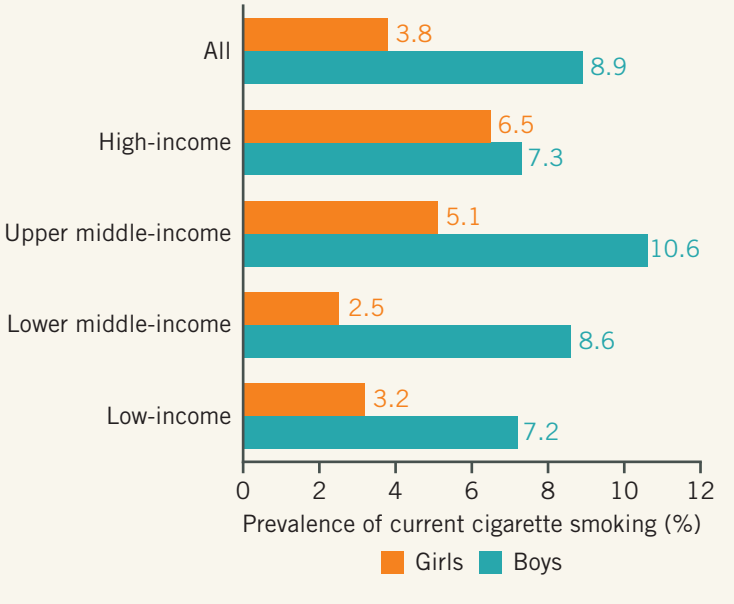
According to the WHO Report on the Global Tobacco Epidemic 2019, of the 59 countries that have not adapted one of the MPOWER measures, 49 are low- and middle-income countries. Currently, 2.6 billion people globally remain unprotected by a tobacco reduction measure, leaving them at risk from the health and economic harms caused by tobacco use.

The taxing of tobacco products has proven to be one of the most effective measures in addressing tobacco use. Not only is it cost-effective and increases revenue for governments, it also reduces tobacco use among the most

EXTENSION QUESTION 9.10

With reference to the Framework Convention on Tobacco Control, justify the work of the WHO in relation to improving health and wellbeing and reducing poverty.

EXTENSION QUESTION 9.11



Using the information in Figure 9.26, justify why males aged 13–15 years in low- and middle-income countries have similar or higher rates of smoking compared to males in high-income countries.

FIGURE 9.26 Average prevalence of current cigarette smoking, adolescents aged 13–15 years by country income, 2008–18

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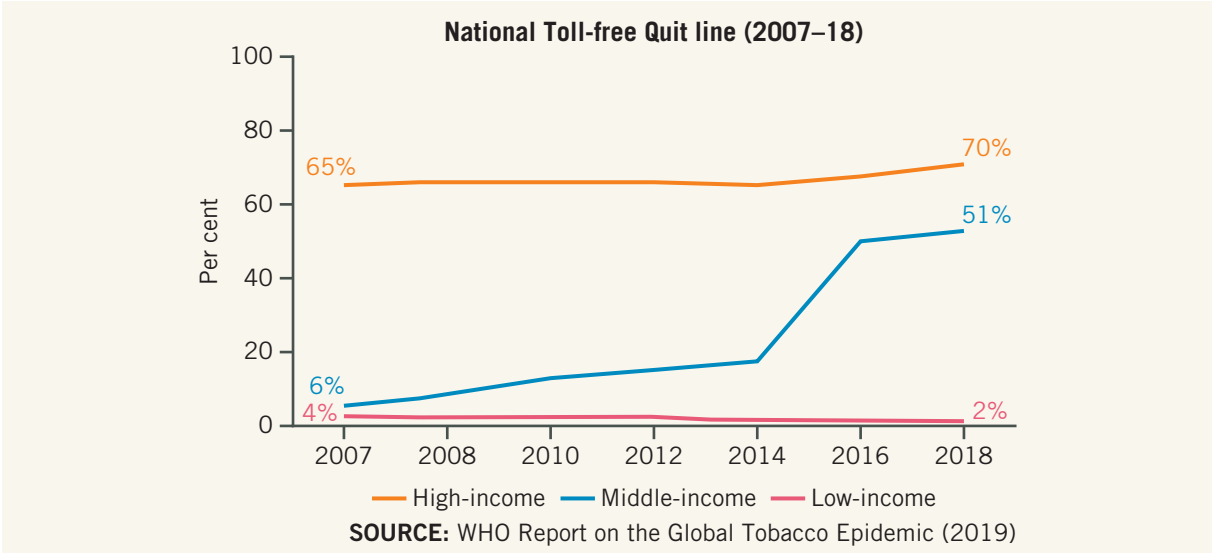


FIGURE 9.27 According to the WHO, only a third of countries have a national toll-free quit line in place – a situation that has changed very little since 2016. Middle-income countries have made the most progress in establishing national toll-free quit lines.

susceptible, who include young people and the poor. In turn, many governments allocate some of the revenue gained from tobacco taxes to health promotion as a means of discouraging people from taking up smoking. A tax that increases tobacco prices by 10 per cent decreases tobacco use by about 4 per cent in high-income countries and by up to 5 per cent in low- and middle-income countries.

Unfortunately, most low- and middle-income countries are unable to follow suit to discourage smoking. They lack appropriate laws and regulations, and have little funding available for public health initiatives.

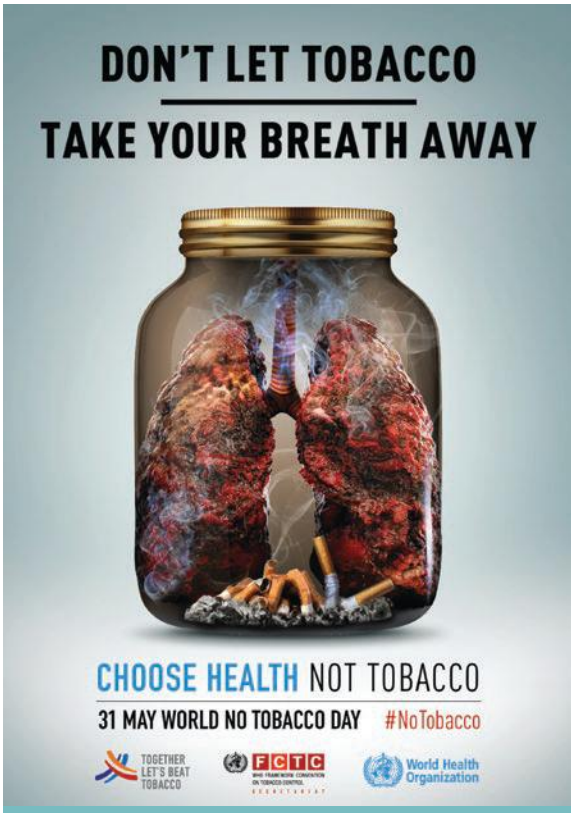


FIGURE 9.28 The WHO designed this poster for use around the world during the 2019 World No Tobacco Day campaign.



FIGURE 9.29 A poster from the 2016 campaign

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The WHO posters for the 2019 campaign were based on Australian images and packaging laws. Anti-tobacco advertising and graphic warnings on packets reduced the number of children who begin smoking and increase the number of smokers who quit.

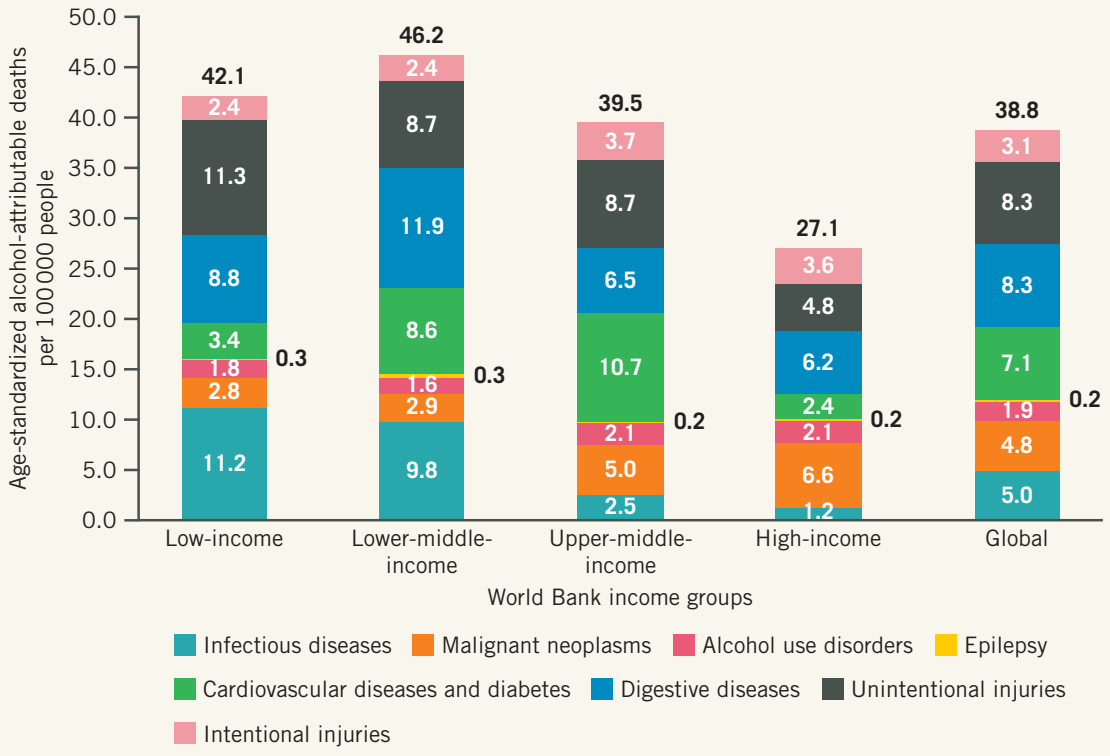
Alcohol

Increased availability of alcohol and changes in global trade arrangements and marketing by multinational companies have also led to an increase in alcohol use in some low- and middle-income countries. Alcohol misuse can contribute to cancer, cardiovascular disease, cirrhosis of the liver, mental illness, injuries, traffic accidents and premature death. Those in low- and middle-income countries are particularly vulnerable to the various social consequences of alcohol, such as poverty, under-nutrition and violence.

The harmful use of alcohol is a global problem. It causes harm far beyond the physical health and wellbeing of the drinker because an intoxicated person can harm others. Worldwide, 3.3 million deaths are due to the harmful use of



FIGURE 9.30 Alcohol advertisement in Cambodia



SOURCE: WHO (2018)

FIGURE 9.31 Distribution of alcohol-attributed burden of disease, as a percentage of all alcohol-attributable DALYs by broad disease category, 2016

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alcohol. Alcohol is a factor contributing to more than 200 disease and injury conditions. Some 139 million DALYs, or 5.1 per cent of the global burden of disease and injury, are attributable to alcohol consumption.

Total alcohol per capita consumption in the world's population over 15 years of age rose from 5.5 litres of pure alcohol in 2005 to 6.4 litres in 2010 and was still at the level of 6.4 litres in 2016 (WHO, 2018).

Alcohol is the world's third-largest risk factor for disease burden. People in low- and middle-income countries are at risk of similar health consequences of alcohol consumption to those in high-income countries. As with tobacco, purchasing alcohol limits the amount of money available to purchase life-sustaining resources such as food, healthcare and safe water, contributing to an increase in other conditions such as malnutrition and infections. This compromises the health status of people in low- and middle-income countries as well as contributing to double the burden of disease.

In relation to the production, distribution, marketing and sales of alcohol, policy-makers in low- and middle-income countries have a real challenge facing them. The sale of alcohol creates employment and generates income and tax for governments. Public health measures to reduce harmful use of alcohol are sometimes judged to be in conflict with other goals such as consumer choice, and can be seen as harmful to the economy.

It is very difficult to target the young adult market without exposing adolescents under the legal age to the same marketing strategies. The exposure of youth to appealing marketing is a real concern, along with the targeting of new markets in low- and middle-income countries that currently have a low prevalence of alcohol use.

Changes in policy are needed to address the global marketing of alcohol, to reduce the exposure of young people and those in vulnerable populations from being exposed to persuasive marketing techniques. Pricing policies can be used to reduce under-age drinking, to reduce the progression towards drinking large volumes of alcohol and to influence consumers' preferences. Increasing the price of alcoholic beverages is one of the most effective interventions to reduce harmful use of alcohol.

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ACCORDING TO GLOBAL STATUS REPORT ON ALCOHOL AND HEALTH 2018

More than 3 million people died as a result of harmful use of alcohol in 2016, according a report released by the World Health Organization (WHO) in September 2018. This represents 1 in 20 deaths. More than three quarters of these deaths were among men. Overall, the harmful use of alcohol causes more than 5 per cent of the global disease burden.

'Far too many people, their families and communities suffer the consequences of the harmful use of alcohol through violence, injuries, mental health problems and diseases like cancer and stroke,' said Dr Tedros Adhanom Ghebreyesus, Director-General of WHO. 'It's time to step up action to prevent this serious threat to the development of healthy societies.'

SOURCE: WHO (2018)

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FIGURE 9.32 Global status report on alcohol and health, 2018

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Processed foods

Global marketing promotes Western culture and, as a result, there is now a greater variety of foods available in low- and middle-income countries. There is significant penetration by multinational processed food manufacturers into the marketplace in low- and middle-income countries, where consumption of processed food is reaching, and in some cases exceeding, the level witnessed in high-income countries.

The changes in diets that this variety has brought with it have resulted in people in low- and middle-income countries eating more saturated fats, sugar, salt and refined carbohydrates. Global marketing and distribution have contributed to an increase in the consumption and availability of processed foods in low- and middle-income countries, and a decrease in the consumption of a traditional grain-based diet that is high in fibre and low in fat. As a result of dietary change, there are now a number of low- and middle-income countries where childhood under-nutrition and obesity are both health concerns. This is especially the case in urban areas. In rural areas, staple foods are cheaper but in urban areas processed foods are less expensive, and therefore more accessible. It is not uncommon to find under-nutrition and obesity coexisting within the same community.

Children in low- and middle-income countries are more vulnerable to inadequate nutrition. At the same time, they are exposed to foods that are energy dense, high in trans fats, saturated fats, sugar, salt and energy, and low in fibre and micronutrients. These foods tend to be low in cost and easily available, leading to lifelong poor eating habits. Changes in dietary patterns, in conjunction with low levels of physical activity, are resulting in sharp increases in childhood obesity while under-nutrition is still an issue. The issue of obesity in low- and middle-income countries cannot be addressed simply by promoting the adoption of healthy lifestyles because cultural changes that are influenced by global marketing make these changes more difficult. Similarly, in high-income countries such as Australia, there has been a significant increase in adult and childhood obesity where one in four children are either overweight or obese.

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DISCUSS



The world's population is getting fatter in all regions (not just in high-income countries) and this is causing the double burden of disease in low- and middle-income countries.

Discuss the impact of increased obesity on the rates of burden of disease attributable to non-communicable disease.

EXTENSION QUESTION 9.12

Outline how global marketing has contributed to similarities and differences in health status between low-, middle- and high-income countries.

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FIGURE 9.33 Due to the success of global marketing, multinational companies have a presence in low- and middle-income locations.

Due to global marketing, strategic distribution and powerful advertising campaigns, multinational corporations are capturing a new market in many different low- and middle-income countries.

Many low- and middle-income countries now face the **double burden of disease** as a result of global marketing. There are still high rates of communicable diseases, such as malaria, cholera, HIV and under-nutrition, as well as an increased incidence of conditions associated with processed foods that are high in fat, sugar and salt and that typically have only had high rates in high-income countries. These include cancer, cardiovascular disease, obesity and type 2 diabetes mellitus.

double burden of disease: Characterised by the coexistence of communicable diseases (often associated with poverty) and noncommunicable diseases (often associated with wealth) within the one country.

ACTIVITY 9.4: ANALYSIS

Analyse the impact of global distribution and marketing on health status, burden of disease and health and wellbeing.

1 Explain what is meant by global marketing.

2 Using the information in this chapter, complete the following table.

FACTOR	DESCRIPTION OF THE ISSUE	IMPACT ON HEALTH AND WELLBEING	IMPACT ON HEALTH STATUS AND BURDEN OF DISEASE
Tobacco			
Alcohol			
Processed foods			

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IMPACT OF THE GLOBAL DISTRIBUTION AND MARKETING OF TOBACCO, ALCOHOL AND PROCESSED FOODS



- Global distribution and marketing of tobacco, alcohol and processed foods have given rise to non-communicable diseases such as cardiovascular disease and some cancers in low- and middle-income countries, as has occurred in high-income countries.
- Increased access (due to global distribution and marketing) to tobacco, alcohol and processed foods has led to a double burden of disease being experienced in low- and middle-income countries; for example, some people will be suffering malnutrition while others experience overweight and obesity.
- Money spent on these products is money not spent on education or life enhancing resources, including nutrient-dense food, healthcare and safe water.

IMPACT ON HEALTH AND WELLBEING

- Increased access to processed foods is a move away from reliance on local markets and food production in the community, which may reduce people's connection to the community and sense of accomplishment of agricultural success.
- Moving away from the traditional diet, which is usually lower in fat, salt, and sugar and higher in fibre, and consuming energy-dense food can lead to excess kilojoules being stored as fat, increasing obesity and risk of CVD, reducing physical health and wellbeing.
- Alcohol-induced inflicted harm on family and others in the community can result in loss of a network of friends and family, decreasing social health and wellbeing.
- Spending limited income on tobacco products rather than providing resources such as nutrient-dense food and safe water for families may result in increased stress and anxiety, decreasing mental health and wellbeing.
- Harm and violence suffered as a result of alcohol intoxication may lead people to feel scared and lack control over their feelings and life, decreasing emotional health and wellbeing.

IMPACT ON HEALTH STATUS AND BURDEN OF DISEASE

- Limited income spent on tobacco and alcohol can lead to food insecurity and an increase in morbidity attributed to malnutrition and associated illnesses.
- Low life expectancy due to increase in CVD leading to premature mortality.
- Increase in alcohol-related violence, increasing injuries and disability and increasing burden of disease attributable to YLD.
- Increase in respiratory disease and lung cancer as a result of increased smoking of tobacco, increasing premature death and burden of disease attributable to YLL.

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FIGURE 9.34 Implications of global marketing on health and wellbeing, health status and burden of disease

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9.6 GLOBAL TRENDS AND THEIR IMPLICATIONS FOR HEALTH AND WELLBEING

The world is altering irrevocably. Our technological capacity has created rapid change, which has seen significant impacts across the world. We are no longer simply individual countries all existing on the same planet; we are now a global world, with transportation and communication connecting us faster than ever before. Technologies enable people to connect in real time, more efficiently than ever, and trends now moving from the local and national to the global scale are impacting us all. It is also these same industries that use fuels and create changes to our environment, impacting populations worldwide.



FIGURE 9.35 Global trends have implications for health and wellbeing – some positive and some creating greater risks, particularly for vulnerable groups.

9.7 CLIMATE CHANGE

> 'A highly conservative estimate of 250 000 additional deaths each year due to climate change has been projected between 2030 and 2050: of these, 38 000 from heat exposure among the elderly; 48 000 from diarrhoea; 60 000 from malaria; and 95 000 from childhood under-nutrition.'
>
> **SOURCE:** WHO (2018)

Climate change poses one of the greatest health risks of the twenty-first century and its effects are being felt by every country worldwide. Rising temperatures, changing weather patterns and extreme weather events are directly costing lives, affecting economies as well as increasing the transition and spread of infectious diseases and impacting clean air, water and food production.

Climate change due to global warming is happening around the world, and has consequences beyond increasing the temperature of the planet. In some parts of the world, the annual rainfall is expected to undergo long-term decrease, while in other regions, fluctuations in rainfall and temperatures will have serious impacts on the growth of crops, and therefore food supply. Climate change is contributing to

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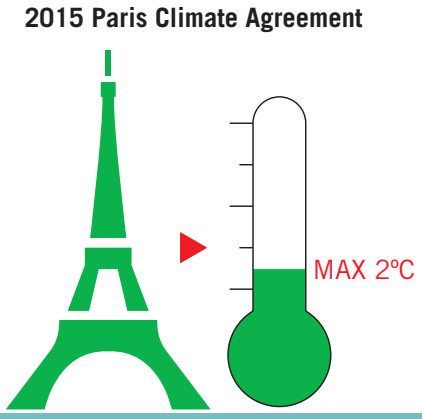


FIGURE 9.36 As of April 2018, 175 parties had ratified the 2015 Paris Agreement (in which all countries agreed to work to limit global temperature rise to well below 2°C, ideally no more than 1.5°C) and 10 developing countries had submitted their first iteration of their national adaptation plans for responding to climate change.



FIGURE 9.37 Climate change has a serious impact on people's ability to grow crops like corn, increasing food insecurity and the ability of people to feed themselves, increasing the risk of malnutrition.

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the expansion of deserts through poor rainfall, rising sea levels, an increase in flooding and mudslides, a change in weather patterns such as cyclones and wildfires, and increased health risks due to the increased spread of diseases such as malaria – all from increasing temperatures.

The causes of climate change include the burning of fossil fuels such as oil, coal and gas, and clearing forests, which have increased the amount of carbon dioxide (CO^2) and other greenhouse gases in the atmosphere so that they are now at their highest levels in human history.

As with many global trends, it is the poorest nations that will experience the greatest impact. High-income countries are predominantly responsible for climate change, yet it is the most vulnerable populations and marginalised groups like women, children and the elderly in low- and middle-income countries that will be impacted the most. They will be hit hardest by natural disasters – such as extreme weather conditions – and do not have the resources to adequately cope with such disasters.

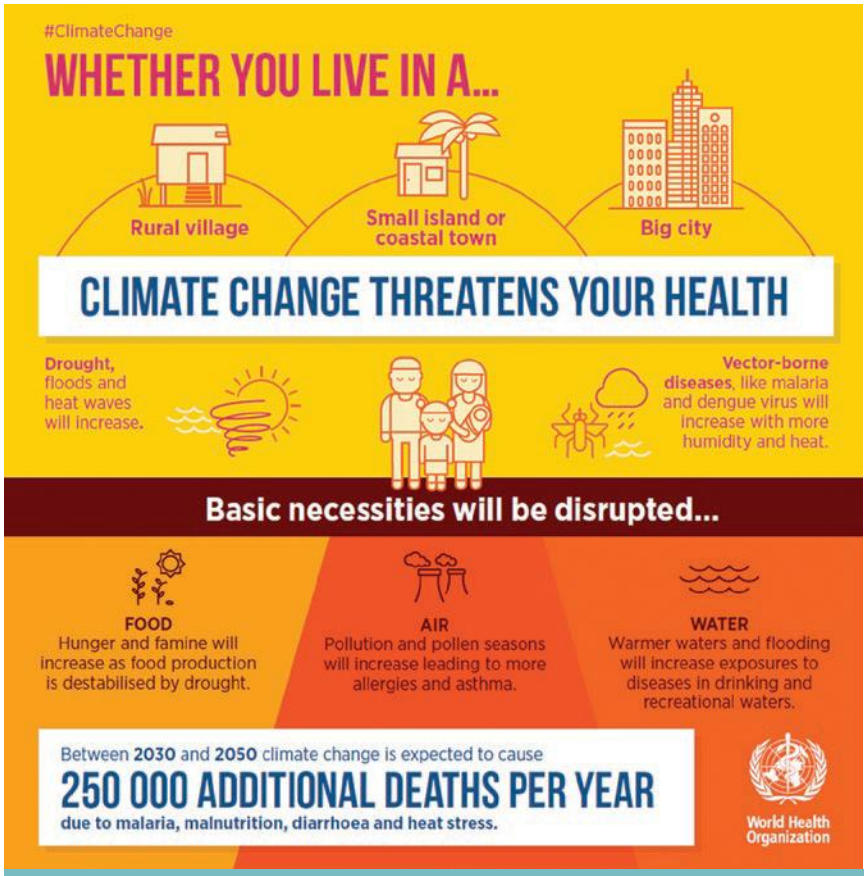


FIGURE 9.38 Global focus on climate change

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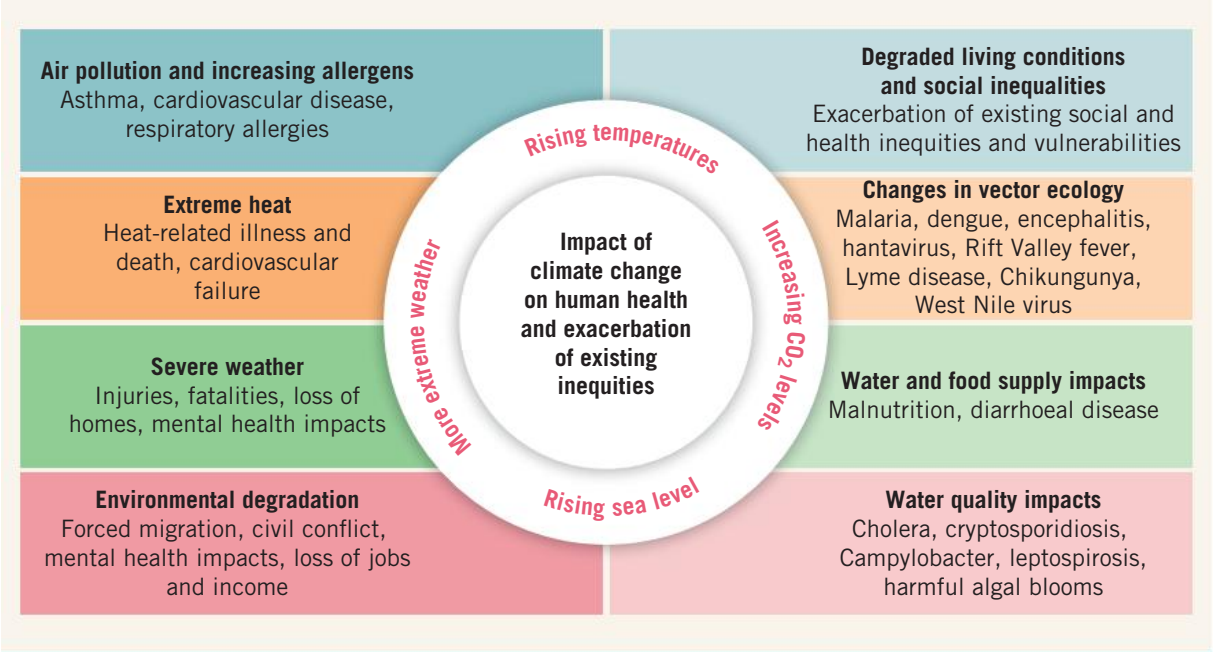


FIGURE 9.39 Snapshot of the impacts of climate change on health

Rising sea levels

Over the last 130 years, with increasing greenhouse gases, the world has warmed by almost 1°C and this trend is predicted to continue up to another 4°C. As a result, oceans have become warmer, expanding and taking up more area, and glaciers are melting, producing more water and consequently sea levels are rising. More than half the world's population lives within 60 kilometers of the sea. With rising sea levels, people are being forced to leave their homes, leading to stress and anxiety, directly impacting mental health and wellbeing. Land for crop and livestock production is lost and salinisation of water supply occurs. This reduces the availability of safe drinking water and food supply because many crops cannot grow due to the poor quality of the water. This, in turn, can lead to hunger, dehydration, malnutrition, poor immune system function and, if farmers are relying on crop yields to earn an income, poverty can occur. Communities will be impacted, and will need to re-establish, contributing to a reduction in social health and wellbeing through a loss of security, loss of social connections through cultural rituals and

EXTENSION QUESTION 9.13

Using Figure 9.39, justify the impact of climate change on health and wellbeing.



FIGURE 9.40 With more than half of the world's population living within 60 km of the sea and many people living close to waterways, people will be forced to relocate due to rising sea levels.

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ACTIVITY 9.5: CLIMATE CHANGE AND RISING SEA LEVEL

Watch the United Nations story in the article 'Stop Tuvalu and "the world from sinking" UN chief tells island nation facing existential threat from rising seas' at https://cambridge.edu.au/redirect/8652.

1 Outline the issue Tuvalu is experiencing in relation to climate change.

2 Explain the impact on health and wellbeing on the people in this country.

3 Predict the impact globally if this trend in rising sea levels continue.

inability to function as a contributing member of society. Spiritual health and wellbeing will be impacted due to the changing landscape that is home. People may need to leave their land, resulting in a loss of a sense of belonging as well as a loss of cultural and spiritual connection to the land.



FIGURE 9.41 In 2019, heatwaves in Pakistan and India took nearly 5000 lives and caused thousands of heat-related illnesses, adding strain to local hospitals.

Changing weather patterns

Extreme weather events

Extreme weather events, including cyclones, floods, fires, drought and storms, are becoming more intense and frequent worldwide, exacerbated by climate change. Over the last 20 years, 90 per cent of major disasters have been caused by 6457 recorded floods, storms, heatwaves, droughts and other weather-related events. Records for extreme weather events continue to be broken annually. According to United Nations data, in 2018, 315 natural disasters were registered, causing 11 804 deaths and affecting 68 million people.

The occurrence of floods has increased both in frequency and intensity, and this increase is predicted to continue. Floods can directly cause injury and death. Flood waters contaminate fresh water supplies, increasing the risk of waterborne diseases such as diarrhoea. Stagnant water creates the ideal breeding conditions for disease-carrying insects such as mosquitoes, increasing the risk of malaria. Extreme weather events such as floods and bushfires can result in large numbers of people being displaced from their homes and communities, resulting in homelessness. This may lead to conflict as people seek to access food, water and shelter, leading to stress and anxiety and reducing mental health and wellbeing. Extreme weather events are also responsible for drownings and physical injuries, damage to homes and health services, limiting the supply of medicine and health care, and thereby reducing physical health and wellbeing.

Some countries are experiencing extreme weather events such as longer and hotter

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heatwaves and length and timing of monsoon seasons, which is a change from predicable weather patterns from the past. This results in changes to the food production yields, types of crops that can be grown and ultimately the ability of many people to generate an income, impacting health and wellbeing.

Extreme heat conditions

Extreme heat conditions are occurring more often and for longer than ever before, with the three years 2014–16 being the hottest ever. Extreme heat contributes directly to deaths from cardiovascular and respiratory disease, particularly among elderly people. Extreme heat has also been thought to be associated with increased obesity levels due to reduced physical activity and a reduction in affordable fruit and vegetables leading to increased consumption of processed, energy-dense food. The amounts of pollens and other air pollutants are also higher in extreme heat. These can trigger asthma, affecting approximately 300 million people worldwide, and also exacerbating cardiovascular and respiratory disease. The ongoing temperature increases that result from climate change will also lead to an increase in infectious diseases, particularly those spread by mosquitoes (such as malaria and dengue) because these insects thrive in warm, humid conditions, and this will decrease health and wellbeing. Heatwaves reduce the body's natural ability to effectively control its internal temperature, contributing to heat stress and reducing physical health and wellbeing. According to the WHO, heat stress can lead to increased death rates from heart and respiratory diseases, particularly in elderly or vulnerable populations. With 1.5°C warming, 350 million more people could be exposed to deadly heat stress by 2050.

Changing rainfall patterns

Increasing and variable rainfall patterns impact the supply of fresh water. A lack of safe water compromises sanitation, increasing the risk of communicable diseases such as diarrhoea. Globally, water scarcity already affects four in every 10 people. Changing rainfall patterns also impact food production and diversity in crops, with water scarcity leading to drought and famine. This increases rates of malnutrition, particularly in low- and middle-income countries. It is predicted that the frequency and intensity of drought and changing rainfall patterns are likely to increase across the globe. As water scarcity increases, people may need to purchase water, reducing income for other resources such as food or healthcare. Alternatively, water may need to be transported long distances, reducing time for employment and education, particularly for women and girls.

ACTIVITY 9.6: BRIDES OF THE SUN

1 Access the Brides of the Sun website (https://cambridge.edu.au/redirect/8653).

a Who are the brides of the sun?

b How is climate change contributing to this trend?

2 Watch the video *Carlina's 360°C World* (https://cambridge.edu.au/redirect/8654).

a Describe the climate change Carlina has experienced and the impact this has on her life.

b Discuss how climate change has impacted Carlina's health and wellbeing.



FIGURE 9.42 Carlina Nortino

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'Between 1998 and 2017 climate-related and geophysical 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 geophysical events, mostly earthquakes and tsunamis, 91% of all disasters were caused by floods, storms, droughts, heatwaves and other extreme weather events.'

SOURCE: UNISDR United Nations Office for Disaster Risk Reduction, Economic Losses, Poverty and Disasters 1998–2017

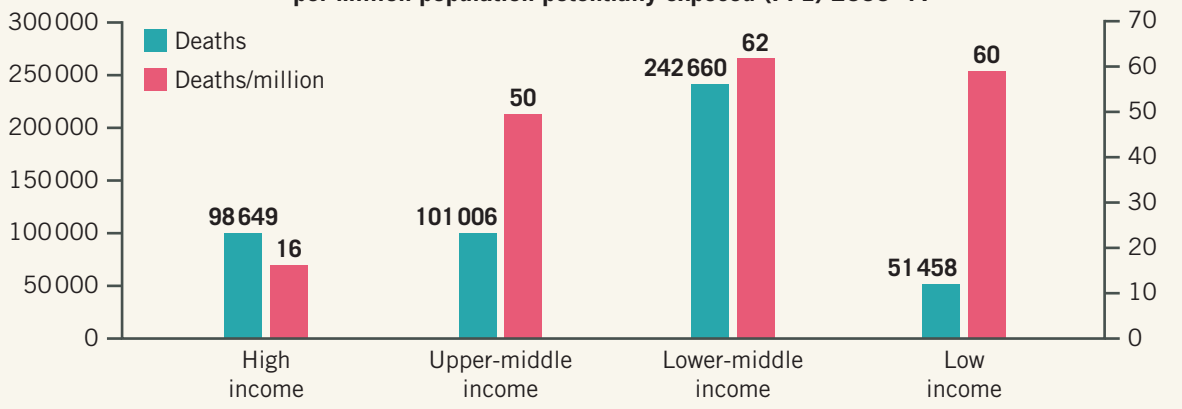


FIGURE 9.43 Lower- and lower-middle-income countries suffering the highest rate of mortality due to climate-related disasters, 2000–17

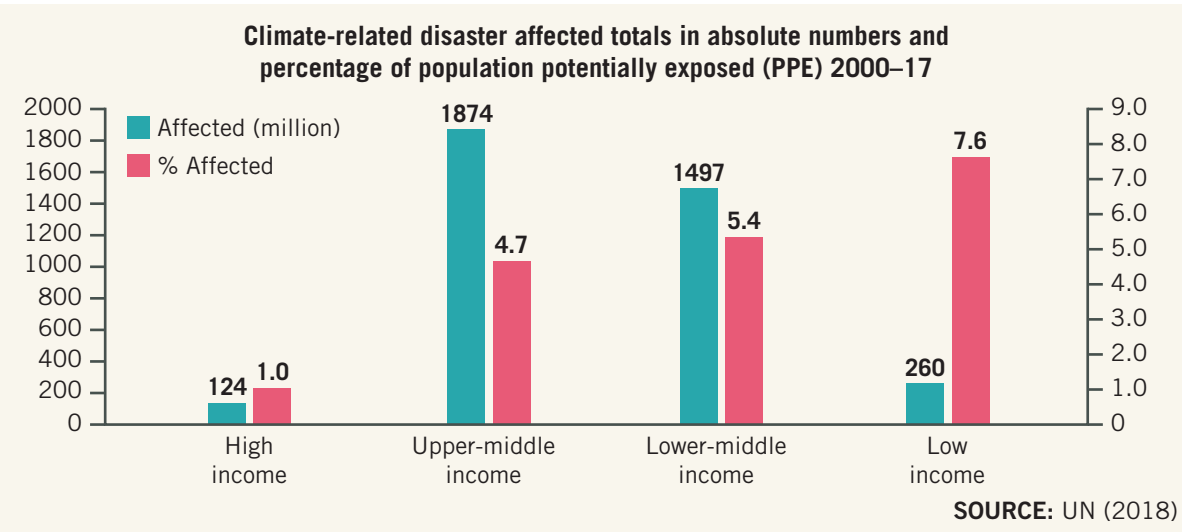


FIGURE 9.44 More people were affected by climate-related disasters in upper-middle income countries than any other group; however, when adjusted to a percentage of the PPE, an increase is evident in the average percentage of people affected by climate-related disasters as incomes decline.

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IMPACT OF CLIMATE CHANGE



- Climate change (rising sea levels, changing weather patterns and more extreme weather events) has a negative impact on individuals, families, communities and governments.
- Effects on individuals, families and communities include increased poverty, land, homes and infrastructure destroyed and people displaced, contributing to consequences including death injury, disability, increased spread of disease, hunger and malnutrition as resources such as food, sanitation systems, water and healthcare are limited or unavailable.
- Effects on government include the need to change policies, increase expenditure on infrastructure to withstand climate change events, support and rebuild after an extreme weather event and provide social protection measures to help citizens.

IMPACT ON HEALTH AND WELLBEING

Physical health and wellbeing reduced due to:
- Is decreased due to extreme weather events leading to food shortages, reduced access to safe water, healthcare and shelter, reducing the body's ability to function efficiently and increasing conditions such as dysentery and malnutrition.

Mental health and wellbeing reduced due to:
- During extreme weather events such as natural disasters, people may be unable to concentrate and lack the capacity to make logical decisions due to increased stress being experienced.
- Uncertainty and not knowing what will happen next or when food, water and shelter will be accessed can increase fear, worry and anxiety, reducing mental health and wellbeing.

Emotional health and wellbeing reduced due to:
- Feelings of grief and loss due to injury and death of loved ones as a result of an extreme weather event such as flooding.
- Inability to effectively respond and manage feelings as a result of climate change and rising sea levels, leading to environmental changes to the land and people being forced to leave homes can decrease emotional health and wellbeing.
- Experiencing negative emotions and reduced resilience as a result of a natural disaster destroying whole communities.

Spiritual health and wellbeing reduced due to:
- When land is destroyed due to changing and unpredictable weather patterns, farmers are no longer able to produce crops or manage land productively, which can lead to a reduced sense of purpose in life.
- People who rely on the land may lack a sense of fulfilment due to the despair faced in times of environmental changes, such as drought, and may feel the need to leave their home in search of employment, reducing a sense of belonging and spiritual health and wellbeing.

Social health and wellbeing reduced due to:
- Reduced opportunities to participate in community activities, relocation of communities due to natural disasters such as wildfires, changes to opportunities for employment and inability for children to attend school, reduce opportunities to establish and maintain meaningful interactions and a social network of friends, decreasing social health and wellbeing.

FIGURE 9.45 Implications of climate change on health and wellbeing

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FIGURE 9.46 Drought affects Africa more than any other continent and has significant implications for health and wellbeing.

All populations are at risk of the health and wellbeing impacts of climate change but some are more vulnerable than others, with health risks unfairly distributed globally. People living in small-island developing states, such as Tonga and other coastal regions, are particularly vulnerable. Economic losses are a major developmental challenge for many low-income countries battling climate change and poverty. Low-income countries with reduced access to healthcare facilities and reduced capacity to respond to disasters have the most negative prognosis for their health and wellbeing.

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EXTENSION QUESTION 9.14

'Mega-disaster' has become a new vocabulary term as a result of devastating earthquakes, tsunamis, tropical cyclones, droughts and floods.

Explain how the destruction of infrastructure has the greatest impact on the health and wellbeing of those living in low- and middle-income countries.



9.8 CONFLICT AND MASS MIGRATION

Conflict

Conflict and violence has resulted in an estimated 70.8 million people being displaced from their homes in 2018 to seek protection; this is an increase of 100 per cent in the last 20 years (UNHCR, 2019).

Conflict directly impacts life expectancy as people are more likely to experience premature mortality and increased morbidity due to injury and communicable diseases. War situations put pressure on infrastructure and resources, while issues of food insecurity, as well as lack of access to healthcare and education lead to decreased health and wellbeing for individuals and families. Women are also at increased risk of sexual violence and exploitation during times of conflict.

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FIGURE 9.47 Levels of conflict have increased and consequently international humanitarian laws and human rights are often ignored, having a significant impact on health and wellbeing. It is difficult to provide essential services like healthcare in a war zone.



FIGURE 9.48 More people are on the move than ever before and most of these people come from just five countries.

People who live in the midst of conflict have less freedom, opportunity and choice about their lives, and fewer of the resources that are needed for health. For example, Afghanistan is extremely poor due to many years of civil unrest and a war that lasted 20 years. As a result of the fighting, Afghanistan has experienced high spending for military purposes and a drop in trade, both of which led to a reduction in the availability of food, water, sanitation and medical care, increasing injury, infections and malnutrition and reducing physical health and wellbeing. Living in fear of injury and death as well as lack of adequate and safe shelter can increase stress and anxiety, reducing mental health and wellbeing. Schools are often destroyed or are unable to operate, interrupting the education of children and limiting literacy skills. Fragile and war-affected countries typically have the highest poverty rates and, along with the consequences of conflict, experience poor physical health and wellbeing, contributing to low life expectancy and high maternal and child mortality rates. As conflict continues, the burden on the health and wellbeing of many global citizens will continue. Even as conflict subsides, life does not return to normal. For example, the presence of landmines following times of conflict increases risk of both death and injury, particularly for women who are often responsible for farming land, and for children who play in areas with unexploded landmines.

Mass migration

The number of people who have been displaced from their homes worldwide is the highest it has ever been; and the trend is continuing. According to *The Lancet* (2019), by WHO estimates, 68 million people have been forcibly displaced across borders. Low- and middle-income countries host 86 per cent of the population of migrants who have suffered forced displacement and the UN estimates suggest that 71 million people worldwide fled war in 2018 alone.

The world is currently facing its worst refugee/**mass migration** crisis since World War II, with people being forced to flee their homes due to conflict, persecutions and natural disasters that have been intensified by climate change. The majority of migrants are crossing borders of new countries in search of safety and better economic and social opportunities. Almost half of all migrants are women and children. This is a significant issue for both low- and middle-income countries who are already

mass migration: The movement of large numbers of people from one geographical area to another. This is different to individual and seasonal migration.

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struggling economically to provide resources and infrastructure for their own citizens.

While migration is not a new trend, the current mass migration patterns being experienced globally have implications for the health and wellbeing of the world's citizens. Migrants today are too often met with suspicion, fear and intolerance, increasing stress and anxiety in communities and decreasing mental health and wellbeing. Many migrants spend years living in crowded refugee camps, sharing tents and basic resources, which places an increased demand on water, sanitation, medicines and health services. This increases risks to health through communicable diseases, such as respiratory infections, cholera, diarrhoea and gastrointestinal illnesses, decreasing physical health and wellbeing.

The conditions under which migrants travel (many of them having to flee conflict) can lead to death due to drownings and accidents, and cause life-threatening physical and mental health issues, such as injuries, malnutrition, fear, and insecurity as well as stress and depression from losing loved ones or leaving homes, families and jobs behind.

Other issues for displaced people can include: a loss of identity, language or cultural barriers; living in fear; financial insecurity or poverty due to having to start all over again in terms of building resources, and a lack of opportunity for income. Women may experience violence or be forced into prostitution as a way of obtaining income, increasing risk of sexually transmitted infections. Children are unable to gain an education and can be forced into poor working conditions.



FIGURE 9.49 Refugee camps often lack basic necessities, and are crowded and dangerous.

Migrants experience decreased life expectancy due to increased morbidity and mortality rates. The number of deaths of people migrating annually is estimated to be around 4000 although this is considered to be a minimum figure because the majority of migrant deaths worldwide are not officially recorded and many people are considered missing.

AOS 1

ACTIVITY 9.7: REFUGEES

Watch the video *UNHCR Global Trends in forced displacement – 2018* (https://cambridge.edu.au/redirect/8655) and note the figures quoted.

1 How many people are now displaced in the world?
2 What are displaced people fleeing?
3 Describe the trends being seen.
4 Who are the 'uprooted'?
5 Identify the countries that are the source of most of the world's refugees.
6 Which countries are more likely to host displaced people?
7 What is the worrying trend and how may this impact mental health and wellbeing?
8 Discuss the implications of this global crisis on health and wellbeing.
9 Discuss the impact of the 'Global Compact on Refugees' adopted in 2018 on the two dimensions of health and wellbeing.

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IMPACT OF CONFLICT AND MASS MIGRATION



- Conflict destroys communities and land that can be used for agricultural purposes; increases poverty; reduces employment and educational opportunities; increases injury and death; can reduce trade and global marketing opportunities (and economic development); increases food insecurity; decreases access to healthcare, safe water and sanitation; and increases violence, sexual assault and exploitation, particularly of women and children.
- Those who experience mass migration also experience many of these same negative situations as experienced in times of conflict. However, mass migration can also place extra demands on refugee camps and neighbour countries, resulting in overcrowded living conditions and increasing the spread of disease. People who have resettled can often be treated with suspicion, fear and intolerance.

IMPACT ON HEALTH AND WELLBEING

Physical health and wellbeing reduced due to:
- Increased injury and death as a result of conflict or migration, increased violence and assault against females (both physical and sexual) and increased exploitation of women and children, reducing sexual and reproductive health; food insecurity (leading to malnutrition); reduced access to safe water and healthcare for immunisation, increasing the risk of communicable diseases.

Spiritual health and wellbeing reduced due to:
- When land, homes and communities are destroyed due to conflict, mass migration take places (either forced or voluntary) and people can lose faith, lose their personal sense of hope, so peace and a sense of belonging is reduced. One's purpose in life and spiritual/religious beliefs can be reduced.

Mental health and wellbeing reduced due to:
- Living in a constant state of fear for personal security, stress and anxiety, reducing the ability to make logical decisions; mental illness such as depression and anxiety can occur as a result of conflict and displacement from land and home. Fear, stress and worry for the safety of family members and loved ones who may not want to leave conflict areas.

Social health and wellbeing reduced due to:
- Homelessness and communities being destroyed due to conflict can result in social isolation and exclusion. Mass migration and forced displacement may involve leaving loved ones behind if they are too old or ill to travel long distances on foot and this reduces the opportunity for productive relationships and maintaining a supportive family network.

Emotional health and wellbeing reduced due to:
- Feelings of sadness, fear, grief and loss due to the death of loved ones as a result of conflict and/or migration to safer countries or areas. Inability to regulate one's emotions due to fear and anger at conflict destroying life.

FIGURE 9.50 Conflict and mass migration contributes to poor health and wellbeing.

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9.9 INCREASED WORLD TRADE AND TOURISM

World trade

Increased world trade will have both a negative and positive impact on health and wellbeing, as well as economic and environmental sustainability.

Many low- and middle-income countries are dependent on exports for income. While increased global trade does have the potential to assist poorer countries to develop economies and access goods and services not available in their country, it is often the wealthier nations who benefit most from trade arrangements. With only a small range of limited agricultural or mineral products for export, low- and middle-income countries are vulnerable to the global market and price fluctuations. There have also been many cases of multinational companies contributing to unfair and unsafe working conditions and exploiting people in low- and middle-income countries.

However, with a focus on fair trade, international trade arrangements, trade restrictions and taxes, world trade does have the potential to provide increased economic security to people in low- and middle-income countries, reducing poverty. Increased world trade can enable the development of new technologies, innovation and productivity, which generates increased income, develops businesses and increases employment and education opportunities. This has positive impacts on health and wellbeing, increasing life expectancy and living standards.

Fair trade is an example of ensuring producers in low- and middle-income countries are getting a 'fair deal', a 'fair price' for their products, services and labour, as well as experiencing decent, safe working conditions. Fair trade is enabling farmers and workers to break the poverty cycle and have more control over their lives and the decisions they make.

World trade can also advance gender equality because many small businesses are started by women. According to the UN, Africa has the highest growth of female-run businesses where one in four women starts or manages a business. However, it must be stated that some multinational companies have exploited females by providing poor, unsafe working conditions and limited wages, leading to detrimental impacts on health and wellbeing.

FAIRTRADE

FIGURE 9.51 Fairtrade logo

Tourism

Our world is more interconnected than ever before. This growing interdependence and interconnectedness has seen an increase in the opportunities for people to travel to different locations around the world, resulting in a tourism boom. Tourism can be seen to have both positive and negative impacts on health and wellbeing of local communities. Many locations, especially low- and middle-income countries, have benefitted from this increased flow of people because it brings income to their economies, revenue to governments, provides employment opportunities and creates new markets for goods and services, especially traditional products.

According to Griffith University and the Global Sustainable Tourism Dashboard (2019), 'Tourism direct employment in the Least Developed countries (LCDs) (or low-income countries) and Small Island Developing Countries (SIDS) (or low-and middle-income countries) increased from 3.2 million jobs in 1995 to 8.6 million jobs in 2018. This represents an increase of 6.2 per cent compared with the previous year.'

Economic benefit as a result of tourism has grown substantially in low- and middle-income countries. This enables improvements

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in infrastructure such as roads, sewage systems, education and healthcare facilities to be made within these countries. Some large international resorts also 'give back' and support local communities; for example, by donating linen to those living in poverty, reducing the use of plastics and soap, providing sustainable skills and education for staff and encouraging their workforce to be involved in environmental care projects (such as cleaning beaches which provides ongoing advantages for local people).

However, there are also negative consequences of tourism, including impacts on biodiversity and environmental ecosystems from increased pollution, transportation and increased human interaction, reduction in land for agricultural purposes, increased congestion on roads and time to travel to work and markets. Increased transmission of communicable diseases is also more likely due to global interconnectedness and the ability of people to travel vast distances, taking disease from one country or region to another. Measles, Ebola Virus, dengue fever, sexually transmitted diseases and those caused by poor water and sanitation (such as diarrhoea and cholera) are examples of such diseases. In some low- and middle-income countries, responding to the needs of tourists may reduce decent working conditions and families force young children to work (for example, selling goods) rather than study, as a means to increase income.

Increasingly, people are travelling from one country to another country to receive medical, dental and surgical care because of affordability or a higher quality of care. Obviously this option is most readily available to people who have a high SES and the means to travel for medical purposes.



FIGURE 9.52 The tourism industry provides significant opportunities for employment for women, increasing female empowerment and gender equality.

ACTIVITY 9.8: THE GOOD, THE BAD AND THE UGLY

1 Complete the following table, highlighting the positive and negative implications of increased tourism. You might like to link this back to your knowledge of global marketing and issues of sustainability.

POSITIVE IMPLICATIONS OF INCREASED TOURISM	NEGATIVE IMPACTS OF INCREASED TOURISM

2 Outline the implications of tourism for health and wellbeing.

3 Suggest how the negative aspects of tourism can be addressed to create a sustainable solution that positively impacts health and wellbeing.

4 Outline two positive and two negative impacts of world trade on health and wellbeing.

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IMPACT OF WORLD TRADE AND TOURISM



- **World trade** is the exchange of goods and services between countries which can contribute to positive outcomes including economic growth, fair trade, development of new technologies, innovation and productivity. This can increase employment opportunities, income levels (individually and for the country with increased tax revenue), development of new small local businesses which are often operated by women, increased gender equality and improved standards of living. Negative impacts may also exist including low wages, dangerous and poor working conditions, particularly experienced by women and children, and vulnerability to changing markets.
- **Tourism** provides benefits including increased employment opportunities for local people, promotes culture, development of new local business, training/education and the development of life-long skills, increased income for individuals and countries. Governments are encouraged to enhance their country and spend on infrastructure which may benefit local people. However, low wages, extended work hours, lack of respect for cultural heritage and values, use of land and damage to the environment can be negative impacts of tourism.

IMPACT ON HEALTH AND WELLBEING

Physical health and wellbeing increased due to:
- Tourism increases employment and income earning potential which improves access to life-promoting resources such as food, safe water, sanitation and healthcare reducing the likelihood of suffering from hunger, malnutrition and waterborne diseases such as cholera.

Spiritual health and wellbeing increased due to:
- Tourism provides an opportunity for local culture and tradition to be shared, empowering local people and fostering a sense of pride and belonging among the community. Tourists who experience local heritage and customs may also develop a sense of connection to the land and country they are visiting.

Mental health and wellbeing increased due to:
- Tourism provides an opportunity, particularly for local women, to receive training and education, for example hospitality training, developing life-long skills to improved employment opportunities and increasing a sense of self-worth and self-confidence.

Social health and wellbeing increased due to:
- World trade can contribute to the establishment of local small business whose owners are often women, which can increase social inclusion, interactions and development of productive relationships between business owners, staff, customers and local community.

Emotional health and wellbeing increased due to:
- World trade provides an increase in diverse employment opportunities for local people leading to an improved standard of living and ability of people to provide for families, leading to feelings of accomplishment and achievement.

FIGURE 9.53 World trade and tourism have both positive and negative implications for health and wellbeing.

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9.10 DIGITAL TECHNOLOGIES THAT ENABLE INCREASED KNOWLEDGE-SHARING

Recent technological innovations in today's changing world are making real-time data available for real-time decision-making. This key information is needed to prepare for and respond to economic, political, natural and health crisis situations around the world. As the use of mobile and wireless digital technology becomes increasingly important in achieving global health outcomes, in 2019 the WHO released new recommendations on 10 ways that countries can use digital health technology – accessible via mobile phones, tablets and computers – to share knowledge and improve people's health and essential services.

The guidelines are as follows:

1 Digital birth notification
2 Digital death notification
3 Digital stock notification and management
4 Digital client-to-provider telemedicine
5 Digital provider-to-provider telemedicine
6 Digital targeted client communication
7 Digital health worker decision support
8 Digital tracking of clients' health status and services (digital tracking) combined with decision support
9 Digital tracking combined with: (a) decision support and (b) targeted client communication
10 Digital provision of educational and training content to health workers.

In the 2014–16 Ebola outbreak, UNICEF and its partners used text messaging to collaborate and share information about the outbreak. This helped to rapidly locate new cases, determine what supplies were needed and provide lifesaving information and messages to individuals and communities.

In Trinidad and Tobago, smartphone apps assisted the Ministry of Health to identify the location of infected persons and use the information to contain the country's Chikungunya Virus outbreak. This enabled efficient management and treatment of the condition, increasing physical health and wellbeing.

COVID-19 (CORONAVIRUS)

During the 2020 COVID-19 Coronavirus pandemic, the WHO established a website dedicated to providing accurate information and guidance to countries and individuals worldwide on measures to protect health and prevent the spread of the disease outbreak. Linked to this website was a free online training program developed by the WHO Health Emergencies Programme.

This use of digital technology enabled thousands of people across the globe

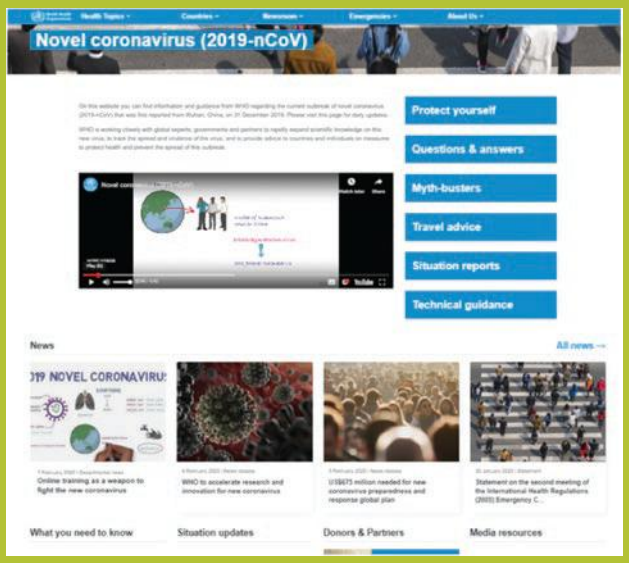


FIGURE 9.54 The WHO Coronavirus website

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access to real-time knowledge from WHO experts on how to detect, prevent, respond to and control the new Coronavirus. In addition, thousands of people viewed the introductory video to the course on YouTube. This online digital learning platform enabled WHO to reach millions of people across the globe sharing real-time, accessible learning materials during the health emergency which had the potential to empower individuals and countries to be informed and take action to promote health and wellbeing worldwide.

SOURCE: WHO (2020)

Today, over 95 per cent of the world's population is covered by a cellular network and mobile subscriptions have grown to over seven billion. The availability and increased affordability of the internet allowed connections to spread to over 56 per cent of the world's population by 2019, linking billions of people. Digital technologies are changing the way people seek health information, and the way they are collecting and sharing health data and knowledge. New communication methods, such as social media posts, use of SMS messaging and health and wellbeing apps, all provide near real-time information. Examples of such digital technology use having positive effects includes sending reminders to pregnant women to attend antenatal care appointments, messages for mothers to have children return for vaccinations and using the WHO's 'hearWHO' to test hearing.

Not only does increased knowledge sharing through digital technologies assist global health organisations such as the WHO to coordinate and respond during a crisis, this global trend is also having a direct and positive impact on the health of individuals. People will have the ability to increase their own health knowledge through the internet. Digital technologies offer the opportunity for clear health-promotion messages to be shared among populations in order to increase health knowledge and improve understanding of health and health behaviours.

An example of this is the importance of sanitation. Handwashing education programs have made significant impacts on reducing the spread of illness and disease in low- and middle-income countries. These education programs, which previously relied on face-to-face community interaction, can now be provided through digital technologies, increasing the sharing of health knowledge. Disaster risk and emergency notifications sent via SMS and emails to phones is another example of digital technologies, promoting health and wellbeing, for example during the 2019–20 bushfire crisis.

With the increase in digital technologies and the internet providing real-time connections, we see an increase in the effectiveness and sharing of health services. Health professionals are able to communicate, share images, perform virtual surgeries and share knowledge to diagnose and treat conditions at any time of the day throughout most of the world.

In Australia today, many people use digital technology to monitor their health and wellbeing and the information collected can be shared with friends, family and various health care professionals.

AOS 1

EXTENSION QUESTION 9.15

The benefits of digital technologies outweigh the challenges when it comes to improving health and wellbeing for those in low- and middle-income countries.

To what extent do you agree with this statement?

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FIGURE 9.55 The WHO's Zika app provides essential information on the Zika Virus disease and its potential complications. Designed for healthcare workers, the app is also a source of real-time information for the general public.



My Health Record is one of the Australian Government's digital health priorities. The online platform stores a person's health information, including their Medicare claims history, hospital discharge information, diagnostic imaging reports, and details of allergies and medications. The person, and their authorised health care providers, can then access these details securely at any time.

Source: AIHW (2018)

FIGURE 9.56 Digital technology can provide opportunities to improve continuity of care.

For example, individuals might wear a fitness device to record how much exercise they do or use a smartphone app to monitor food intake which can then be shared with a GP or dietitian to assess body weight or conditions such as hypertension or diabetes mellitus. This use and sharing of information through digital technologies can empower people to improve their own health and wellbeing.

Through using digital technology for sharing information, My Health Record can enable effective and efficient treatment whether visiting a GP for a check-up, or being from a non-English speaking background and not sure of pathology results or in an emergency room following an accident and unable to talk, healthcare providers involved in a person's care can access important health information.

While reports are showing higher rates of internet connection worldwide, technology does favour people who are wealthier, better educated, young and male, possibly widening the gap between the 'data poor' and the 'data rich'. There is also the risk of misinformation being spread through digital technologies, by people attempting to diagnose their symptoms on the internet.

ACTIVITY 9.9: GIRL EFFECT – DIGITAL TECHNOLOGIES

Watch the video *Springster – propelling a new generation of connected girls* (https://cambridge.edu.au/redirect/8656).

1 What is the Springster app for girls?

2 Describe the measures used to determine the effectiveness of the app.

3 Discuss how the app can promote girls' health and wellbeing in low-income countries.

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IMPACT OF INCREASED DIGITAL TECHNOLOGIES THAT ENABLE INCREASED KNOWLEDGE-SHARING



- There has been a significant increase in digital technologies and the world is becoming connected at a rapid rate.
- Governments, business and healthcare services are just a few of the organisations that are incorporating digital and virtual technologies to share knowledge services, obtain healthcare data and increase interactions with people worldwide.
- Mobile phone technology, internet, apps and social media are all effective and immediate ways of using digital technologies to share information.
- Challenges do exist – lack of privacy and re-distribution of shared information can be harmful and illegal; the safety of young children and vulnerable population groups can be compromised. Online safety is a significant concern as bullying and grooming of children can occur. Risk of misinformation and self 'diagnosis' exists when searching for medical conditions.

IMPACT ON HEALTH AND WELLBEING

Physical health and wellbeing increased due to:
- Digital technology and use of apps allow doctors to gather data, access real-time information and share this information with patients to improve treatment. Using real-time information and online education platforms can provide measures to reduce the possibility of contracting diseases, such as the Coronavirus, reducing the likelihood of suffering from infectious diseases.

Spiritual health and wellbeing increased due to:
- Access to digital technologies enables sharing of information; for example, different diagnosis and treatment options available worldwide can enable people to seek medical services and treatments according to their beliefs and values.

Mental health and wellbeing increased due to:
- Accessing health information such as heart rate, monitoring blood glucose levels or receiving SMS reminders for vaccinations or information regarding natural disasters can reduce stress and anxiety related to health outcomes.

Social health and wellbeing increased due to:
- Connecting with people and medical professionals to share health information can lead to establishing meaningful and supportive relationships, particularly with those who have experienced similar situations.

Emotional health and wellbeing increased due to:
- In times of disease outbreak, digital technology and social media provides a platform for people to voice their complaints, share information about the spread of the virus, and to spread awareness about how people can protect themselves, enabling people to express feelings openly.

FIGURE 9.57 Digital technologies that enable increased knowledge sharing can have both positive and negative implications for health and wellbeing.

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ACTIVITY 9.10: THE IMPLICATIONS OF DIGITAL TECHNOLOGIES FOR HEALTH AND WELLBEING

1 Complete the following table, highlighting the positive and negative impacts of digital technologies that enable increased knowledge-sharing.

POSITIVE IMPACTS OF DIGITAL TECHNOLOGIES THAT ENABLE INCREASED KNOWLEDGE-SHARING	NEGATIVE IMPACTS OF DIGITAL TECHNOLOGIES THAT ENABLE INCREASED KNOWLEDGE-SHARING

2 Consider the impacts on health and wellbeing of digital technologies that enable increased knowledge-sharing. Outline the implications of this global trend for health and wellbeing.

3 Select one of the 2019 WHO recommendations for use of digital technologies to improve health and discuss the impact on health and wellbeing.



CHAPTER SUMMARY

- The similarities and differences in health status and burden of disease experienced by people around the world result from the influence of a number of factors:
  - 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.
- Populations in low- and middle-income countries often experience significantly reduced health status and increased burden of disease as a result of these factors.
- Global trends that have implications for all people worldwide include:
  - 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.
- Global trends have implications, both positive and negative, for health and wellbeing of all people in all countries around the world.
- Millions of people in low- and middle-income countries live in poverty while some people are experiencing economic growth. As a result, these countries are experiencing a double burden of disease.



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KEY QUESTIONS

SUMMARY QUESTIONS

1 Identify three ways lack of access to an adequate and safe water supply can impact health and wellbeing.
2 Explain what is meant by 'global marketing'.
3 Outline what is meant by the term 'double burden of disease'.
4 Explain the term 'discrimination'.
5 Outline the influence of discrimination on health status and burden of disease.
6 Describe how breaking the poverty cycle will improve health and wellbeing.
7 Discuss the importance of sanitation for good health and wellbeing.
8 Describe the impact that climate change is having on global health and wellbeing.
9 Explain the impact that conflict is having on health status.
10 Discuss two ways in which global marketing could lead to similarities and differences in health status.
11 Explain the impact global marketing is having on the rates of non-communicable diseases in low- and middle-income countries.
12 Describe how digital technologies are being used to improve health and wellbeing globally. Justify the impact of such technologies.
13 Explain how global trends have both a positive and negative implication for health and wellbeing.
14 Describe the implications of increased global trade for global health and wellbeing.

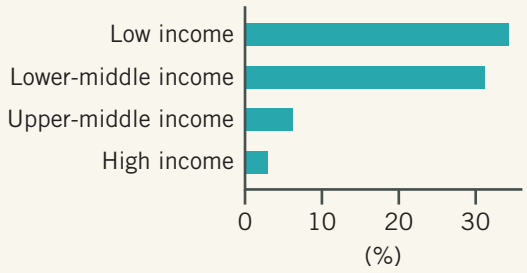
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EXTENDED RESPONSE QUESTION

Tourism and world trade provide the best opportunity for those in low- and middle-income countries to reduce poverty and increase health and wellbeing. To what extent do you agree with this statement? (8 marks)

EXAMINATION PREPARATION QUESTIONS

SOURCE



SOURCE: WHO (2018)

FIGURE 9.58 Prevalence of stunting in children under 5 (%)

In 2018, more than a fifth of children were shorter than global standards for their age. In low-income countries, more than a third of children are stunted (short for their age), reflecting long-term nutritional deprivation, and one child out of every 14 born will die before his or her fifth birthday.

A Define 'under-5 mortality rate'. (2 marks)

B Explain the likely influence of poverty on stunting of children. (4 marks)

C Identify and explain another factor and one global trend that could contribute to the differences in prevalence of stunting in children under 5 years in low- and high-income countries. (6 marks)

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10 SUSTAINABLE DEVELOPMENT GOALS

KEY KNOWLEDGE

- Rationale and objectives of the UN's 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.

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.

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INTRODUCTION

In this chapter you will explore the role of the Sustainable Development Goals (SDGs) in bringing about improvements to health and wellbeing in a global capacity. While there are 17 SDGs, for the study of Health and Human Development you will explore only seven of these goals. The goals that this study looks at are SDG 1, 2, 3, 4, 5, 6 and 13, with a particular focus on SDG 3 – Good health and wellbeing, and the relationship it has with the other goals in improving health and wellbeing and human development.

What you need to know

- The names of the seven SDGs explored in this chapter
- Rationale and objectives of the SDG initiative
- Examples of collaboration between sectors and why this is important for the success of the SDG initiative
- A detailed understanding of the key features of SDG 3
- How the achievement of the key features of SDG 3 relate to the achievement of other SDGs
- Dimensions of health and wellbeing
- Concept of human development

What you need to be able to do

- Analyse the relationship between the key features of SDG 3 and SDGs 1, 2, 4, 5, 6 and 13 in regards to improving health and wellbeing, and human development globally.
- Discuss the importance of collaborative approaches in achieving the SDGs and in improving health and wellbeing and human development globally.
- Justify why the objectives of the SDGs are important.

AOS 2

10.1 SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDGs), also known as the Global Goals, are a plan of action for people, planet and prosperity. The SDGs seek to build on the work achieved around the world through the Millennium Development Goals (MDGs), including halving extreme poverty, halting the spread of HIV/AIDs and providing universal primary education.

The *Millenium Development Goals Report 2015* showed that significant progress had been made towards achieving the MDGs in improving global health and human development: more than one billion people were lifted out of poverty, more children – especially girls – were enrolled in primary school than ever before and the hunger target was only narrowly missed. However, more still needed to be done to achieve a better life for all the world's citizens.

A collaborative approach was taken to establish the new Global Goals, known as the Sustainable Development Goals. An open working group with representatives from 70 countries presented its 17 suggestions to the United Nations General Assembly. The UN also conducted 'global conversations' including the My World survey, asking people around the world to prioritise the areas they would like addressed in the goals.

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RATIONALE

The 17 Sustainable Development Goals (SDGs) are an urgent call for action by all countries – developed and developing – in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The SDGs seek to build on the MDGs and continue what they hadn't accomplished. The overall aim is to build a more prosperous, more equal, and more secure world by the year 2030.

SOURCE: United Nations (2015)

On 25 September 2015, UN Member States adopted a new sustainable development agenda: '17 Goals to Transform Our World', producing a set of universal goals to meet the urgent environmental, political and economic challenges facing our world. The new goals are unique, calling for action by all countries, not just low- and middle-income countries, if we are to see these aspirational targets being achieved (Figure 10.1).



FIGURE 10.1 The Sustainable Development Goals and targets will stimulate action in areas of critical importance for humanity and the planet. Achieving these goals will profoundly change, improve and transform the lives of all.

Objectives

The SDG Agenda is a plan for action, a universal call to achieve the objectives to:

- end extreme poverty
- fight inequality and injustice
- address climate change.

These goals recognise that without working together, none of the goals will ultimately and sustainably be reached. Ending poverty will only be achieved by strategies that build economic

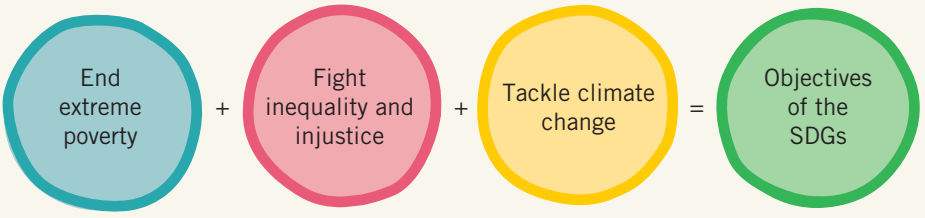


FIGURE 10.2 Focus of the Sustainable Development Goals

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social protection: Covers assistance and support services provided to persons who are: elderly, disabled, survivors, unemployed, destitute, homeless, low-income earners, Indigenous people, immigrants, refugees, alcohol and substance abusers, and have occupational injuries and diseases. It also covers assistance and support services provided to families and children.

growth and address a range of social needs, including education, health, **social protection** and job opportunities, while also addressing the issues of climate change and environmental protection.

By signing the agreement, all countries recognised that they have a collective responsibility to work together to uphold human rights – including the principles of human dignity, equality and equity at the global level – by collaborating in a global partnership. The SDGs are seen as our duty to the world's people, especially the most vulnerable, and in particular children, to whom the future belongs, in order to reduce inequalities in health status and ensure sustainable human development.

A core purpose of the SDGs is their focus on action and implementation through capacity-building, the use of technology and financial resources, with a key global focus alongside accountability. The SDGs are an ambitious agenda with interrelated goals and targets. This agenda represents a partnership between high-income countries and low- and middle- income countries 'to create an environment – at the national and global levels alike – which is conducive to development and the elimination of poverty'. The goals offer a vision of a 'fairer, more prosperous, peaceful and sustainable world where no one is left behind'.

ACTIVITY 10.1: UNDERSTANDING SUSTAINABLE DEVELOPMENT

Watch the UN video *What is Sustainable Development?* on YouTube.

1 When were the SDGs adopted?
2 State how many countries were involved in developing the Sustainable Development Goals.
3 Provide the definition for sustainable development as given by the United Nations.
4 Name the impacts of negative economic growth.
5 Outline the 'details' of sustainable development.
6 Describe how these goals can be achieved.
7 Re-number the goals based on what you believe should be the order of priority for achieving improvements in global health status and sustainable human development. Justify your response.

EXTENSION QUESTION 10.1

Justify the importance of the Sustainable Development Goals.

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FIGURE 10.3 The Sustainable Development Goals: a plan of action for people, planet and prosperity. The circled goals are those you will focus on in your VCE Health and Human Development studies.

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10.2 UNDERSTANDING GOAL 3: GOOD HEALTH AND WELLBEING



SDG 3 'aims to ensure health and wellbeing for all at all ages by improving reproductive, maternal and child health; ending the epidemics of major communicable diseases; reducing non-communicable and environmental diseases; achieving universal health coverage; and ensuring access to safe, affordable and effective medicines and vaccines for all' (WHO, 2016).

SDG 3 is important because without good health and wellbeing, the other SDGs will not be achieved. There are many key features (targets) of SDG 3.

GOAL TARGETS TO BE ACHIEVED BY 2030–31

- Reduce the global maternal mortality ratio to less than 70 per 100000 live births.
- End preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births.
- End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne 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 narcotic drug abuse and harmful use of alcohol.
- Halve the number of global deaths and injuries from road traffic accidents.
- Ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes.
- Achieve universal health coverage, including financial risk protection, access to essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
- Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate.
- Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect low- and middle-income countries, provide access to affordable essential medicines and vaccines.
- Substantially increase health financing and the recruitment, development, training and retention of the health workforce in low- and middle-income countries.
- Strengthen the capacity of all countries, in particular low- and middle-income countries, for early warning, risk reduction and management of national and global health risks.

SOURCE: United Nations Office for Project Services (UNOPS) (2018)

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Key feature: Reduce the global maternal mortality ratio

Between 1990 and 2015, the global maternal mortality ratio declined by 44 per cent, a significant improvement in maternal mortality. Globally, maternal mortality is the second highest cause of death among women of reproductive age. WHO data show that approximately 830 women die every day due to complications of pregnancy and childbirth, and most of these deaths could be prevented.

According to UNICEF, the gap in maternal deaths between low-income and high-income countries is often termed the greatest health divide in the world. According to the World Bank, 99 per cent of the world's maternal deaths occur in low-income countries. Maternal health refers to the health of women during pregnancy and childbirth, and in the **postpartum** period. The major causes of maternal morbidity and mortality include haemorrhage, infection, high blood pressure, unsafe abortion and obstructed labour.

postpartum: The period of time following childbirth.

To address maternal mortality, women need access to good quality antenatal, childbirth and postpartum care. They also need access to family planning information in order to prevent unintended pregnancies. Factors that are preventing women from receiving the adequate healthcare needed during this time include access to healthcare services (availability and affordability), lack of information and knowledge, gender inequity and poverty.

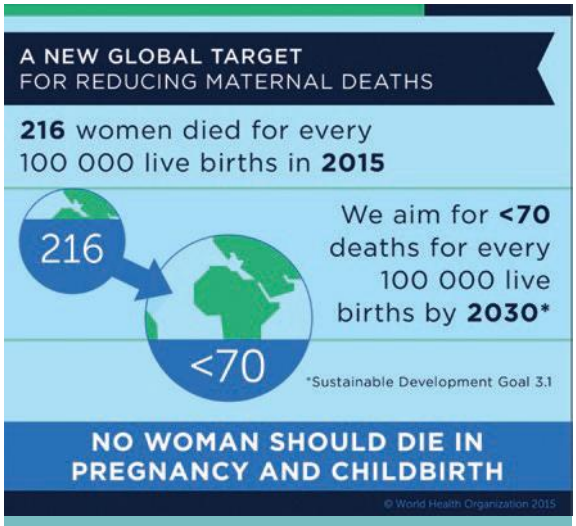


FIGURE 10.4 New global target aims to drastically cut maternal mortality.

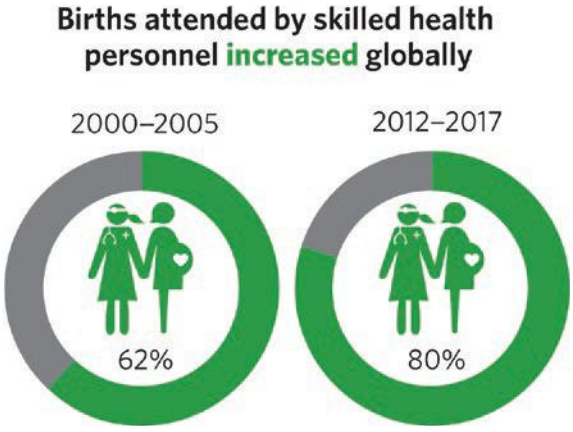


FIGURE 10.5 The number of skilled birth personnel attending births has increased.

Poor women living in remote areas are the least likely to receive adequate healthcare and therefore have a higher risk of maternal mortality.

EXTENSION QUESTION 10.2

Identify the health and wellbeing outcomes to a mother and her child of having a skilled birth attendant present during childbirth.

Adequate healthcare is critical in making the difference between life and death for both the mother and baby. Globally, about 67 per cent of births among rural women are attended by skilled health personnel, compared to approximately 89 per cent of births among urban women. In high-income countries where almost every birth is attended by skilled health professionals, the maternal mortality ratio is very low. With only half the women in low- and middle-income countries receiving the recommended four antenatal care visits, improving these services is critical for the improvement of maternal mortality.

Women are more likely to suffer malnutrition, anaemia and chronic ill-health compared with men, and women in patriarchal societies are often pressured to marry and start having babies at a young age. This increases

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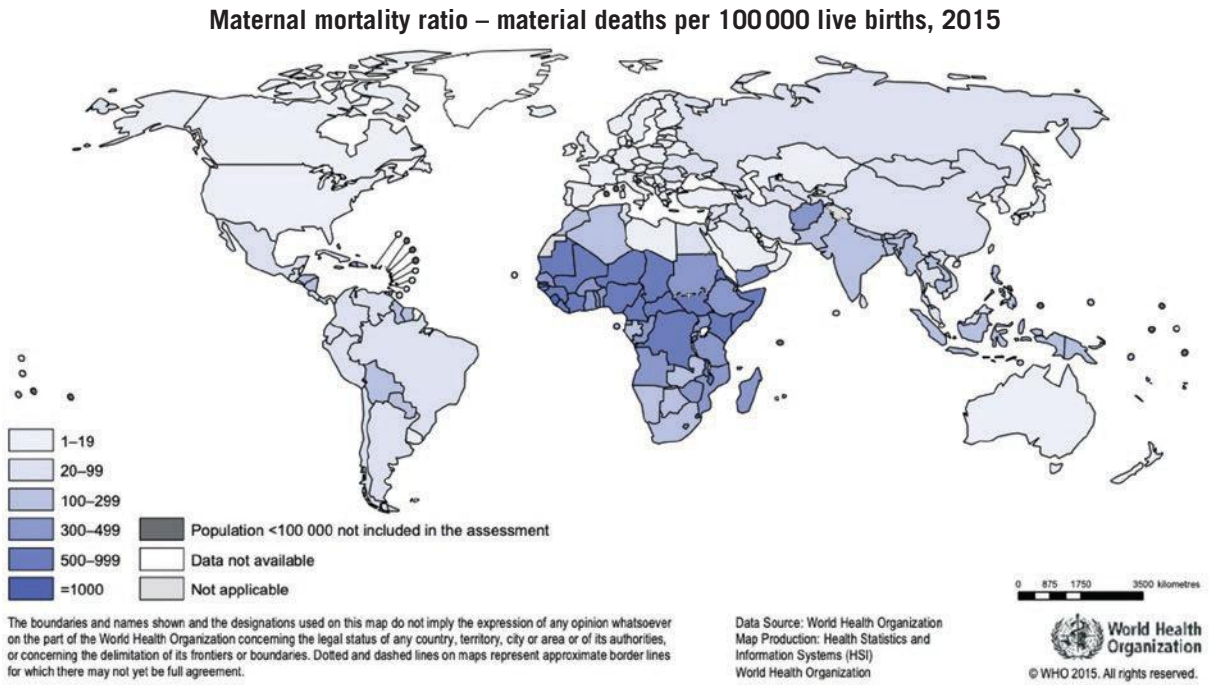


FIGURE 10.6 Shaded areas on the map indicate while we have seen significant improvements in maternal mortality, there is still more to be done to achieve the SDG 3 target of less than 70 per 100 000 live births.

the risk of maternal mortality and morbidity. Preventing unintended pregnancy and reducing adolescent childbearing are critical for achieving good health and wellbeing for women and girls. Women who are educated are more likely to get married when they are older, and understand the importance of healthcare and access to health professionals during pregnancy, thus reducing the health risks to both themselves and their child.

Children who lose their mother during birth are ten times more likely to die before they turn two years old. A healthy mother is the first step



FIGURE 10.7 Improving access to quality antenatal care is a way of improving maternal health outcomes.

DISCUSS



Suggest reasons why children who lose their mother during birth are 10 times more likely to die before their second birthday. Discuss a range of health interventions that will have an impact on the health and wellbeing and health status of mothers and their children.

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towards a healthy child and a reduction in the under-5 mortality rate. Children of educated mothers (even primary education) are more likely to survive than children whose mothers have had no education. Healthy mothers promote the wellbeing of all members of the family and community.

Most maternal deaths are preventable. For example, a simple blood transfusion can prevent maternal death from infection or hemorrhaging, but standard healthcare facilities need to be accessible for this to occur. Not all women have access to reproductive healthcare facilities and trained medical staff.

Key feature: End preventable deaths of newborns and children under 5 years of age

According to the World Bank, child mortality rates halved between 1990 and 2016. Under-5 mortality dropped from 12.7 million per year in 1990 to 5.6 million in 2016. In 2017, 5.4 million children under 5 years of age died from preventable causes such as malaria, diarrhoea and pneumonia. Despite global progress in reducing under-5 mortality, disparities exist across regions and countries. Sub-Saharan Africa remains the region with the highest under-5 mortality in the world with 1 child in 13 dying before his or her fifth birthday; this is 14 times higher than in high-income countries. However, within Sub-Saharan Africa there are huge disparities between countries. For example, in 2017 the under-5 mortality rate in Uganda was 49 per 1000 live births compared to Somalia's 127 per 1000 live births. Simple interventions such as access to essential quality healthcare, vaccination, a clean and safe water supply and bed nets to fight malaria would save the lives of millions of children.

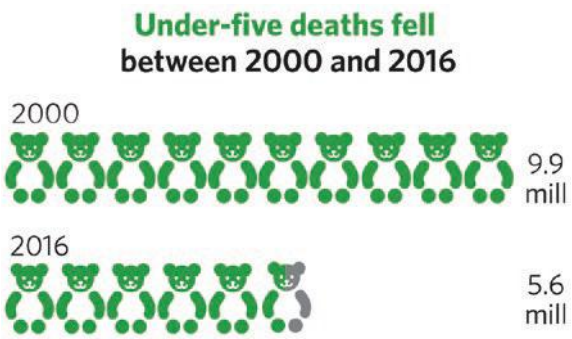


FIGURE 10.8 Under-5 mortality rates, 2000 and 2016

Up to half of all newborn deaths occur within the first 24 hours of birth. Access to health services, skilled personnel and quality neonatal care could prevent many of these deaths, particularly within the first 48 hours of birth, which is a critical time for the survival of a newborn.

Children who are born to mothers who have been denied an education or born into poor households, particularly in rural areas, are at a greater risk of dying before their fifth birthday. Children who reach their fifth birthday have a much greater chance of surviving into adulthood. Investing in the health of children is critical for lifting countries out of poverty and improving health and wellbeing. The World Bank estimates that investments in child health initiatives have a return that is seven times their input because of the reduction made in spending on social welfare and the increased productivity of young people and adults.

EXTENSION QUESTION 10.3

If rates of under-5 mortality drop, what will happen in regards to overall life expectancy? Justify your answer.



FIGURE 10.9 Simple interventions such as vaccination would save the lives of millions of innocent children. Spending $1 billion on immunisation can save the lives of one million children each year.

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By reducing child mortality and the health and wellbeing of children, life expectancy will increase. In meeting this SDG key feature target, we would see a reduction in under-5 deaths by 10 million between 2017 and 2030.

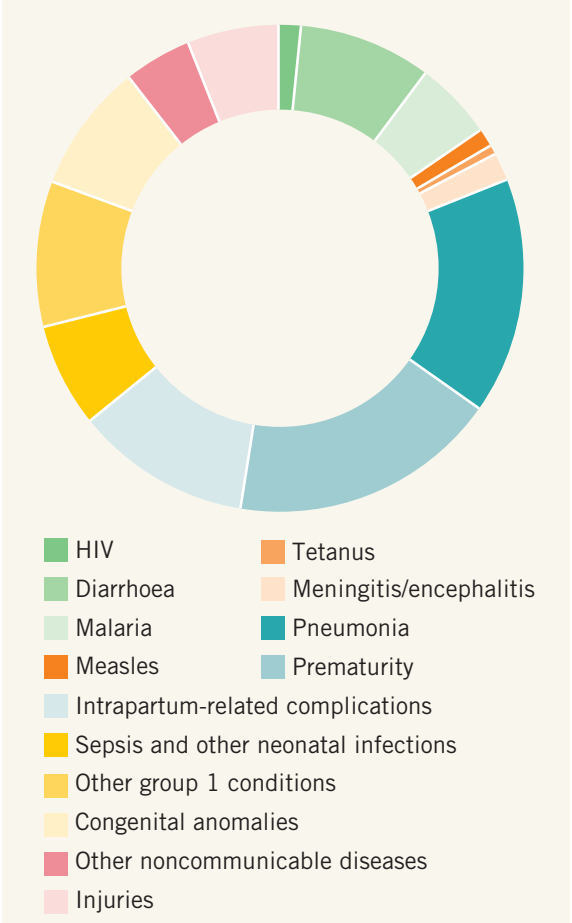


FIGURE 10.10 Major causes of under-5 mortality



FIGURE 10.11 Reducing newborn mortality requires better prevention and management of pre-term babies.

Key feature: End the epidemics of AIDS, tuberculosis, malaria and other neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases

While the incidence of major diseases, including HIV, tuberculosis (TB) and malaria, has declined since 2000, in 2017, some 1.8 million people were newly infected with HIV, 10 million fell ill with TB and 1.6 million died from TB and at least 1.7 billion people in 185 countries required treatment for at least one neglected tropical disease. Globally, these diseases are a major cause of morbidity and mortality, particularly in low-income countries.

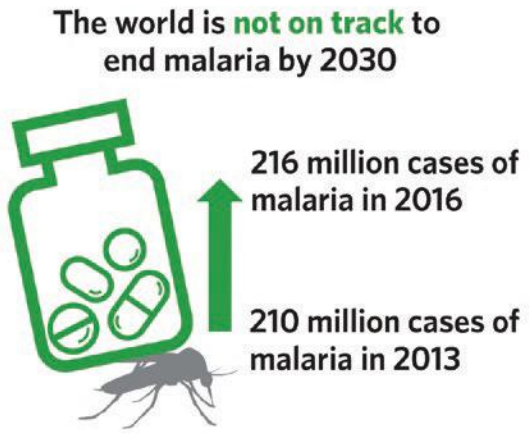


FIGURE 10.12 Significant work needs to be done to end malaria by 2030.

DISCUSS

Discuss the practices that need to be undertaken to reduce rates of malaria globally.

Unhealthy environments increase the risk of both infectious and non-communicable diseases. Deaths from infectious diseases are caused mostly by faecal contamination of water and soil, inadequate handwashing facilities and hygiene practices, as a result of poor or non-existent sanitation.

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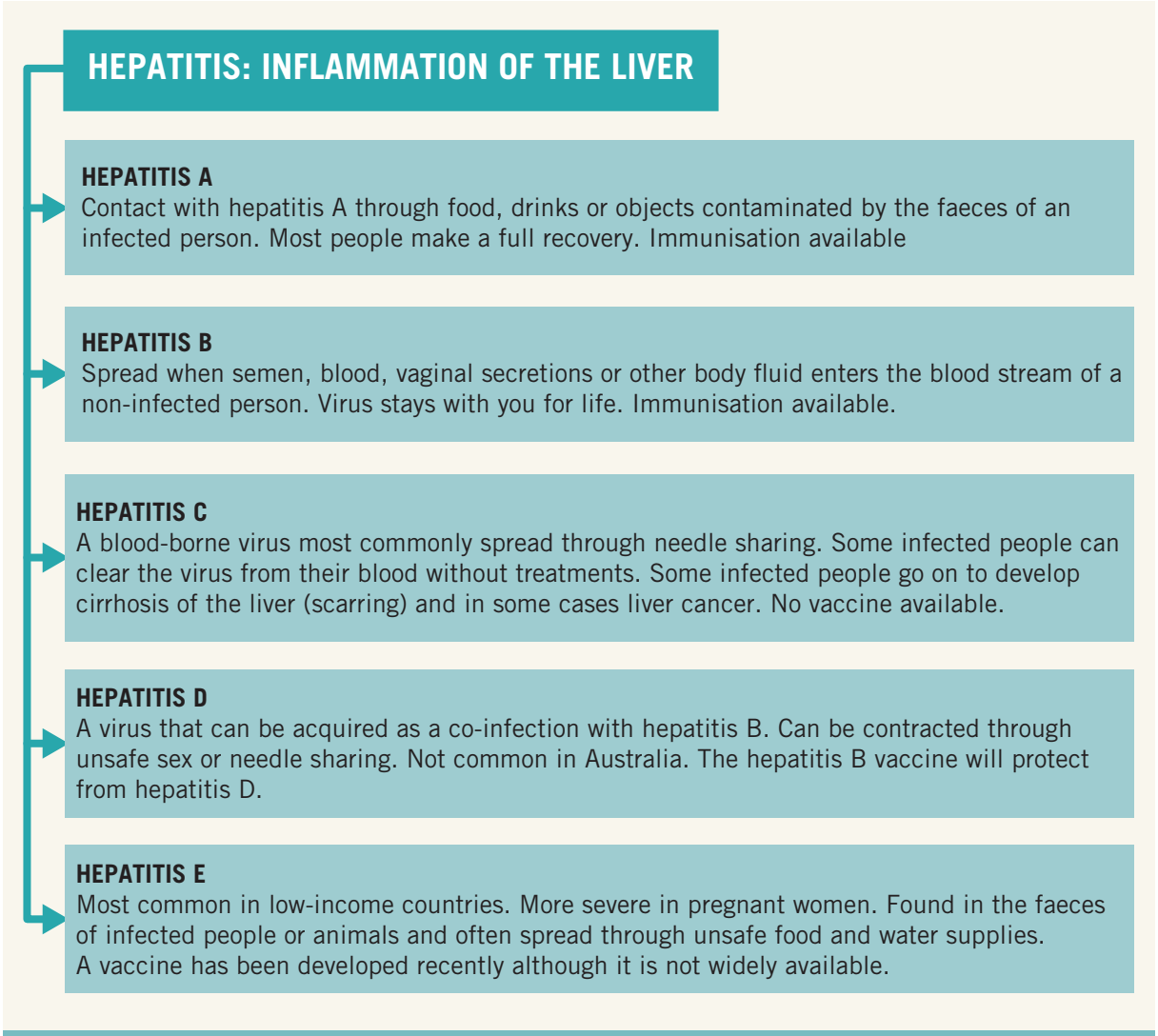


FIGURE 10.13 The five strands of hepatitis. Timely treatment and testing of hepatitis can dramatically save lives.

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More effort is needed to increase people's knowledge and awareness of HIV, with just over half of the 36.9 million people living with HIV in 2017 being aware that they are HIV positive. Increased education on the transmission of HIV, testing, diagnosis and the provision of anti-retroviral treatment will impact new infections and HIV-related deaths.

Hepatitis is a viral condition that causes inflammation of the liver. There are five strands – hepatitis A, B, C, D and E (Figure 10.13). Hepatitis B and C are major health challenges affecting 325 million people globally and are often the primary cause of liver cancer, leading to 1.34 million deaths per year. The timely testing and treatment of hepatitis B and C can save lives.

EXTENSION QUESTION 10.4

Identify factors that may have led to higher rates of hepatitis in low- and middle-income countries compared to high-income countries.

Tuberculosis occurs almost everywhere around the world but is a treatable and curable disease. TB is an infectious disease caused by infection with the Mycobacterium tuberculosis bacterium. TB usually affects the lungs but it can also infect any other organ of the body. The most common symptom of TB is a persistent cough. It is spread from person to person

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through the air when someone with an active infection of the lungs or throat coughs, sings, laughs or sneezes.

The rate of TB incidence in low-income countries is over 10 times greater than in high-income countries, and the mortality rate almost 20 times higher. Globally, there are significant inequalities in access to health services with regard to the effective diagnosis and treatment of TB. The treatment success of TB is high, but relies on a timely diagnosis and correct treatment, highlighting the need for quality essential healthcare services focused on prevention and treatment to address the impact of this disease.

In 2017 there were an estimated 219 million malaria cases worldwide and 435 000 deaths, of which approximately 61 per cent were children under five years of age. The focus of this goal is ensuring universal access to malaria prevention (through the use of treated mosquito nets), diagnosis and treatment to reduce the incidence of malaria worldwide, and the re-establishment of all countries identified as malaria free. The biggest barrier in addressing malaria, which is a preventable disease, is inadequate funding to provide the resources needed – particularly to those who are most vulnerable, such as women and children, and those living in rural and remote communities. By educating women about the importance of malaria prevention, and the simple measure of providing affordable mosquito nets and essential medical treatments when malaria is diagnosed, the incidence of malaria will be reduced significantly.



FIGURE 10.14 While half the world's population, living in nearly 100 countries, is at risk of malaria, Sub-Saharan Africa bears the highest burden.

ACTIVITY 10.2: INVESTIGATION

Listed below are a number of neglected tropical diseases. In pairs/groups choose one to investigate and report your findings back to the rest of the class or present as an infographic similar to the one in Figure 10.15 on the Zika Virus.

- Buruli ulcer
- Chagas disease
- Dracunculiasis
- Echinococcosis
- Leprosy
- Onchocerciasis
- Rabies
- Scabies
- Snakebite envenoming
- Trachoma
- Yaws
- Dengue and Chikungunya

EXTENSION QUESTION 10.5

Identify the possible impact on health and wellbeing and health status when viruses like the Zika Virus are eliminated.

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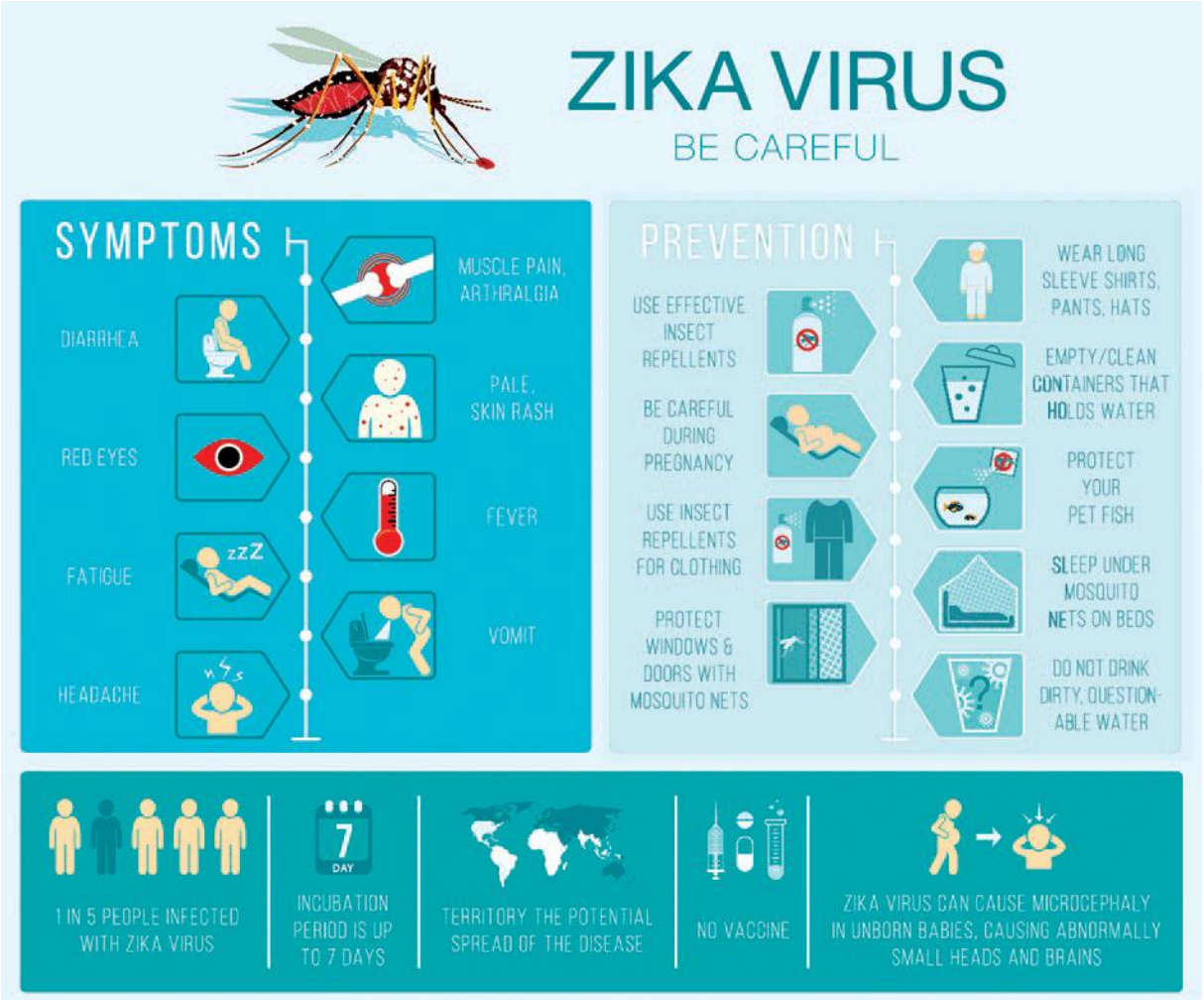


FIGURE 10.15 Zika Virus symptoms and prevention

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Key feature: Reduce premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and wellbeing

In 2016, non-communicable diseases (NCD) were responsible for approximately 40 million deaths per year, accounting for 70 per cent of the overall total of the 56 million global deaths. The four main NCDs are cancer, diabetes, cardiovascular disease and chronic lung diseases.

Non-communicable diseases are a global issue, both in low-, middle- and high-income countries, and can mask increasing inequalities within countries. Those with lower socioeconomic status (SES) generally have a higher mortality rate than those with higher SES. Achieving this target will rely on major interventions addressing tobacco use, physical activity, an unhealthy diet, high salt intake, obesity, diabetes and hypertension.

This will need to be partnered with key national health policies and implementation plans emphasising education about risk factors, prevention and treatment, with access to medicines and technologies for all, across all population groups. Increased globalisation and marketing, and increasing world populations, are also important factors that need to be addressed.

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Mental health disorders occur in countries around the world, with depression and anxiety affecting an estimated 600 million people. Globally, among adults aged 15–29, suicide is the second leading cause of death after road traffic injuries. In 2016, 79 per cent of global suicides occurred in low- and middle-income countries. Health systems still have work to do in regards to responding to the burden of mental health disorders. According to the WHO, in low- and middle-income countries between 76 and 85 per cent of people with mental disorders receive no treatment. In high-income countries approximately 35 to 50 per cent receive no treatment. The burden of disease attributed to mental health disorders is rising globally, with particular effort required to support low- and middle-income countries.

As with all NCDs, a strong and comprehensive national health policy and plans that include diagnosis and treatment need to be implemented to address this health issue. Ensuring that trained health personnel and quality health services are available will not only enable people to seek support and treatment, but could also work towards addressing the stigma surrounding mental health issues, which is often a barrier.

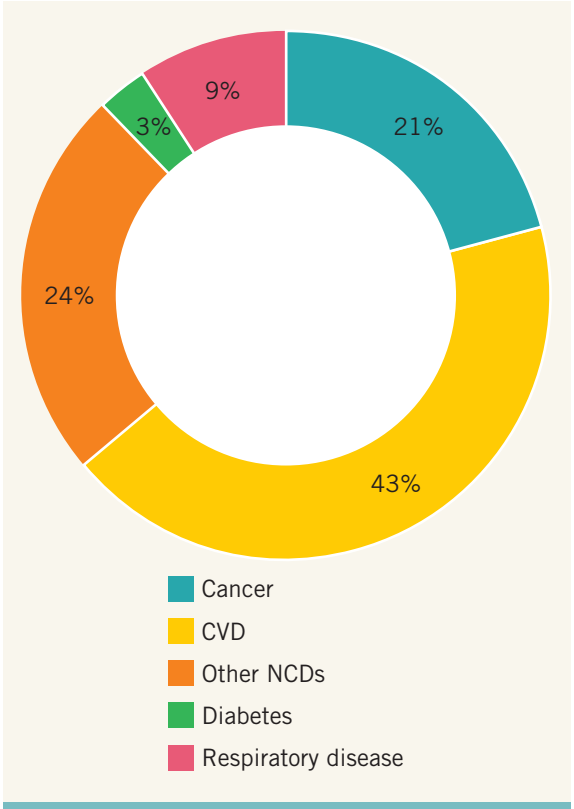


FIGURE 10.16 Causes of premature non-communicable disease mortality, 2018

WHO figures show that 9.6 million people die from cancer globally each year, with 70 per cent of these deaths occurring mostly in low- and middle-income countries.

ACTIVITY 10.3: MENTAL HEALTH

Watch the video *Making Mental Health a Global Development Priority* on YouTube.

1. Identify how many people around the world are impacted by depression and anxiety disorders.
2. Identify factors that stop/prevent countries from making better progress in regards to mental health.
3. Explain what lost productivity costs the world annually.
4. Discuss why treatment for mental health conditions is considered a worthwhile investment.
5. Identify how much governments in high- and low-income countries invest in mental health care.
6. Identify the population groups that are at higher risk of developing mental health disorders.

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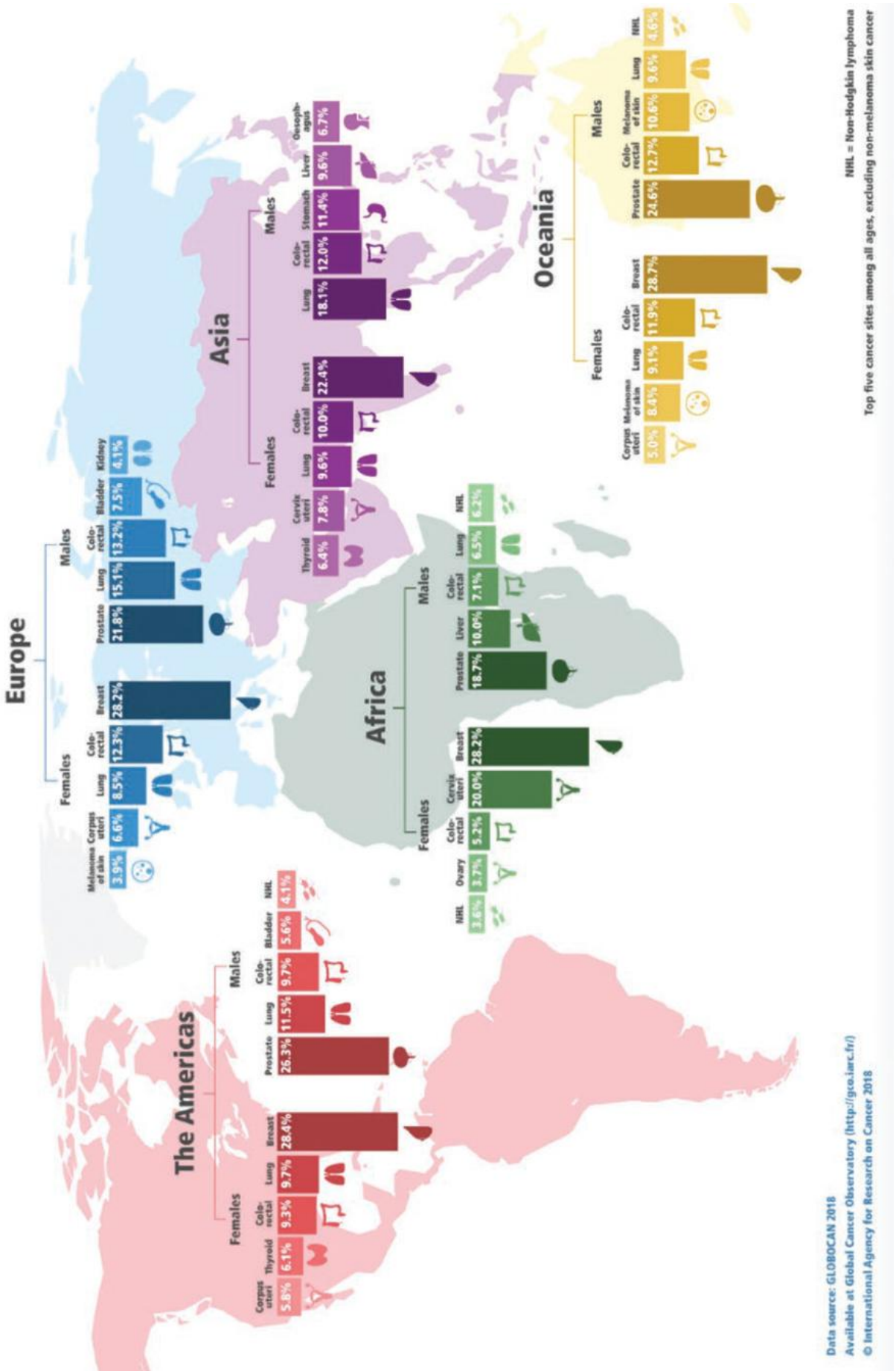


FIGURE 10.17 Percentage of new cases of cancer by type, region and sex

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Key feature: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol

Substance abuse, and specifically harmful consumption of alcohol, is a significant health burden for most WHO regions. In 2016, worldwide alcohol consumption was projected to be 6.4 litres of pure alcohol per person 15 years or older. The most recent data suggest that 3.3 million deaths, or 5.9 per cent of global deaths as well as 132.6 million DALYs were attributable to alcohol consumption.

According to the *United Nations World Drug Report*, it is estimated that in 2015, 29.5 million people in the world suffered from drug use disorders. Half of these people injected drugs, with an estimated 1.65 million of them being HIV positive. This then creates issues around the transmission of HIV and ensuring safe needle practices.

A focus on prevention through strengthening health systems, policies and education is important in order to respond to these global statistics. Care and treatment for people with drug and alcohol disorders, supported by effective and monitored drug treatment, needs to be universally available to all, irrespective of SES. Such programs also need to include socialisation strategies and rehabilitation provision.

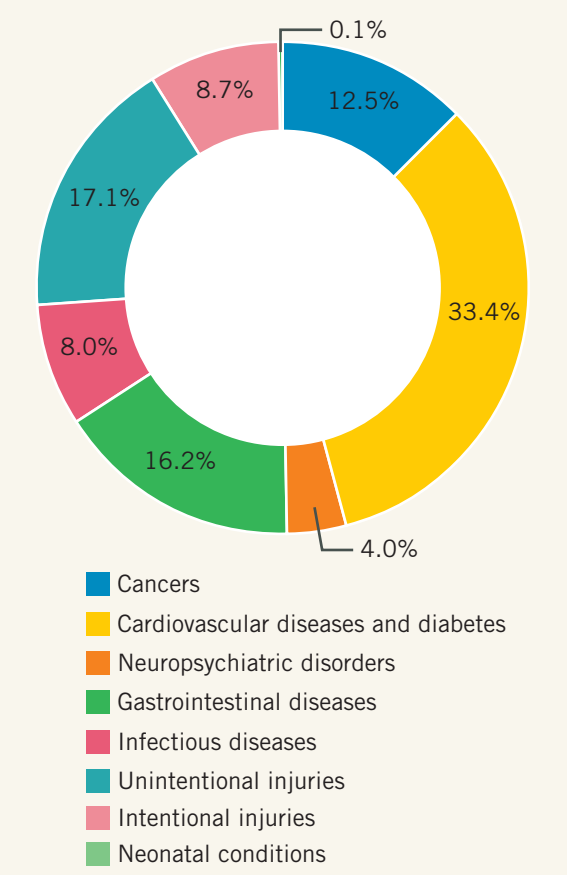


FIGURE 10.18 Distribution of alcohol-attributable deaths, by disease or injury cause, 2012

Key feature: Reduce the number of global deaths and injuries from road traffic incidents

Road traffic crashes, injuries and deaths are mostly occurring in poorer countries, with vulnerable users such as pedestrians, cyclists and motorbikes, as well as children, the elderly and disabled, being the most at risk. The most recent estimates suggest that 1.35 million people were killed in road traffic accidents in 2016, with another 20–50 million people sustaining non-fatal injuries as a result of road crashes or collisions. Road safety interventions are believed to be improving global road safety, but evidence shows that more improvements are possible, potentially resulting in many more lives being saved with further action.

Halving the number of global road traffic deaths is an aspiration target, particularly with increasing vehicle numbers and usage, and a higher proportion of vulnerable road users. However, if current trends continue with a projected 47 per cent increase in road vehicles globally, road traffic deaths are expected to increase. Work in this area will rely on targeted efforts by government, including and enforcing legislation, improving vehicle standards, improving road infrastructure and improving post-crash healthcare.

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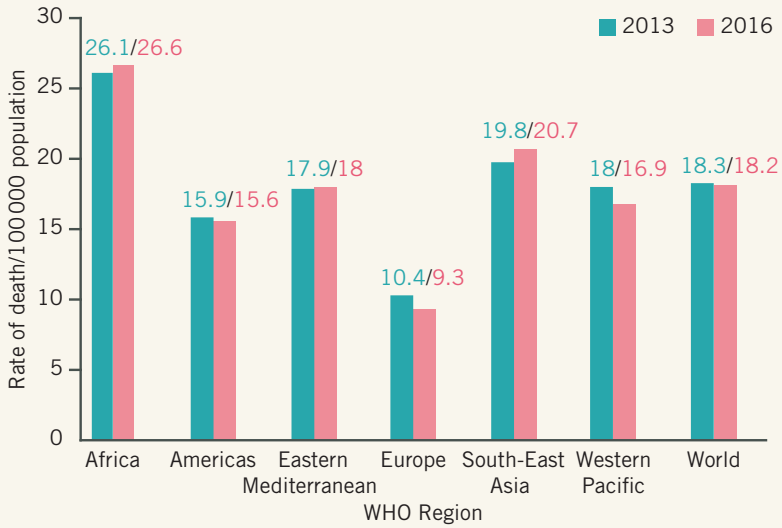


FIGURE 10.19 Trends in road traffic deaths by WHO region

Key feature: Ensure universal access to sexual and reproductive healthcare services (including for family planning, information and education)

Ensuring access to sexual and reproductive health information and services, including family planning, information and education, and the integration of reproductive health into national strategies and programs, is significant for the health of women and girls. Globally in 2018, one fifth (22 per cent) of women of reproductive age who were married or in-union lacked access to modern contraception.

A critical consideration, and an important area to be addressed for this target area, is the tradition of child marriage. According to global UNICEF data released in 2018, 5 per cent of girls were married before they turned 15 years old and 21 per cent married before they turned 18 years old. Early childbearing increases health risks, with maternal causes a leading cause of death among girls aged 15–19 years globally.

Ensuring universal access to family planning methods is vital for the empowerment of women and girls, and in addressing maternal mortality rates. It is expected that achievements in this area will reduce maternal mortality, and also improve the health of adolescent girls.

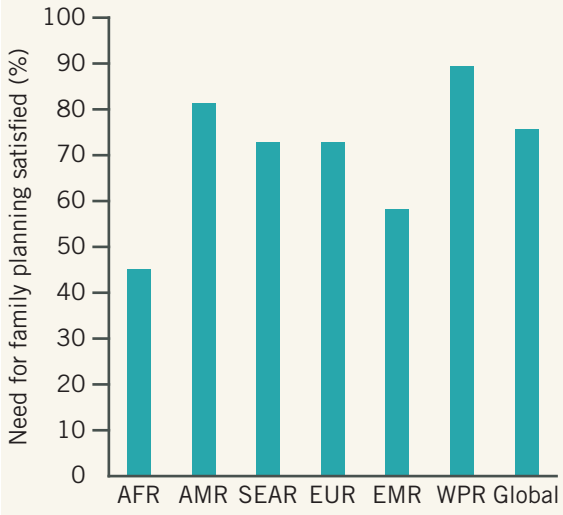


FIGURE 10.20 Family planning needs satisfied with modern methods among married or in-union women of reproductive age, by WHO region and globally, 2015

EXTENSION QUESTION 10.6

While nine out of 10 women in the Western Pacific Region had their family planning needs satisfied, less than half of the women in the WHO African Region did.

Explain the impact this would have on the health and wellbeing, and human development, of these women living in the African Region compared to women in the Western Pacific Region.

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Girls who become mothers have a higher risk of morbidity and mortality, frequently miss out on education and socioeconomic opportunities, and are more likely to have large families. This makes it difficult for women and their families to break free from the poverty cycle.

Key feature: Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services, affordable medicines and vaccines

The goal of **universal health coverage** is to ensure that all people obtain the health services they need without suffering financial hardship when paying for them. This includes financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

For a community or country to achieve universal health coverage, several factors must be in place, including:

- a strong, efficient, well-run health system that meets priority health needs through people-centred integrated care (including services for HIV, TB, malaria, non-communicable diseases, maternal and child health) by:
  - › informing and encouraging people to stay healthy and prevent illness
  - › detecting health conditions early
  - › having the capacity to treat disease
  - › helping patients with rehabilitation
- affordability – a system for financing health services so people do not suffer financial hardship when using them
- access to essential medicines and technologies to diagnose and treat medical problems
- a sufficient capacity of well-trained, motivated health workers to provide the services to meet patients' needs based on the best available evidence.

It also requires recognition of the critical role played by all sectors in assuring human health, including transport, education and urban planning.

Universal health coverage has a direct impact on a population's health. Access to health services enables people to be more productive and active contributors to their families and communities.

universal health coverage: 'The goal of universal health coverage is to ensure that all people obtain the health services they need without suffering financial hardship when paying for them' (WHO, 2014).

Universal health coverage is a critical component of sustainable development and poverty reduction, and a key element of any effort to reduce social inequities. Universal coverage is the hallmark of a government's commitment to improve the wellbeing of all of its citizens.

Key feature: Substantially reduce the number of deaths and illnesses from hazardous chemicals, and air, water and soil pollution and contamination

Globally, a significant number of deaths have been caused by pollution and contamination. Air pollution created by such things as cooking fuels, traffic, and industrial and waste sources, caused an estimated 4.2 million deaths in 2016, making it the largest single environmental health risk. While mortality rates vary, air pollution is a major risk factor for NCDs in adults, and a large number of deaths can be attributed to pollution.

In 2016, 829 000 deaths were caused by unsafe water, sanitation and hygiene services around the world. These deaths are not only from diarrhoeal

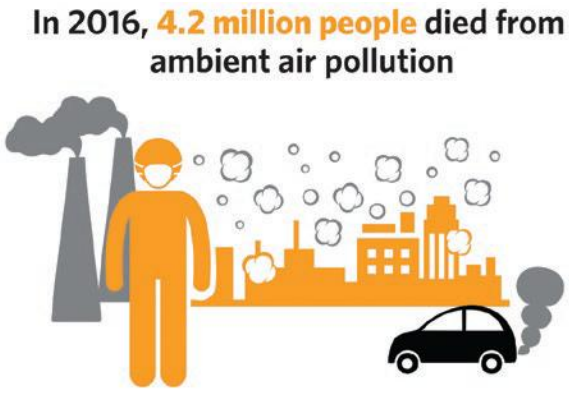


FIGURE 10.21 Air pollution is a major threat to achieving good health and wellbeing.

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ACTIVITY 10.4: UNDERSTANDING UNIVERSAL HEALTH COVERAGE

Watch the WHO videos *Universal Health Coverage – What Does It Mean?* and *WHO: Universal Health Coverage – The best investment for a safer, fairer and healthier world*.

1 What does good health need?
2 Explain the importance of all of these needs working together, even in times of emergency.
3 Discuss what good health systems do.
4 Explain why this is important for good health and wellbeing.
5 Describe the focus of the WHO in relation to universal health coverage.
6 Justify the importance of a collaborative approach to achieve the SDGs.

diseases, but also include intestinal infections and malnutrition. Almost half of these deaths occurred in the WHO African Region. Inequalities in safe water and sanitation exist within countries, in rural and urban populations, in formal settlements and slums, and in low-SES and high-SES populations. Reducing the burden of inadequate water and sanitation includes improving water infrastructure, adequate sanitation facilities in households and schools, sewerage and safe waste-management systems, proper handwashing and hygiene practices, and improved healthcare responding to related diseases.

Unintentional poisonings accounted for 106 000 deaths in 2016, with the highest mortality rates occurring in children under 5 years and adults over 55 years. The mortality rate is higher in men than women, due to exposure in occupational settings. A major barrier to reducing mortality rates is the number of chemicals available on the market. Poisoning can occur from environmental contamination, industrial emissions or occupational exposures, including pesticides, paints, solvents and cleaning substances.



FIGURE 10.22 Older adults are at greatest risk from air pollution, followed by children under the age of 5. Women and children are at a particularly high risk caused by exposure to household pollution, accounting for 60 per cent of all premature deaths attributed to air pollution.

Key feature: Strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries, as appropriate

Over 1.1 billion people smoked tobacco in 2018 with approximately 80 per cent of them living in low- and middle-income countries. In some countries children are required to work on tobacco farms to help provide income for their family. These children are especially vulnerable to 'green tobacco sickness' which occurs when nicotine is absorbed through the skin from handling wet tobacco leaves. Worldwide there is an estimated 33 million tobacco farmers with the majority of these in low- and middle-income countries.

While the prevalence of tobacco smoking is declining in many countries, it is increasing in the WHO Eastern Mediterranean and African Regions. Surveys have found that current smoking is more prevalent in lower SES population groups, regardless of the country's income level, gender or age group. Efforts in all countries need to be intensified to reduce smoking.

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DISCUSS

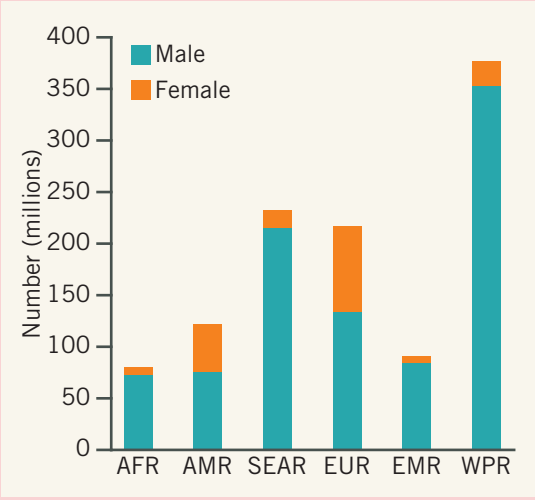


FIGURE 10.23 Number of tobacco smokers, by sex and WHO region, 2015

Looking at the data in Figure 10.23, describe two trends. Discuss possible reasons for the trends.

The WHO Framework Convention on Tobacco Control is designed to counter the tobacco epidemic. Implementation efforts for all countries include raising taxes on smoking, banning smoking in public places, the use of pictorial warnings, bans on tobacco advertising and preventing sales to and by minors. While implementation has been uneven across countries, progress continues to be made.

Key feature: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect low- and middle-income countries and provide access to affordable essential medicines and vaccines

Despite technological developments and improvements, the availability of essential medicines at public health facilities is often poor particularly for low- and middle-income countries. There is also a gap in research and development with regard to new drugs and medical technologies that mainly impact low- and middle-income countries. New medicines, such as new vaccines and anti-cancer medications, are becoming increasingly expensive. This target aims to support vulnerable countries to get access to essentials medications at affordable prices, along with supporting research into new treatments and medication. It works alongside the target of achieving universal health coverage.

Key feature: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in low- and middle-income countries

According to 2013 data, there is a shortage of approximately 17.4 million health workers to meet the vision of the Global Strategy on Human Resources for Health–specifically, almost 2.6 million physicians, over nine million nurses and midwives, and around 5.8 million other healthcare personnel.



FIGURE 10.24 It is vital that trained health workers are located in places that are accessible.

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This goal aims to increase the finance and workforce in healthcare, which includes recruitment development, training and retention of the health workforce in low- and middle-income countries, especially in least high-income countries and small island developing states. The availability of health workers is not sufficient; it is vital that health workers are equitably distributed and accessible by the population. Countries emerging from conflict, natural disasters, and climate change present a greater need for a larger and more accessible health workforce.

Key feature: Strengthen the capacity of all countries, in particular low- and middle-income countries, for early warning, risk-reduction and management of national and global health risks

All countries, high-income to low-income, face the risk of emergencies. The most common of these are caused by disease epidemics, floods, transport accidents, storms and industrial accidents. These account for a large number of deaths, injuries, illnesses and disabilities. Not only do they negatively and directly impact health status, such events also disrupt the availability and accessibility of healthcare, food and water supply, and can heavily impact both the economy and environment.

Emergencies disproportionately affect vulnerable populations, including the poor, children, women, the elderly, the disabled and displaced persons. During emergencies, inequalities are often poorly addressed or not addressed, and response is often solely focused on survival, leaving fragmented health infrastructures and services.

Public health risks due to infectious disease outbreaks such as Ebola, Zika and COVID-19 (Coronavirus) are a continued and increasing global health concern. These recent outbreaks have demonstrated that the world remains unprepared to respond rapidly and effectively to serious public events.

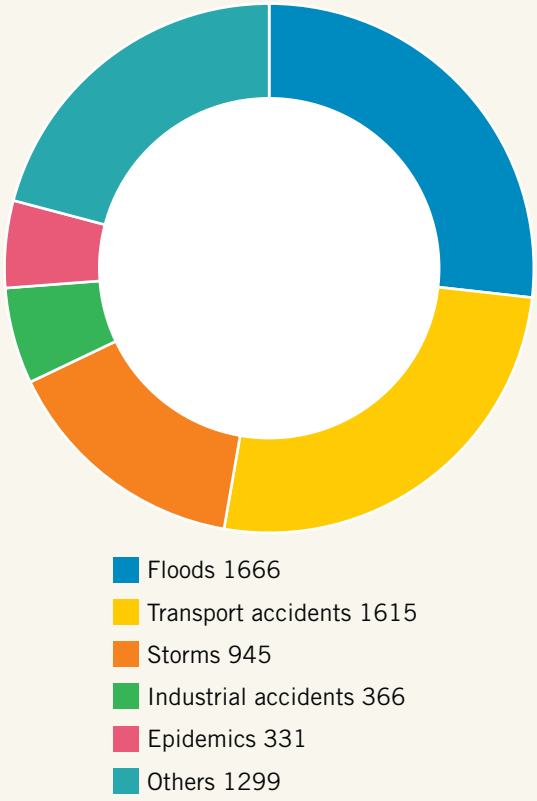


FIGURE 10.25 Cumulative number of reported disasters, by type, 2006–15

EXTENSION QUESTION 10.7

Consider two of the disasters listed in Figure 10.25 and explain the impact they may have on good health and wellbeing, and justify why this is a key feature of SDG 3.

All countries must strengthen their level of preparedness and enhance their capacity to respond to hazards in order to reduce and respond to global threats to health.

Importance of SDG 3 (Good health and wellbeing) in promoting health and wellbeing

A child who loses their mother during birth (SDG 3 – maternal mortality) is 10 times more

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likely to suffer from communicable diseases and die before their second birthday, which is an example of poor physical health and wellbeing. One of the features of SDG 3 is to address the prevalence of communicable diseases such as malaria and tuberculosis. If these conditions can be reduced, individuals may be well enough to go to work and earn an income. When earning an income and not living in poverty, people are able to purchase healthier, nutrient-rich foods to feed their family, providing them with the energy needed to perform daily tasks (physical health and wellbeing). This helps people achieve more and leads to an increase in self-belief and good feelings about themselves for being able to provide for their family (mental health and wellbeing). Being able to work also provides people with a sense of security along with feelings of accomplishment because they are able to provide a better life for their children (emotional health and wellbeing). When children are healthy and not suffering from communicable diseases they are able to attend school, which provides them with opportunities for interactions with people outside the family home, developing relationships with children their own age (social health and wellbeing).

Importance of SDG 3 (Good health and wellbeing) in promoting human development

By reducing child mortality and improving the health and wellbeing of children, life expectancy will increase. When children are able to attend school and take part in activities that assist in increasing their knowledge and meeting their full potential, the result is improved human development. When people are healthy they are better able to finish their education and find decent employment, which gives them more choices in life. It also assists them in leading healthy and productive lives and achieving a decent living standard; therefore improving levels of human development.

Collaborative approaches to achieving SDG 3: Good health and wellbeing

Achieving the SDGs requires **collaboration** between countries (low-, middle- and high-income), between groups within communities, between the health sector and other sectors and between each of the SDGs – working together with two or more parties towards achieving the same goals. The benefits of collaboration are extensive. When countries, organisations and communities work together, success and productivity are key outcomes. Collaboration sees resources, knowledge and skills being combined to ensure efficient and timely project achievement. An example is the Australian Government's Department of Foreign Affairs and Trade working extensively with private sector organisations in their global aid programs and initiatives. This collaboration sees the Australian Government being able to offer funding, support in creating attractive business operations, and a deep knowledge of the political and regulatory environment in low-income countries. In turn, the private organisations can provide knowledge, ideas, capabilities and resources. In other collaborative approaches, one organisation may

collaboration: The action of working with someone to produce something.

FIGURE 10.26 Aspects of collaboration



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be responsible for raising funds or providing vital equipment while the other organisation works on the ground implementing the program with the required skills and knowledge.

Save the Children

Save the Children is working in a collaborative way to address the health of children in Laos. It is working with local authorities to strengthen their health systems and capacity of staff so that more children and mothers can access life-saving care. Thanks to its partnership with local, district and provincial health departments, these provinces have the lowest infant, child and maternal mortality rates in the country. This collaborative approach to improving health and wellbeing is also addressing SDG 4 because children who are experiencing good health are able and more likely to attend school. Focusing on the health and wellbeing of women will also help to achieve SDG 5 – gender equality. Women whose children are healthy and who are themselves experiencing good health have a greater opportunity to work or grow vegetables for their family. This then creates opportunity for the achievement of SDGs 1 and 2, helping to lift people out of poverty and eliminate hunger. With the focus of improved health systems within local communities, local people are able to gain stable employment, addressing SDG 1. So, while this program is focused on the health sector and working towards achieving SDG 3 – improving good health and wellbeing for the children of Laos, it is also working within the relationships of the SDGs to achieve these as well.

Working for Health partnership

Working for Health is a partnership between the International Labour Organization, the WHO and the Organisation for Economic Co-operation and Development (OECD). The aim of the partnership is to expand the global health and social service workforce to advance progress towards Universal Health Coverage. This targets two key features of SDG 3 – achieve universal health coverage and the recruitment, training and retention of the health workforce. Without health workers there can be no distribution of vaccines along with TB and HIV testing and treatment. This partnership will expand the health workforce in areas of need and ensure access to primary healthcare for all. When people are vaccinated and free from illness they are able to work and earn an income, which will help to alleviate poverty and hunger (SDG 1 and 2). Children who are well are able to attend school to gain knowledge and skills (SDG 4).

Pro-WATER program – promoting water and sanitation access, integrity, empowerment, rights and resiliency

The Pro-WATER program runs in the Phillipines and aims to reduce the incidence of waterborne diseases and open defecation by increasing the participation of women and girls in the planning and implementation of safe water and sanitation projects. The program's partners are UNDP (United Nations Development Programme), UNICEF (United Nations Children's Fund), WHO, National Water Resource Board, government departments and private sector organisations. The program works towards achievements in relation to SDG 6 and SDG 13. When communities have access to clean water and sanitation systems along with conditions that do not favour rapid mosquito reproduction, we will see improvements to health and wellbeing in respect to reduced rates of communicable diseases.

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ACTIVITY 10.5: UNDERSTANDING SDG 3

View the UN video explaining Sustainable Development Goal 3: *Sustainable Development Goals Explained: Good Health and Wellbeing.*

1 Explain how governments can reach the goal of good health and wellbeing.

2 Outline the importance of education for achieving this goal.

3 Describe what we need to help us achieve this goal.

SUMMARY OF SDG 3 (GOOD HEALTH AND WELLBEING) KEY FEATURES



- Reduce maternal mortality
- Prevent infant and child mortality
- End epidemics of major communicable diseases
- Reduce non-communicable disease
- Reduce deaths and injuries from road traffic incidents
- Achieve universal health coverage
- Strengthen the health workforce
- Improve access to vaccines and medicines
- Improve tobacco control
- Reduce deaths from pollution
- Prevent substance abuse
- Ensure universal access to sexual and reproductive health services.



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10.3 RELATIONSHIPS BETWEEN SDG 3 AND OTHER SDGS

While the focus of Goal 3 is on health, there is clearly a relationship between most of the SDGs and health. Without good health and wellbeing many of the other SDGs cannot be achieved. SDG 3 also benefits from the progress and achievement of the other SDGs. The following sections examine these relationships and interdependencies.

10.4 SDG 1: NO POVERTY



The first goal aims to end poverty in all its forms, including **extreme poverty**, over the next 15 years. All people, everywhere, should enjoy a basic standard of living. It also aims to ensure social protection for the poor and vulnerable, increase access to basic services and support those impacted by disasters, both natural and human-made. Poverty in communities can prevent individuals and families from accessing food, clean water, clothing, shelter and healthcare. With little money, families cannot afford to send their children to school, which reduces their chances of gaining employment, therefore making it harder for them to escape the cycle of poverty. Poverty can lead to social discrimination and results in an inability to be involved in decision making at a community and country level.

extreme poverty: Currently measured as someone living on less than US$1.90 per day.

microfinance: Small, low-cost loans and financial services provided to individuals who lack the resources to secure traditional credit.

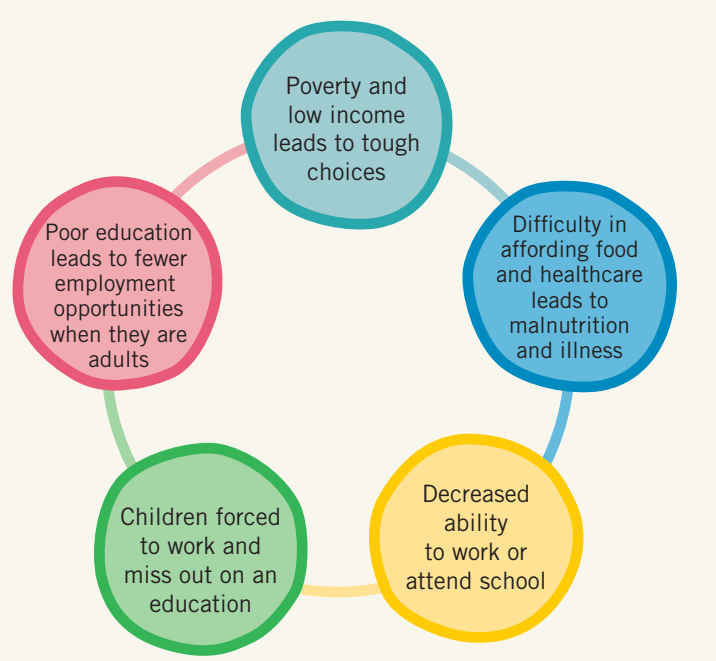


FIGURE 10.27 The poverty cycle is difficult to break.

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GOAL 1 AIMS TO:

- Eradicate extreme poverty; currently measured as people living on less than US$1.90 a day.
- Reduce by half the proportion of men, women and children living in poverty.
- Implement social protection systems for all by 2030.
- Ensure 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.
- Build the resilience of those in vulnerable situations and reduce exposure to environmental disasters that result in poverty.

SOURCE: UNOPS (2018)

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DISCUSS

Imagine having to live on less than US$1.90 a day. Discuss what your priorities would be.

Importance of achieving SDG 1 (No poverty) in promoting health and wellbeing

Living in poverty can decrease access to a healthy food supply, which can impact negatively on a person's physical health and wellbeing by increasing the risk of malnutrition. When there is little money, children have less access to education and some young children may be forced into work, which can lead to poor social health and wellbeing by reducing opportunities for children to socialise and develop healthy relationships. Young children who are forced into intensive labour and dangerous work can experience a negative impact on their physical health and wellbeing through injuries.

Individuals experiencing poverty may feel trapped without hope for the future; this can rob them of an education and impact negatively on their mental health and wellbeing due to a lack of self-belief and confidence. Poverty can lead to a lack of security, making it difficult for parents to provide for their families and resulting in feelings of sadness. This is an example of poor emotional health and wellbeing. Lack of money hinders one's ability to afford food, shelter, healthcare and education, which can reduce the opportunity for individuals to feel a sense of fulfilment and cause them to lack purpose in life, therefore contributing to poor spiritual health and wellbeing.

By eradicating extreme poverty (SDG 1) more parents will be able to afford to send their children to school to gain an education. If they are able to provide for their family and send their children to school, they can be less stressed and anxious about their children's future (promoting mental health and wellbeing).

Importance of achieving SDG 1 (No poverty) in promoting human development

Poverty has an impact on all aspects of human development. Poverty often results in lower levels of education if children are required to work to financially contribute to their family's income, rather than attending school. This not only reduces the opportunities for children to increase their knowledge, but it also limits their choices about a career or when to start a family as they move into adulthood. Depriving a child of an education can also negatively impact on human development because it is a barrier to children reaching their full potential and living a productive life.

Poverty may also reduce access to basic resources for life such as shelter, food and access to healthcare. Not having adequate shelter means that families may also lack access to water, toilet facilities and electricity. This can negatively impact human development by preventing people from accessing a decent standard of living. Not having access to adequate food (as well as a lack of healthcare) can lead to malnourishment, and families that rely on a limited supply of staples (such as maize) are at higher risk of spending more time in ill health. All of these consequences of poverty can have a direct impact on human development by reducing opportunities to meet basic needs.

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Relationship between SDG 1 (No poverty) and SDG 3 (Good health and wellbeing)

Achieving SDG 1 is important for achieving SDG 3 because people living in poverty suffer from hunger and malnutrition. They are unable to afford medicines, lack access to clean water and sanitation, live in homes that are unsafe, are not able to afford an education, and are often socially and politically isolated. Almost 80 per cent of the world's extreme poor live in rural areas where most people are dependent on agriculture. Poverty significantly impacts rates of morbidity and mortality from a range of diseases. However, with increased incomes, people are able to afford nutritious foods, access education and medicine and a decent standard of living. This increases life expectancy and reduces mortality rates due to communicable diseases such as cholera and malaria, thus improving health and wellbeing. People who have been educated have a better understanding of their rights and responsibilities, and have increased access to services such as sexual and reproductive health clinics, which leads to a reduced number of babies for women. Smaller families and access to healthcare positively impact maternal mortality, which directly increases the chance of a child living through their early childhood into adulthood, improving good health and wellbeing.

All sectors are working together to ensure social protection programs (such as healthcare, targeted food assistance, school feeding, savings programs and skills and training subsidies) will provide all people with direct access to essential healthcare. This will result in generated income that can be spent on other needs. These systems support basic health needs, including access to essential healthcare. Social protection is particularly intended to protect and support the poorest and most vulnerable people.

A focus on basic services could result in resources being available for all children to receive immunisations, preventing the spread of infectious disease. The provision of essential resources will also enable the provision of essential medicines, helping to achieve the targets of this SDG.

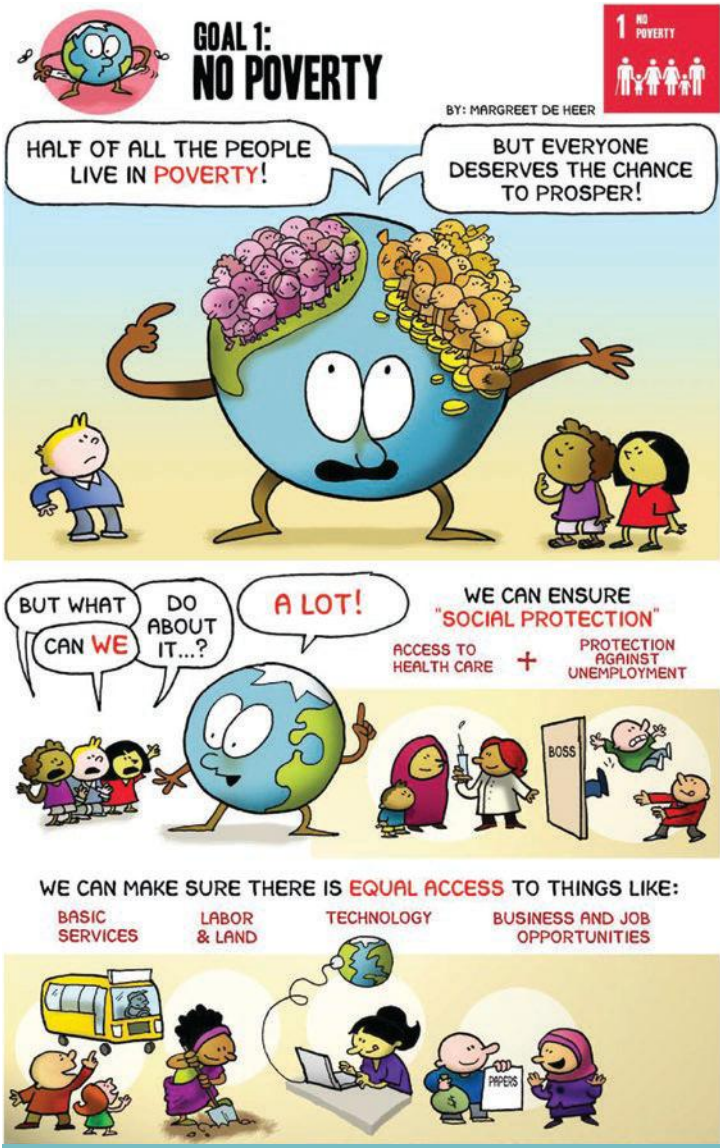


FIGURE 10.28 The need to break the poverty cycle and eradicate extreme poverty is an important and instrumental goal for improving health and sustainable human development. This remains one of the greatest challenges facing the world's citizens.

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10.5 SDG 2: ZERO HUNGER



SDG 2 'aims to end hunger and all forms of malnutrition and to achieve sustainable food production by 2030. It is premised on the idea that everyone should have access to sufficient nutritious food, which will require widespread promotion of sustainable agriculture, a doubling of agricultural productivity, increased investments and properly functioning food markets' (WHO, 2016). Climate change is currently putting greater pressure on the resources we depend on. Women and men in rural areas, who can no longer make ends meet on their land, are having to migrate to cities in search of opportunities. Building resilience against natural disasters will be an important part of achieving SDG 2 to ensure the protection of our current and future food supply.

GOAL 2 AIMS TO:

- End hunger and ensure access to all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
- End all forms of malnutrition.
- Double the agricultural productivity and incomes of small-scale food producers, in particular women, Indigenous peoples, family farmers, pastoralists and fishers.
- Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaption to climate change, extreme weather, drought, flooding and other disasters, and that improve land and soil quality.
- Maintain the genetic diversity of seeds, cultivated plants, and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks.
- Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks.
- Adopt measures to ensure proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

SOURCE: UNOPS (2018)

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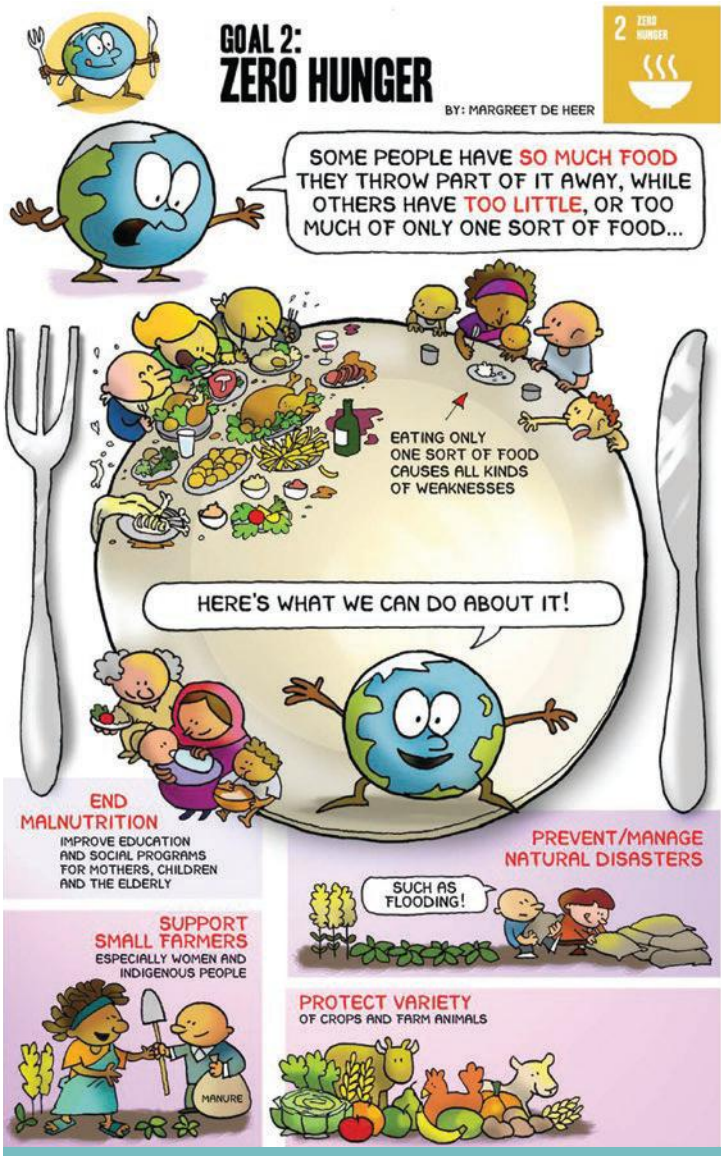


FIGURE 10.29 With nearly 800 million people suffering from hunger, achieving this goal will directly impact and improve the health status of individuals.

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Importance of achieving SDG 2 (Zero hunger) in promoting health and wellbeing

Hunger and malnutrition are leading causes of child mortality and they can lead to growth stunting, negatively impacting on physical health and wellbeing. When individuals and families lack access to a nutritious food supply they may miss out on the required nutrients that are vital for the development of a strong immune system. Children who have a weakened immune system can become too weak to fight off diseases and this increases rates of infant and child mortality. Mothers who exclusively breastfeed their babies for the first six months can greatly improve the child's nutritional levels. Specific nutrient deficiencies in pregnancy (such as iron, folate and complex carbohydrates for energy) can lead to maternal death and impair children's physical health and wellbeing. Iodine deficiency during pregnancy can result in stillbirth, spontaneous abortion, and congenital abnormalities.

Children and adults who are hungry and malnourished may have considerable lethargy. This can prevent children from attending school or playing with friends, and adults from attending work to earn an income. The resulting lack of social interaction may mean that children and adults have limited opportunities to form relationships with individuals their own age, which can lead to poor social health and wellbeing. Not knowing when or where your next meal will come from can cause stress and anxiety, impacting mental health and wellbeing.

WHAT IS MALNUTRITION?

Malnutrition refers to deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients. The term malnutrition covers two broad groups of conditions. One is 'under-nutrition' – which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals). The other is overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and cancer).

SOURCE: WHO (2016)

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Importance of achieving SDG 2 (Zero hunger) in promoting human development

Food insecurity can greatly impact levels of human development within a country or community. Hunger results in poor health and wellbeing, low levels of energy, and reductions in mental functioning, and it can reduce people's ability to work and learn. Extreme hunger and malnutrition is therefore a major barrier to human development because it can decrease the opportunity for individuals to access knowledge. However, when people have access to nutritious foods, they have more energy and a stronger immune system, resulting in less time spent in illness. This means that they are more able to actively participate in their community, work to earn a living, create a decent standard of living, increase their productivity and reach their full potential.

Relationship between SDG 2 (Zero hunger) and SDG 3 (Good health and wellbeing)

Achieving SDG 2 is important for achieving SDG 3 because good nutrition is the foundation for healthy, productive and sustainable communities. It is required for optimal growth and essential for good health. Chronic hunger leads to issues of nutrient deficiencies, undernourishment, physical and mental weakness, increased vulnerability to diseases that should be survivable, and starvation. An unhealthy child is likely to have compromised education, leading to children being unable to reach their full potential and responsibilities as productive adults. Nearly half of all deaths in children under 5 are attributable to under-nutrition. A well-nourished mother is more likely to give birth to a healthy weight baby, survive the demands of childbirth and go on to breastfeed the infant for a sustained period, therefore reducing rates of maternal mortality and under-5 mortality. Communities and populations that are well nourished may reduce demand for health services and the corresponding costs to the healthcare system; therefore allowing money to be spent on other important resources, such as education.

Children who are well fed will have the energy to attend school and concentrate on their learning. When children attend school they have greater health literacy skills and can understand the importance of many health messages, such as the spacing and timing of births, knowledge of contraception methods, harm associated with tobacco and drug use, and taking safety precautions when travelling on the roads.

This goal not only focuses on hunger and the need for all people to have access to safe and nutritious food, but also promotes sustainable agriculture alongside gender equity. It is said that if women farmers had the same access to resources as men, the number of hungry people in the world could be reduced by up to 150 million. Improving the health of women will empower them to be able to become small-scale producers, contribute to the economic development of their community and invest in their farms and agricultural practices to build sustainable food production.

It is critical that our food systems are environmentally and economically sustainable to ensure future food production is not threatened. A focus on food – how it is grown, produced, consumed, transported, stored, marketed and traded – must be considered for sustainable environmental, economic and social growth and the achievement of this goal.

DISCUSS



Exclusive breastfeeding can help reduce rates of malnutrition.

Discuss the benefits of breastfeeding to the mother and baby.

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ACTIVITY 10.6: THE FACES OF MALNUTRITION

A number of simple, cost-effective strategies can reduce under-nutrition during the critical period of birth to two years. These include improved maternal nutrition and care, breastfeeding within the first hour of birth and exclusively breastfeeding for the first six months, followed by adequate, safe and appropriate complementary feeding and micronutrient intake for the next 18 months.

Browse the UNICEF website and search for 'The faces of malnutrition' and then complete the following activities:

1 State the name of SDG 2.

2 Explain what this goal aims to achieve.

3 Identify how many deaths in children aged under 5 are attributable to under-nutrition.

4 Outline what malnutrition is.

5 Describe the impact of malnutrition on health and wellbeing, and on human development.

6 'Chronic malnutrition in early life leads to stunting.' Discuss the impact this has on a person's future potential.

7 Identify the alternative condition that is also on the rise around the world.

8 Explain what the 'triple burden' of malnutrition is.

9 Outline the causes of under-nutrition.

10 Outline the causes of overweight and obesity.

11 Describe an approach to preventing malnutrition.

12 Breastfeeding is considered an excellent foundation for good nutrition. Discuss how breastfeeding contributes to improved health and wellbeing, and human development.

13 Explain how good nutrition impacts good health and wellbeing, and human development.

14 Outline the role of UNICEF's collaborative approach to improving health and wellbeing and human development.

AOS 2

10.6 SDG 4: QUALITY EDUCATION



SDG 4 'focuses on the acquisition of foundational and higher-order skills; greater and more equitable access to technical and vocational education and training and higher education; training throughout life; and the knowledge, skills and values needed to function well and contribute to society' (WHO, 2016). It also addresses the importance of girls and boys having equal access to high quality education at all levels (pre-primary through to tertiary). Parents who are well educated are more likely to ensure that their children attend school and knowledge is also passed down from one generation to the next. A population with high levels of education has the skills base to ensure that their country continues to grow economically. With greater economic stability and funds, governments have the capacity to invest in further education, healthcare, social protection and important infrastructure projects, such as the provision of safe water and sanitation. The provision of education also ensures good levels of health literacy whereby individuals understand how to care for themselves and family members; it also allows for informed decision making and the ability to act on current and potential threats to health, such as climate change.

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GOAL 4 AIMS TO:

- Ensure that all girls and boys complete free, equitable and quality primary and secondary education.
- Ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.
- Ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.
- Substantially increase the number of youths and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
- Eliminate gender disparities in education.
- Ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.
- Ensure that all learners acquire the knowledge and skills needed to promote sustainable development.
- Build and upgrade education facilities that are child, disability and gender sensitive.
- Expand globally the number of scholarships available to low- and middle-income countries, in particular low-income countries, small island developing states and African countries, for enrolment in higher education.
- Substantially increase the supply of qualified teachers.

SOURCE: UNOPS (2018)

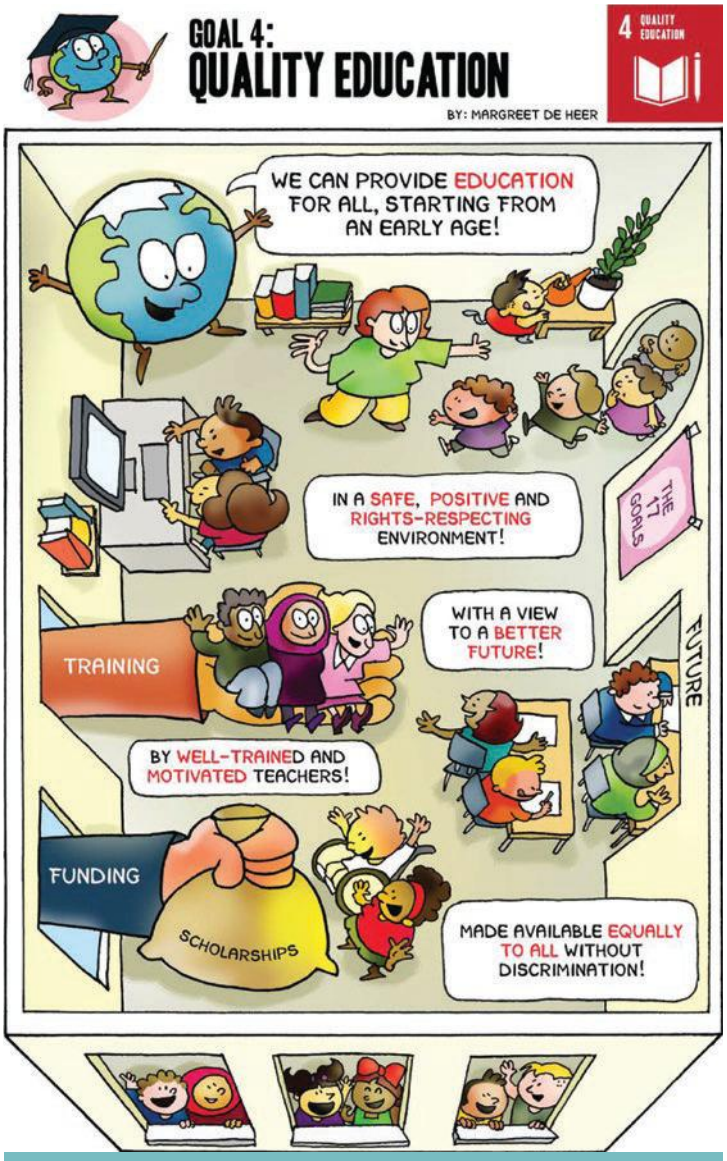


FIGURE 10.30 Quality education is a basic human right for all.

Importance of achieving SDG 4 (Quality education) in promoting health and wellbeing

Quality education is a pivotal factor in ensuring that people achieve good health and wellbeing. However, without good health and wellbeing, high levels of education are hard to attain, impacting on employment opportunities and income. When people are educated they are more likely to invest in their own children's education. This helps to promote social health and wellbeing because children have the opportunity to interact with children their own age and form positive relationships with

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them. Education empowers people by providing feelings of accomplishment and security about the future (emotional health and wellbeing). It also enables children to experience a range of successes and failures in a safe environment. This enables them to better cope with stress and become more accepting of themselves, which promotes their mental health and wellbeing. Education often leads to better employment outcomes in the future. Better jobs can increase the money available for families to purchase food and shelter, which can reduce the risk of malnutrition and communicable diseases (physical health and wellbeing). School often provides a safe space and can provide a sense of belonging for a child (spiritual health and wellbeing).

Importance of achieving SDG 4 (Quality education) in promoting human development

Access to quality education is a major contributor to human development. When individuals have access to education and resources to enhance their skills, they are more likely to find employment in a higher paid job. The income generated from their employment allows the individual to have a higher standard of living. Individuals who are employed in meaningful roles experience fulfillment from their ability to contribute to the community in a productive manner. Education can lead to improvements in a country's economic stability. In a community that values education, its educated members are more likely to start their own businesses, which can lead to the employment of other community members. This results in the businesses investing back into the community with resources and further skill development, leading to improved living standards. When individuals and families have fewer economic worries they can focus on pursuing their interests and contribute to the community in a positive and productive way.

Relationship between SDG 4 (Quality education) and SDG 3 (Good health and wellbeing)

Achieving SDG 4 is important for achieving SDG 3 because there is a correlation between an increase in a country's education levels and an increase in living standards. This is only achievable if all of the world's children have access to education and the chance to learn. Children born to women who have received a secondary school level of education are twice as likely to survive compared with children of uneducated mothers. Too many children – particularly girls – are denied the basic right to education, which takes away their opportunity to make a better life for themselves. Statistics show that young people who have completed a primary school education are less than half as likely to contract HIV as those who have not received an education. At school, children can learn about the causes of ill-health and the factors that promote good health in order to prevent the onset of disease and illness. When children and adults are literate, they have a better knowledge of the causes of ill-health and ways to prevent disease.



FIGURE 10.31 Education empowers people to live healthier and more sustainable lives.

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There is a distinct link in this goal between education and health. A lack of education increases the likelihood of individuals working in vulnerable, dangerous and insecure jobs (such as labour-intensive work) as well as increasing the risk of child labour or exploitation. These types of jobs are often risky to both physical and mental health. They are also poorly paid which, in turn, makes it difficult for people to break the poverty cycle. Education is a powerful tool that supports and encourages good health and wellbeing as well as human development.

This goal also focuses on the upgrade of educational facilities to meet the needs of all people. With the most vulnerable groups having improved access to facilities that are child-friendly, disability-appropriate and gender-sensitive, and that provide safe, non-violent, inclusive and effective learning for all, more children will be able to be enrolled. Safe schools provide a place for children's wellbeing and self-esteem to thrive, encouraging students to attend school. Lessons of tolerance, understanding and acceptance all impact wellbeing and will promote positive communities.

Children who are experiencing good health have the capacity to attend school and will do so for longer, giving them opportunities for technical and vocational training. In many families, especially if the parents are ill, children – particularly girls – are required to stay home to help look after the family and collect water. Parents who are healthy will be more likely to send their children to school for longer because they do not need their help as much. Parents who are working and able to earn a stable income can pay for school costs.

Adults who are experiencing good health and wellbeing can train to become teachers. Being healthy will reduce teacher absenteeism and increase the learning potential of the children in their care. The health sector is heavily reliant on education as a critical component of improving global health and wellbeing, and human development. Many successful programs aimed at improving health focus on the provision of education and empowering women.

Students need quality teachers for quality education, ensuring 'that all learners acquire the knowledge and skills needed to promote sustainable development, including through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and nonviolence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development' (UNOPS, 2018).



FIGURE 10.32 Students need quality teachers for quality education, ensuring that all learners acquire the knowledge and skills needed to promote sustainable development.

ACTIVITY 10.7: QUALITY EDUCATION

Watch the UN video *The Sustainable Development Goals Explained: Quality Education.*

1. Discuss what still needs to improve in order to provide quality education for all.
2. Explain the impact of quality education on health and wellbeing.
3. Explain the impact of quality education on human development.
4. Describe the impact of good health and wellbeing on quality education.

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10.7 SDG 5: GENDER EQUALITY



The aim of SDG 5 is to 'empower women and girls to reach their full potential. This requires that they have equal opportunities to those given to men and boys. This means eliminating all forms of discrimination and violence against women and girls, including violence by intimate partners, sexual violence and harmful practices such as child marriage and female genital mutilation. Ensuring that women have better access to paid employment, sexual and reproductive health and reproductive rights, and real decision-making power in public and private spheres will further ensure that development is equitable and sustainable' (UNOPS, 2018).

Gender equality is not only a fundamental human right, but is vital for a peaceful and sustainable world. Achieving gender equality has been shown to stimulate economic growth, which is important for all countries. The World Bank reported that as many as 2.7 billion women are prevented by law from working in certain jobs. In some countries men can legally forbid their wives from working. Women are at greater risk of sexual harassment in the workplace and community and commonly carry out the majority of chores around the home, such as collecting water, cooking and cleaning, which leaves them little time to engage in pleasurable pastimes. Women are considerably under-represented in parliament and have fewer rights in regards to owning land and voting. When women are employed they will invest much of their earnings back into their families; for example, paying for children to attend school.

GOAL 5 AIMS TO:

- End all forms of discrimination against women and girls everywhere.
- Eliminate all forms of violence against women and girls.
- Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.
- Recognise and value unpaid care and 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.
- Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.
- Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.
- Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

SOURCE: UNOPS (2018)

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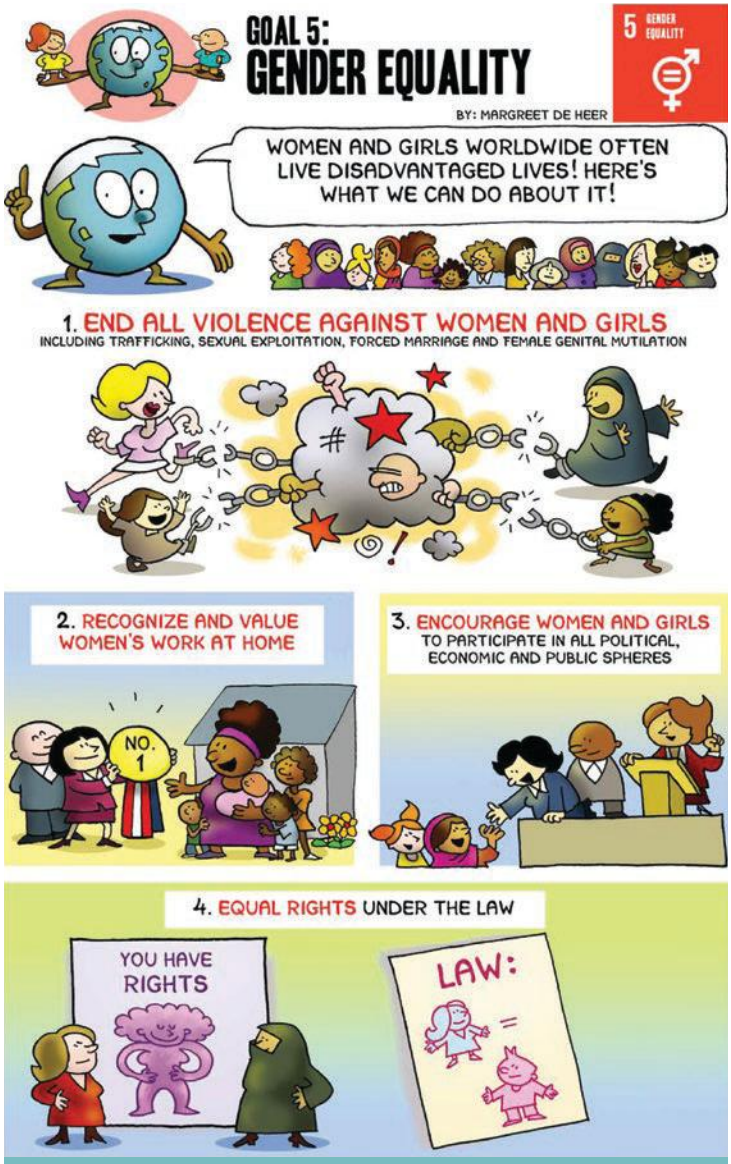


FIGURE 10.33 Ensuring women's rights and a focus on gender equality are the first steps towards addressing discrimination and empowering women and girls. This is vital to ensure no one is left behind because women and children are among the most vulnerable population groups.

Importance of achieving SDG 5 (Gender equality) in promoting health and wellbeing

Action taken to end violence against females reduces injuries (physical health and wellbeing). When women and girls are treated equally and have equal access to food and healthcare, it reduces rates of malnutrition and deaths from communicable diseases. If women's rights are enhanced and they have opportunities to be educated, this reduces the number of adolescent girls having babies. The result is a reduction in maternal and infant mortality rates, complications with pregnancy and labour and, therefore, overall promotion of physical health and wellbeing.

Women who feel valued find their place in the world, and this provides them with a sense of purpose (spiritual health and wellbeing). Reduced discrimination and violence against women can help them feel less afraid and anxious, which has a positive impact on their emotional health and wellbeing. When women are treated well they are able to achieve success in life and this can provide them with a sense of confidence and self-belief (mental health and wellbeing). Equal rights for women allow them to participate in their community and take on a range of roles in society. This exposes them to new people and situations, helping them learn to effectively communicate with others and work as part of a team (social health and wellbeing).

Importance of achieving SDG 5 (Gender equality) in promoting human development

When women are free from violence and discrimination and have access to an education, they experience improvements in human development because they are better able to meet their potential and lead full and productive lives. If women are able to actively participate in their community, the whole community experiences improvements in human development. Women who work ensure the needs (water, shelter, food) of the community are met, which assists in improving living standards. When women are employed in meaningful jobs, not only does the income allow them to improve their standard of living, it gives them meaning and a sense of purpose, which ensures they can live a productive life and participate in the social and political aspects of everyday life.

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Relationship between SDG 5 (Gender equality) and SDG 3 (Good health and wellbeing)

Achieving SDG 5 is important for achieving SDG 3 because many women in low- and middle-income countries lack equality. Seventy per cent of those living in poverty are women. They do not have equal access to land; they struggle with social and family-centred discrimination; and they experience financial insecurity and dependence. In some countries, girls and women are deprived of access to healthcare or proper nutrition, often being fed last because of their gender, leading to higher mortality rates. Women who have access to healthcare and are experiencing good health and wellbeing are better able to enhance the health and wellbeing of their family members.

It is estimated that 133 million girls have experienced some form of female genital mutilation or cutting. This harmful practice is common, with a high risk of infection, including HIV, prolonged bleeding, childbirth complications, infertility and death. These traditions impact the physical, mental and sexual health of women and girls. Through eliminating this practice, girls will no longer experience these health-related issues, not only improving their health, but significantly enhancing their wellbeing.

Seventy-five per cent of children who are not in school are girls, and this is a significant concern, especially because educated women are more likely to have increased farm productivity; know how to prevent illness and disease such as HIV and malaria; work in formal, legal employment and delay marriage. Girls who delay marriage and childbirth decrease their risks of maternal mortality. Evidence shows that when women are empowered, their health outcomes improve, and when their health improves, so does that of their family and their local community.



FIGURE 10.34 Despite global advancements in gender equality and women's empowerment, gender equality remains a persistent challenge and a major obstacle for human development, and for the health and wellbeing of women and girls.

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ACTIVITY 10.8: THE GIRL EFFECT

Understanding the inequalities of being female have caused many people in low- and middle-income countries to speak out for those whose voices cannot be heard. Visit the 'Girl Effect' website and find the *TEGA Understanding girls' lives in Bangladesh with DFAT* video. Investigate this topic and respond to the following:

1. Explain how the Girl Effect – TEGA program is using technology to raise awareness of the inequalities experienced by females in low- and middle-income countries.
2. Identify the inequalities being experienced by girls as highlighted in the TEGA program and 'Girl Effect' website.
3. Explain how the TEGA campaign is helping to achieve SDG 3 – Ensure healthy lives and promote wellbeing for all at all ages.
4. Describe how the TEGA program could promote the health and wellbeing of the girls in Bangladesh.
5. Identify some of the partnership organisations working in collaboration with the Girl Effect – TEGA program. Discuss how these collaborative approaches will impact improvements in achieving SDG 5.

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10.8 SDG 6: CLEAN WATER AND SANITATION



The aim of this goal goes beyond drinking water, sanitation and hygiene to also address the quality and sustainability of water resources, critical to the survival of people and the planet. Clean water is vital for survival and its absence can have profound effects on our health, levels of food security and the livelihoods of families globally. Contaminated water can lead to many types of diarrhoeal diseases including cholera, typhoid, dysentery and hepatitis. The WHO estimates that that some 829 000 people die each year from diarrhoea associated with unsafe drinking water, sanitation and hand hygiene. Globally 1.1 billion people are without access to a clean and adequate water supply. It is also reported by the WHO that 2 billion people still do not have basic sanitation facilities such as toilets or latrines, and 675 million still defecate in the open. A lack of sanitation not only leads to disease such as hepatitis, cholera, diarrhoea and typhoid, it also contributes to increases in vector-borne diseases that are transmitted by mosquitoes, such as malaria. This occurs when pools of stagnant water collect, providing ideal breeding grounds for the mosquitoes. While this goal works towards improving infrastructure in order to deliver safe water to communities, and removing excrement and treating it appropriately, it also has a strong focus on education in regard to the importance of handwashing and other hygiene practices.



FIGURE 10.35 Handwashing is vital in helping curb the spread of disease.

GOAL 6 AIMS TO:

- Achieve universal and equitable access to safe and affordable drinking water for all.
- Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation.
- Improve water quality by reducing pollution.
- Substantially increase water-use efficiency.
- Implement integrated water resources management at all levels, including through trans boundary cooperation as appropriate.
- Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
- Expand international cooperation and capacity-building support to low- and middle-income countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.
- Support and strengthen the participation of local communities in improving water and sanitation management.

SOURCE: UNOPS (2018)

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Water is a central component of sustainable development. The vital role played by improved drinking water, sanitation and hygiene is important to progress in other areas, including health, education and poverty reduction.

Importance of achieving SDG 6 (Clean water and sanitation) in promoting health and wellbeing

Without safe water, people cannot bathe or clean their clothes or homes properly, which can increase the spread of communicable diseases. Diarrhoea is the most widely known disease linked to contaminated water and poor sanitation, leading to poor physical health and wellbeing. Consuming unsafe water can lead to people suffering from a range of neglected tropical diseases, such as schistosomiasis and other worm infestations, as well as cholera, dysentery, hepatitis A, typhoid and trachoma, leading to poor physical health and wellbeing.

Water scarcity can lead to children (usually girls) often having to walk many hours a day to collect water and this can result in exhaustion (poor physical health and wellbeing). It can also lead to them spending less time with other children their own age, making it hard to maintain a network of friends (poor social health and wellbeing). Not having access to clean water and sanitation can cause poor emotional health and wellbeing because the most basic needs are not being met.

Importance of achieving SDG 6 (Clean water and sanitation) in promoting human development

Water scarcity can lead to children (usually girls) often having to walk many hours a day to collect water and this can result in them missing many hours of school, reducing their opportunity to gain knowledge and limiting their ability to meet their full potential. When schools lack basic facilities such as latrines for privacy, this results in teenage girls being unable to attend. This can mean that many girls don't get a secondary education, which can lead to them finding it difficult to gain decent employment and achieve a decent standard of living in adulthood. Consuming unsafe water can lead to people suffering from a range of waterborne diseases, resulting in illness and often long periods of time away from school or work. This can limit an individual's ability to meet their potential and participate in their community in a positive and productive manner.

DISCUSS



Sanitation is important for health and wellbeing and human development.

Discuss how having access to a toilet at home contributes to this.

Relationship between SDG 6 (Clean water and sanitation) and SDG 3 (Good health and wellbeing)

Achieving SDG 6 is important for achieving SDG 3 because access to adequate, clean and safe water is critical for health. Not only is

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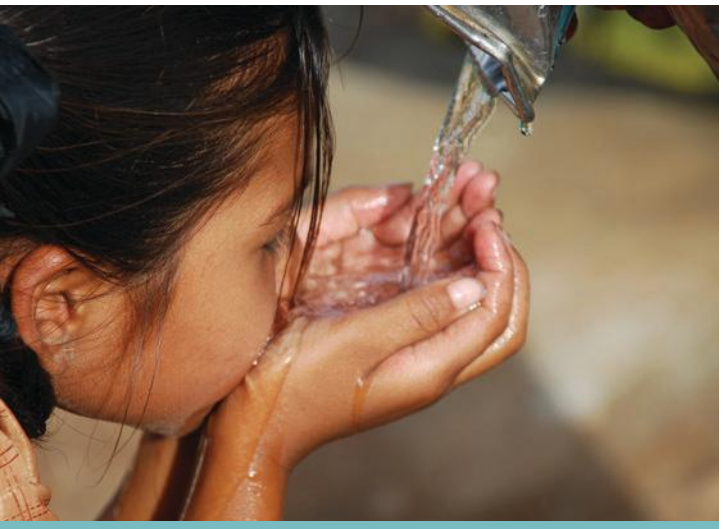


FIGURE 10.36 Access to a safe and hygienic water supply contributes to improved child mortality rates, longer life expectancy and better health outcomes.

water vital for hydration; it is also needed for the production of food, sanitation for good hygiene and protection against disease. Without safe water, people cannot wash their produce, bathe, clean their clothes or clean their houses properly.

Healthy people cannot exist without a healthy and sustainable environment. Access to clean and adequate water is essential for health; reduced access can result in dehydration and increase the risk of mortality. Unclean water can increase the spread of communicable diseases such as diarrhoea and hepatitis, which not only impacts physical health, but also stops young people being able to attend school and adults being able to work. People who are ill due to a lack of clean water or sanitation are unable to participate in their community. They cannot break the poverty cycle, which reduces their opportunities to access the infrastructure required for clean water and sanitation as well as health resources. According to the WHO, for every $1 spent on safe water and sanitation there is a gain of US$4.30 due to reduced costs for healthcare. Money saved can be invested in other health and wellbeing priorities, such as family planning services, access to vaccines and medicines and non-communicable disease risk factors. People who have access to clean water and sanitation have improved health status and increased life expectancy.

The focus of this goal is not just on infrastructure, but also on the importance of education. People need to understand the importance of handwashing, drinking and using safe water, water efficiency and protecting water sources. Children who are healthy are more likely to attend school, where they learn the importance of sanitation. This learning is vital because the information and messages can be brought home and shared with the rest of the family. Women who are healthy can actively take part in their community, particularly if there is water close to home and they are not required to spend hours walking to fetch it. Health information can be disseminated through women's groups, improving the health of the local community.

Governments are able to focus their resources on effective water policies and protection of water-related ecosystems, rather than on the health of their citizens. When health is improved, the focus can move to economics and environmental sustainability issues, rather than immediate health and survival.

10.9 SDG 13: CLIMATE ACTION



This goal focuses on climate change. We are continuing to see rising sea levels and increased extreme weather events. A warming climate may impact basic necessities such as fresh water, food security and energy. Low- and middle-income countries will be the most adversely affected and the ones least able to cope with changes in climate along with increased natural disasters, such as drought, floods, hurricanes and bushfires. Climate change presents the biggest threat to development and its widespread, unprecedented effects disproportionately burden the poorest. SDG 13 calls for urgent action, not only to combat climate change and its impacts, but also to build resilience in responding to climate-related hazards and natural disasters.

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GOAL 13 AIMS TO:

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
- Integrate climate change measures into national policies, strategies and planning.
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaption, impact reduction and early warning.
- Implement the commitment undertaken by developed country Parties to the United Nations Framework Convention on Climate Change.
- Promote mechanisms for raising capacity for effective climate change-related planning and management in low-income countries and small island low- and middle-income states.

SOURCE: UNOPS (2018)



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FIGURE 10.37 Addressing climate change and minimising its disruptions is integral to the success of the SDGs.

Importance of achieving SDG 13 (Climate action) in promoting health and wellbeing

Climate change experienced primarily through shifts in temperature, rainfall, sea-level rise and weather volatility can impact on human health through increasing the risk of vector-borne diseases such as malaria (poor physical health and wellbeing). The combined effects of higher temperatures, increasing rainfall volatility and weather extremes have dire impacts on crops. Climate change can result in complete crop failure, increasing malnourishment (poor physical health and wellbeing).

The impacts of weather-related disasters on the health of people expand beyond mortality and include feelings of stress and anxiety, impacting mental health and wellbeing. Natural disasters can lead to injuries; mental health issues; the spread of disease; food and water insecurity; and limited access to healthcare and other basic services that impact on physical health and wellbeing. In extreme cases of natural disasters, people may be forced to flee their homes and become displaced. This limits opportunities for social interaction, especially for children who then may struggle to maintain a friendship group (poor social health and wellbeing).

Many of the same pollutants responsible for climate change also affect human health through air quality (impacts that are linked to respiratory and cardiac threats) as well as certain cancers (poor physical health and wellbeing). Natural disasters can leave people

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asking 'Why me?' and questioning the meaning of life, which may leave them struggling to connect to a faith or belief system (poor spiritual health and wellbeing).

Importance of achieving SDG 13 (Climate action) in promoting human development

Climate change increases the risk of vector-borne diseases, contributing to children requiring more time away from school and limiting opportunities to meet their full potential. Changes to climate can lead to long periods of drought in many countries, meaning that children (usually girls) often have to walk many hours a day to collect water. This can lead to them missing many hours of school which reduces their opportunity to gain knowledge and meaningful employment. In extreme cases, natural disasters may force people to flee their homes and farms, resulting in loss of income. They may then be forced into labour-intensive, low-paid work and not be able to afford a decent standard of living.

Relationship between SDG 13 (Climate action) and SDG 3 (Good health and wellbeing)

Achieving SDG 13 is important for achieving SDG 3 because climate change presents the single biggest threat to development, especially to the world's most vulnerable populations. Climate change is threatening global food security and water ecosystems. Natural disasters have a dire impact on the health of individuals and communities, resulting in increased mortality and the spread of communicable diseases. In cases of extreme floods, sewage can spill into waterways, contaminating water supply and increasing the spread of conditions such as diarrhoeal diseases, hepatitis and cholera. Stagnant water creates ideal breeding grounds for vector-borne diseases, such as malaria. Countries that have to respond to urgent emergency aid needs (by supplying food, safe water, temporary shelter and health) have less money to invest in improved healthcare systems. Death rates spike dramatically during times of natural disaster.

People are being displaced from their homes due to rising sea levels and the impacts of natural disasters, impacting their ability to access required healthcare in a convenient location.

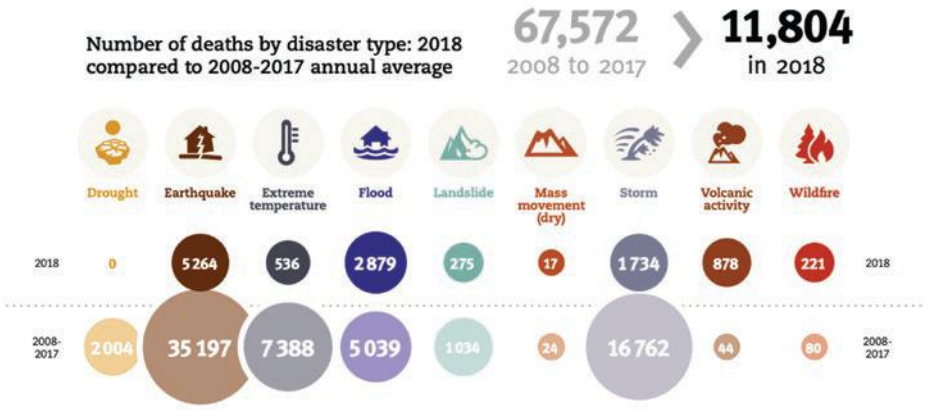


FIGURE 10.38 Number of deaths by disaster type, 2018 compared to 2008–17 annual average

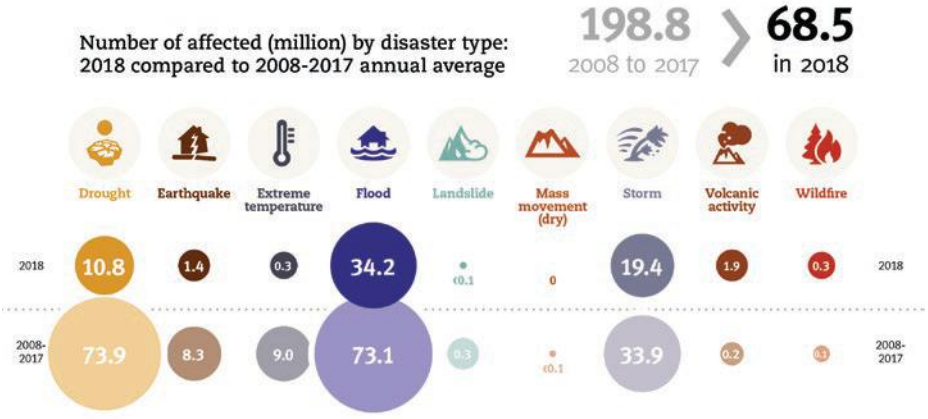
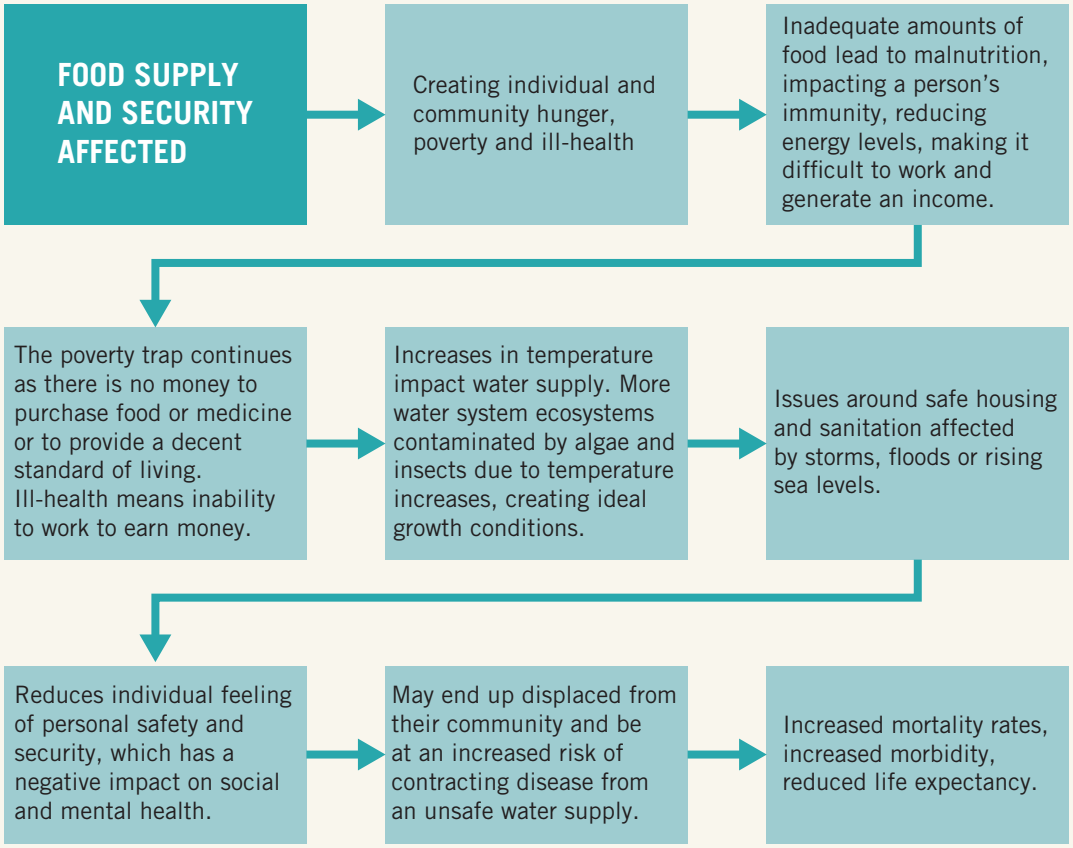


FIGURE 10.39 Number of affected (million) by disaster type, 2018 compared to 2008–17 annual average

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ACTIVITY 10.9: THE IMPACT OF CLIMATE CHANGE



Rewrite the flow chart to highlight the positive impacts of reduced climate change with a focus on the targets of SDG 13: Climate action.

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ACTIVITY 10.10: SDG CONCEPT MAP

Develop a concept map connecting SDG 3 to SDGs 1, 2, 4, 5, 6 and 13. Consider the interrelationships, impact on health and wellbeing and human development.

10.10 SUMMARY OF THE RELATIONSHIPS

- Not achieving SDG 3 (Good health and wellbeing) can lead to outbreaks of disease which can result in people, communities and countries experiencing poverty due to not being able to work (SDG 1: No poverty).
- Girls who become mothers have a higher risk of morbidity and mortality, frequently miss out on education (SDG 4: Quality education) and socioeconomic opportunities, and are more likely to have large families. This makes it difficult for women and their families to break free from the poverty cycle (SDG 1: No poverty).
- The focus of providing universal health cover as part of SDG 3 (Good health and wellbeing) helps to end poverty by ensuring all people have access to essential medicines, vaccines

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and healthcare services at an affordable price. This allows people to spend their money on shelter or education, which can help reduce poverty (SDG 1: No poverty).

- Having good health and wellbeing (SDG 3: Good health and wellbeing) is a major contributor to economic growth and SDG 1 (No poverty) because when people are well, they are more able to work, which can help to reduce poverty in families.
- SDG 3 (Good health and wellbeing) aims to reduce communicable diseases, which enables children to attend school and receive an education (SDG 4: Quality education).
- Through achieving SDG 3 (Good health and wellbeing) and having an adult population that is free from illness and able to live a long and healthy life, communities tend to prosper. This can result in an increase in infrastructure within communities, including the establishment of water and sanitation facilities (SDG 6: Clean water and sanitation).
- When children are healthy and able to attend school they can receive an education, which can improve their knowledge about a range of things, such as climate change and sustainable farming techniques (SDG 13: Climate action).
- When women are healthy, have fewer babies and experience lower mortality rates, it enables them to better participate productively in their community. This can increase their status and rights as women in the community and promote gender equality (SDG 5: Gender equality).
- When people are healthy they are better able to work. This enables them to tend to their land and produce crops, providing food for their families. These products can also be traded for other products to increase the variety of food available to the family and reduce hunger and malnutrition (SDG 2: Zero hunger).
- When experiencing good health, individuals and communities can focus on building their resources, engaging in their community and being involved in decision making. This builds the capacity of the community. The resources of the community can also be protected. With good health, people will be able to work to restore their water systems and participate in water and sanitation management (SDG 6: Clean water and sanitation).
- If the adult population of a country is free from HIV/AIDs they are able to work. They can potentially be employed as teachers, ensuring access to quality education for all children (SDG 4: Quality education).

> The new agenda is a promise by leaders to all people everywhere. It is a universal, integrated and transformative vision for a better world. It is an agenda for people, to end poverty in all its forms. An agenda for the planet, our common home. An agenda for shared prosperity, peace and partnership. It conveys the urgency of climate action. It is rooted in gender equality and respect for the rights of all. Above all, it pledges to leave no one behind. Now we must use the goals to transform the world.
>
> We need ACTION from everyone, everywhere. Let us work together over the next 15 years to make their vision a reality for all people in all countries.
>
> **SOURCE:** UN Secretary-General Ban Ki-moon (2007–16)

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CHAPTER SUMMARY

- The Sustainable Development Goals are a global agenda to leave no one behind by 2030.
- There are a total of 17 SDGs but the focus in Health and Human Development is on SDGs 1, 2, 3, 4, 5, 6 and 13.
- The SDGs have been developed to continue the achievements of the Millennium Development Goals.
- Rationale of the SDGs:
  - They are an urgent call for action by all countries – developed and developing – in a global partnership.
  - They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth.
  - They aim to tackle climate change and work towards preserving our oceans and forests.
- Objectives of the SDGs:
  - To end extreme poverty, protect the planet, and ensure all people enjoy peace and prosperity.
- The SDG objectives are more broadly explained by the five areas of critical importance for humanity and the planet, the five Ps: people, planet, prosperity, peace, partnership.
- These goals balance the three dimensions of sustainable development – environmental, social and economic (environmental protection, social inclusion and economic growth) – pledging to end all forms of poverty, fight inequality and tackle climate change while ensuring that no one is left behind.
- SDG 3 is titled 'Good health and wellbeing – Ensure healthy lives and promote wellbeing for all at all ages'.
- The key features of SDG 3 aim to ensure health and wellbeing for all people at all ages by:
  - Reducing maternal mortality
  - Preventing infant and child mortality
  - Ending epidemics of major communicable diseases
  - Reducing non-communicable disease
  - Reducing deaths and injuries from road traffic incidents
  - Achieving universal health coverage
  - Strengthening the health workforce
  - Improving access to vaccines and medicines
  - Improving tobacco control
  - Reducing deaths from pollution
  - Preventing substance abuse
  - Ensuring universal access to sexual and reproductive health services.
- Health is positioned as a key contributor to the achievement of the SDGs and there is a clear relationship between health and the other SDGs: without good health and wellbeing the other SDGs cannot be achieved.



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- SDG 1: No poverty – aims to end poverty in all its forms, including extreme poverty, over the next 15 years.
- SDG 2: Zero hunger – aims to end hunger and all forms of malnutrition, and to achieve sustainable food production by 2030.
- SDG 4: Quality education – focuses on ensuring that everybody has access to quality education and lifelong learning opportunities.
- SDG 5: Gender equality – aims to empower women and girls to reach their full potential.
- SDG 6: Clean water and sanitation – goes beyond drinking water, sanitation and hygiene to also address the quality and sustainability of water resources that are critical to the survival of people and the planet.
- SDG 13: Climate action – focuses on climate change, and ensuring countries are prepared for changes to climate and increases in natural disasters.
- When achievements are made in regards to SDG 1, 2, 4, 5, 6 and 13, they can bring about improvements in relation to the key features of SDG 3.
- To ensure the success of achieving the SDGs, collaboration and partnerships must exist between many organisations.



KEY QUESTIONS



SUMMARY QUESTIONS

1 Name the 7 Sustainable Development Goals focused on in Health and Human Development.
2 Explain the rationale of the SDGs.
3 Outline the objectives of the SDGs.
4 Justify the importance of the SDGs for the world's population.
5 Describe the key features of SDG 3.
6 Explain how the relationship between SDG 1 and SDG 3 is working towards improving health and wellbeing.
7 Describe how addressing the issue of hunger will improve health and wellbeing, and human development, globally.
8 Discuss the importance of gender equality for health and wellbeing, and human development, globally. Identify the relevant SDG.
9 Justify the role of SDG 3 in the achievement of SDG 13 and its relationship to improving health and wellbeing and human development globally.
10 Explain the relationship between SDG 3 and SDG 5.
11 Outline a collaborative approach to addressing one SDG and improving health.
12 The SDGs are clearly aligned with the dimensions of sustainability. Describe how the goals reflect the dimension of social, economic and environmental sustainability.

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EXTENDED RESPONSE QUESTION

SOURCE

The SDGs are an initiative of the United Nations but the UN cannot achieve these goals on its own. 'The success of this plan depends on us all – Governments and our many partners in health, from the international level, right down to the local level' (WHO Global Action Plan for Healthy Lives and Wellbeing for All).

QUESTION

Referring to the key features of SDG 3, explain how achieving SDG 3 could promote SDG 4 (Quality education) highlighting the importance of collaboration in achieving these specific goals. (10 marks)

EXAM PREPARATION QUESTIONS

A Identify one feature of Sustainable Development Goal SDG 3 (Good health and wellbeing) that is relevant to addressing the health issue shown in Figure 10.40. (1 mark)

B Explain how actions taken to achieve SDG 4 (Quality education) could assist in achieving the SDG 3 feature identified in the previous question. (4 marks)

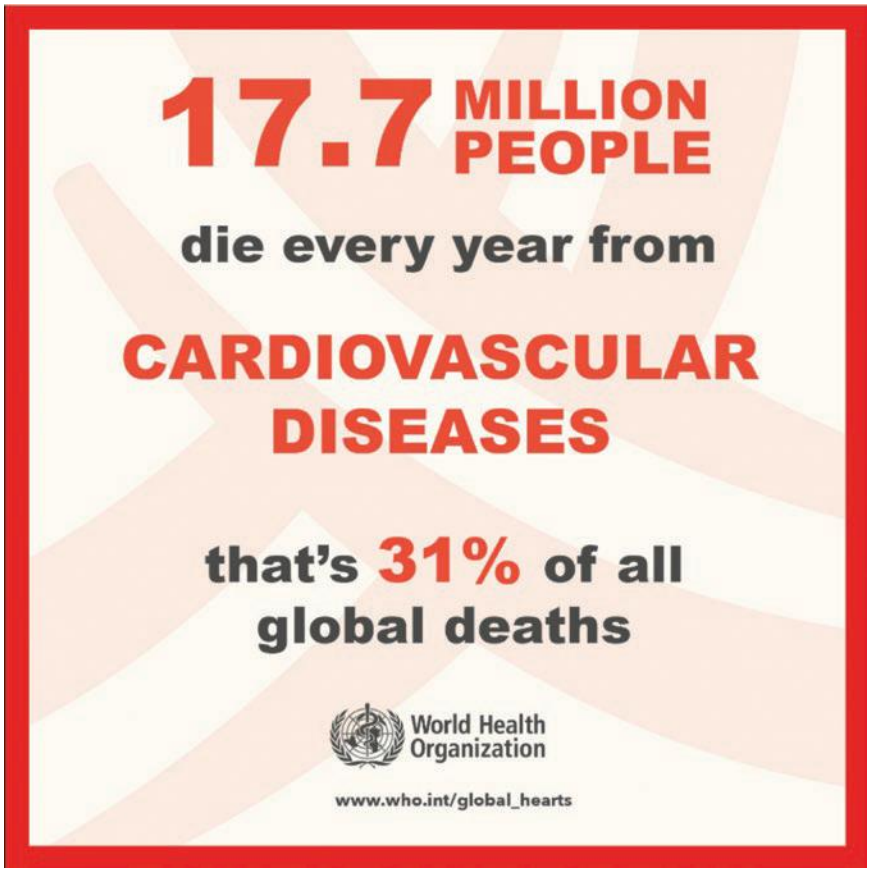


FIGURE 10.40 Cardiovascular disease

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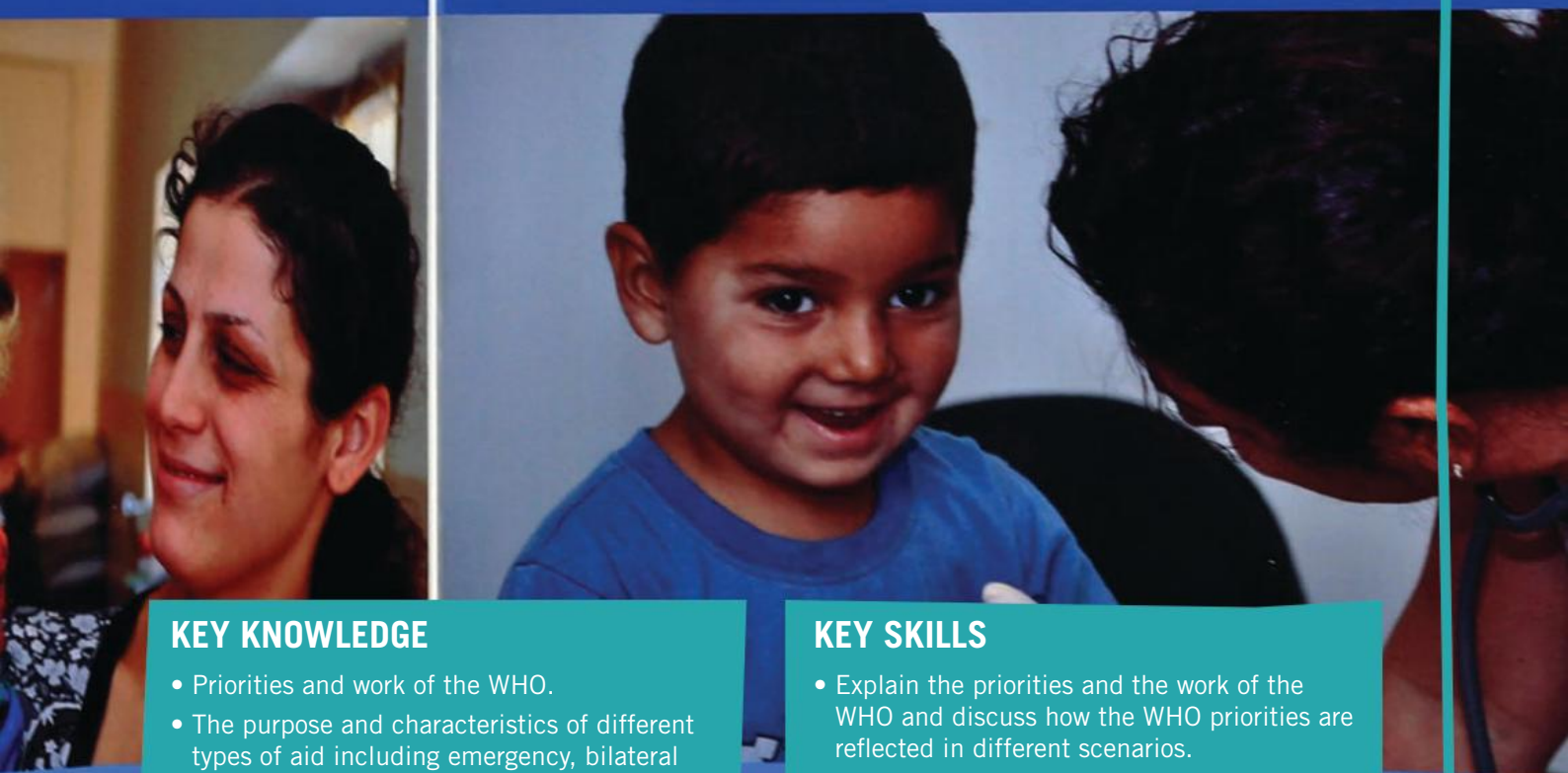


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11 PROMOTING GLOBAL HEALTH



KEY KNOWLEDGE

- Priorities and work of the WHO.
- 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

- Explain the priorities and the work of the WHO and discuss how the WHO priorities are reflected in different scenarios.
- Describe and justify different types of aid.
- Explain and evaluate the role of non-government organisations in promoting health and wellbeing, and human development.

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INTRODUCTION

This chapter looks at what is happening on a global scale to improve health and wellbeing and human development for those in need, with many organisations focused on working to achieve the SDGs from Chapter 10. You will start with learning more about the World Health Organization (WHO), their priorities and their work in these areas. The focus then shifts to understanding the different types of aid, who benefits from them and how they are provided around the world. You need to have an understanding of aid – what it looks like (characteristics) and its purpose – and be able to justify the aid being provided. The chapter will then look at the role of Australia's aid program – including its features and priorities – and explore different aid initiatives, and you will need to reflect on all of this. The last part of this chapter focuses on understanding the role of non-government organisations in the promotion of health and wellbeing, and human development.

What you need to know

- The priorities and work of WHO
- Different types of aid, their purpose and characteristics
- Features of Australia's aid program
- Priority areas and partnerships involved in Australia's aid program
- Role of non-government organisations (NGOs) in promoting health and wellbeing, and human development
- The dimensions of health and wellbeing
- The concept of human development



FIGURE 11.1 WHO Director-General Tedros Adhanom Ghebreyesus (R) speaks during a press conference following a WHO Emergency committee meeting on the novel coronavirus, also known as COVID-19.

What you need to be able to do

- Name and explain the work and priorities of WHO.
- Discuss how the WHO priorities are reflected in scenarios (case studies).
- Describe and justify (using evidence) the different types of aid.
- Explain and evaluate (using evidence) the role of non-government organisations in promoting health and wellbeing, and human development.

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11.1 WORLD HEALTH ORGANIZATION

Established in 1948, the World Health Organization (WHO) is the UN agency for promoting good health for all. It has headquarters in Geneva and regional offices in Africa, the Americas, the Eastern Mediterranean, Europe, South-East Asia and the Western Pacific regions, working in more than 150 countries. The WHO's goal is 'to build a better, healthier future for all people all over the world'. It strives to combat diseases – both infectious and non-communicable – to help mothers and children survive and thrive, and ensure the safety of the air people breathe, the food they eat, the water they drink, and the medicines and vaccines they need. This is achieved by working side by side with governments and other partners, focusing on attaining the highest level of health for all people.



FIGURE 11.2 'Because at WHO, we believe that no one should miss out on the opportunity to live a healthy life.'



SOURCE: WHO Thirteenth General Programme of Work (2019–23)

FIGURE 11.3 The Thirteenth General Programme of Work provides a high-level strategic vision for the work of the WHO.

World Health Organization priorities

The WHO works globally to promote health, keep the world safe, and serve the vulnerable. It is a powerful voice for health and human rights, aiming to ensure that no one is left behind. In 2018, the WHO adopted their Thirteenth General Programme of Work 2019–23, which clearly states WHO's vision, mission and priorities.

Based on SDG 3 – to ensure healthy lives and wellbeing for all at all ages – the 2019–23 WHO priorities are:

- Achieving universal health coverage – 1 billion more people benefitting from universal health coverage
- Addressing health emergencies – 1 billion more people protected from health emergencies
- Promoting healthier populations – 1 billion more people enjoying better health and wellbeing.

Since each of these ambitious priorities has the target of 1 billion more, they have been called the 'triple billion' goals. These priorities are based on the UN's SDGs and are relevant to all countries – low-, middle-, and high-income. While the three priorities are listed separately, their achievement is interconnected and one cannot be reached without the others.

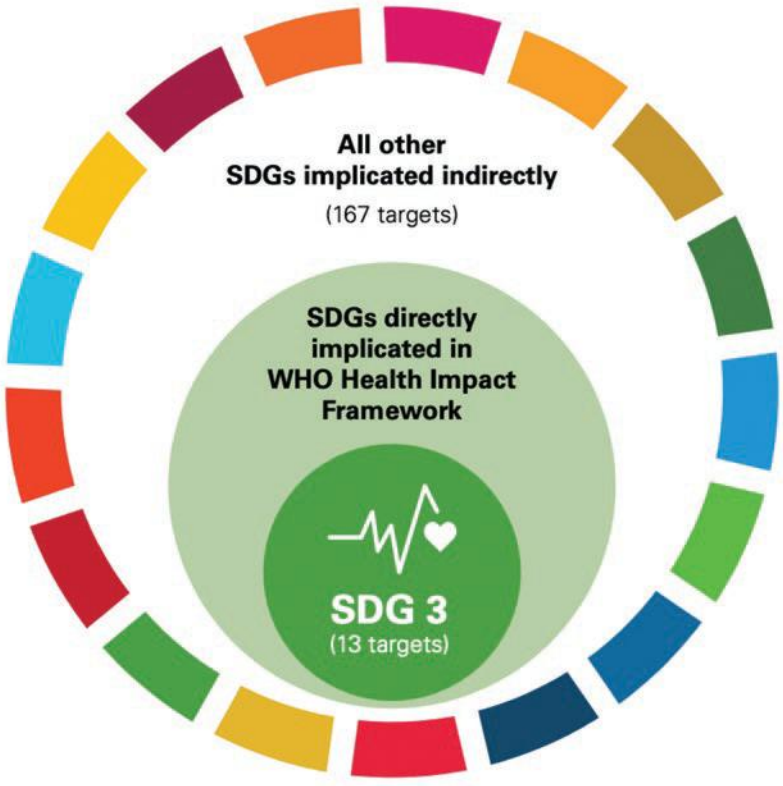
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SOURCE: WHO Thirteenth General Programme of Work (2019–23)

FIGURE 11.4 The WHO's mission and priorities as stated in their Thirteenth General Programme of Work 2019–23

For example 'strengthening health systems also makes them more resilient and better able to detect and control outbreaks before they spread; and improved public health functions contribute to good-quality health care within UHC and the strong surveillance systems necessary for early disease detection and control' (WHO, 2018). Likewise, while the priorities of the WHO are based on SDG 3, the work of the WHO will impact all of the SDGS because they too are interrelated and one cannot be achieved without the other.



SOURCE: WHO Thirteenth General Programme of Work (2019–23)

FIGURE 11.5 The foundation of the WHO's work is SDG 3 and they have set their priorities from this goal. However, like the SDGs the priorities and work of the WHO will directly and indirectly influence other SDGs, as shown in this figure.

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DISCUSS

Watch the WHO YouTube video *Are you 1 in a billion?* Discuss how this reflects the WHO 'triple billion' priorities.



SOURCE: WHO Thirteenth General Programme of Work (2019–23)

FIGURE 11.6 The WHO priorities are a set of three interconnected priorities and goals to ensure healthy lives and promote wellbeing for all at all ages (SDG3).

Achieving universal health coverage

As already discussed in Chapter 10, a key feature of SDG 3 is that universal health coverage means receiving the health services you need, when and where you need them, without facing financial hardship. Universal health coverage is one of the most powerful public health ideas. The two fundamental components – access to the services needed to achieve good health (including health promotion, prevention, treatment and rehabilitation) and the financial protection that prevents ill-health from leading to poverty – are vital to address health inequities. Work in this area seeks to ensure



FIGURE 11.7 Despite improvements in global health, complications during pregnancy and childbirth still require urgent action.

that 1 billion more people are benefitting from universal health coverage, reducing the chance of falling into the poverty cycle because of the cost of health services they need.

To achieve progress towards universal health coverage (UHC) the work of the WHO will aim to address:

Service access and quality

- WHO will work with countries to address barriers to access health services – economic, geographic or cultural. Equity of access is central to UHC, providing healthcare that is needed; whenever, wherever, whoever.
- WHO will work with countries to strengthen health systems that include health promotion and preventative services.

Health workforce

- WHO will support countries globally in their investment in education and employment of sufficient health workers to meet healthcare needs for all.

Access to medicines, vaccines and health products

- WHO will work with countries to ensure appropriate access to affordable and quality medicines, vaccines and health products. In many countries the main cause of financial hardship is the expense of essential medicines.

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Governance and finance

- WHO will work with countries to strengthen governance in health. Actions will help strengthen local and national health capacities, including policy development, financing and regulation.
- WHO will work to support the establishment of results- and equity-based health budgets, and systems to track health expenditures with a focus on the poor to achieve UHC.

Health information systems

- WHO will support countries in developing comprehensive and efficient systems to monitor health risks and determinants; track health status and outcomes, including cause specific mortality; and access health system performance.
- WHO will work to strengthen country capacity to track UHC indicators as part of effective health information systems.

Advocacy

- WHO will step up leadership by raising global awareness of the UHC wherever and whenever possible.
- WHO will advocate for domestic investment in all aspects of the health system, including health workers, infrastructure and research.

Country support

- WHO will work in support of, and partnership with, countries to implement health system approaches and health emergencies coordination.



FIGURE 11.8 WHO Universal health coverage infographic

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1 BILLION MORE PEOPLE BENEFITTING FROM UNIVERSAL HEALTH COVERAGE (UHC)

This goal is based on SDG indicator 3.8.1 (coverage of essential health services), which was calculated based on trace intervention for reproductive, maternal, newborn and child health, infectious diseases, and non-communicable diseases for which data were available. These indicators can then be used to estimate the number of people covered with such services. Approximately half the world's population lacks access to such essential health services. Therefore, to achieve SDG target 3.8 of UHC for all by 2030, at least 1 billion more people will need to have access to essential health services in each five-year period between 2015 and 2030. In order to ensure that UHC reaches the poorest, the most marginalized, women, children, and people with disabilities, efforts will be made to monitor and drive equitable access in these groups and to ensure that coverage of services reaches those most in need without financial hardship. WHO will work with partners to design the package of essential services from which this set of tracer indicators is derived and enhance measurement systems for tracking performances.

SOURCE: WHO GPW13, p. 14

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TABLE 11.1 Work of the WHO in achieving their priority of **Achieving universal health coverage**

Service access and quality	• Removing barriers to health services • Improving health systems	
Health workforce	• Support the education and employment of sufficient health workers globally	
Access to medicines, vaccines and health products	• Improved access to affordable and quality medicines, vaccines and health products	
Governance and finance	• Strengthening governance in health	
Health information systems	• Support to monitor health risks and track health status	
Advocacy	• Raise global awareness of UHC • Advocate for investment in health systems	
Country support	• Support and partner counties to implement health approaches and emergencies coordination	

ACTIVITY 11.1: UNIVERSAL HEALTH COVERAGE DATA

Visit the WHO Universal Health Coverage Data Portal online.

Prepare a report on the information provided in the portal, highlighting the WHO's current universal health coverage situation and achievements.

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FIGURE 11.9 More than half the world's population is still unable to access health services without incurring financial hardship.

Addressing health emergencies

Every country is vulnerable to epidemics and emergencies. Health emergencies occur in all countries – low-, middle- and high-income – and with the ease of travel from one country to another, the threat of health emergencies is universal. By ensuring preparedness for emergencies and the capacity for quick and effective response, the impact of health emergencies on health can be reduced. Health emergencies can include epidemics, pandemics, conflict and environmental disasters. Early detection, risk assessment, information-sharing and rapid response are essential to avoid illness, injury, death and economic losses on a large scale. Not all countries have the same health emergency risk management capabilities, with low-income countries the most affected. Health emergencies weaken health systems and weak health systems increase the challenge of responding to health emergencies. Ensuring that 1 billion people are better protected from health emergencies makes everyone across the world safer.

International Health Regulations (IHR): Legally binding health regulations that provide countries with a set of rules to follow in the event of a disease outbreak.

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The WHO aims to ensure that 1 billion people are better protected from health emergencies by:

Building and sustaining resilient national, regional and global capacities required to keep the world safe from epidemics and other health emergencies

- WHO will work with countries to increase health emergency detection, early warning, emergency preparedness, response and recovery through the implementation of the **International Health Regulations (IHR)**. The IHR require countries to report certain disease outbreak and public health events (such as Ebola and Zika Viruses) to the WHO. It also includes measure such as working with ports, airports and ground crossings to limit the spread of health risks to neighbouring countries, and to prevent unwanted travel and trade restrictions so that traffic and trade disruption is kept at a minimum.

Ensuring that populations affected by acute and protracted emergencies have rapid access to essential life-saving health services including health promotion and disease prevention

- WHO aims to serve the most vulnerable populations, including women, children, migrants and those living in poverty, who are most impacted by health emergencies.
- Lifesaving health services include health promotion and disease prevention, mental health and psychosocial support and nutrition services.
- Intervention also includes vaccination campaigns (polio, cholera, malaria) during humanitarian emergencies for affected groups and work to ensure universal access to sexual and reproductive health care services, in line with SDG 3 targets.

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FIGURE 11.10 Polio has nearly been eradicated worldwide. This has been achieved through a strong health emergencies system focusing on polio surveillance, outbreak preparedness, response systems and disease containment. The WHO will continue to monitor and support countries to deliver polio immunisation, detect and respond to emergencies with a continued focus on a polio-free world. Without continued vaccination programs, diseases like polio will return.

DISCUSS



FIGURE 11.11 The WHO provides emergency aid during times of crisis. An example is the provision of Ebola vaccination for high-risk populations in the Democratic Republic of the Congo.

Countries that have invested in risk reduction, preparedness and emergency management are more resilient to other disasters and respond more effectively when in an emergency situation. Discuss how this would be the case for high-income countries compared to low-income countries.

1 BILLION MORE PEOPLE BETTER PROTECTED FROM HEALTH EMERGENCIES

This goal is based on SDG indicator 3.d.1 (International Health Regulations (IHR) capacity and health emergency preparedness). Work to reach this goal will make the world better prepared for health emergencies by measurably increasing the resilience of health systems for a population of 1 billion people. Based on historical trends, it is feasible for the WHO Secretariat to work with countries with a combined population of 1 billion people to improve preparedness for health emergencies. WHO will measure this goal based on the Organization's activities supporting countries to strengthen their preparedness for health emergencies. It is also clear that better measurement methods to document improvement are needed and that WHO can lead the way in this area. The benchmarks will be structured to make this indicator universal so that any country can contribute to the global goal. Measurement tools will be strengthened to include variables on exposure and vulnerability. Improving the safety of any population improves the safety of everyone. Being 'better protected' does not provide any absolute estimation of safety. WHO recognizes that further work is necessary to achieve a more precise description and measurement of parameters such as epidemic risk and resilience of systems. The Organization will, therefore, work together with relevant partners across all sectors to complete the development of the necessary measurement tools.

SOURCE: WHO GPW13, p. 22

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TABLE 11.2 Work of the WHO in achieving their priority of **Addressing health emergencies**

Building and sustaining resilient national, regional and global capacities required to keep the world safe from epidemics and other health emergencies	• Supporting countries to increase their capacity in health emergencies (detection, early warning, preparedness, response and recovery) • Implementation of the IHR	
Ensuring that populations affected by emergencies have rapid access to essential life-saving health services, including health promotion and disease prevention	• Serve the most vulnerable populations impacted by health emergencies • Ensure lifesaving health services	

ACTIVITY 11.2: THE WORLD HEALTH ORGANIZATION AND EMERGENCIES

As this book went to print in early 2020, a global health emergency, namely a pandemic of a new disease, COVID-19, was being managed by governments around the world. Create a brief case study of this declared health emergency (or another WHO emergency), including the relevant priority and the role of WHO in addressing this situation.

Access the Interactive Textbook for suggested sources of information and guidance on completing this activity.

Promoting healthier populations

The priority 'promoting healthier populations' is a broad one, with the WHO working to contribute to people enjoying better health and wellbeing. All of these areas identified represent threats to human flourishing, have associated opportunity costs amounting to trillions of dollars, erode the prospects of a healthy life, require a multisectoral approach addressing health determinants and are areas where the WHO has opportunity and advantage. This interconnected priority also works to support the other WHO priorities: achieving universal healthcare and addressing health emergencies.

This priority is set out through five platforms, which addresses the work of WHO to achieve it. They are as follows.

Improving human capital across the life course

- WHO aims to improve human capital with a special focus on women, children and adolescents, to provide integrated services, and by enabling people to access the information, to provide the goods and services they need to survive and thrive at all ages. This reflects the SDG 3 key feature universal access of sexual and reproductive healthcare services.
- Investing in early childhood, child and adolescent health and development, and in family planning, pregnancy and childbirth care, can yield benefit-to-cost ratios of around 10-to-1, and rates of mental health disorders and non-communicable diseases in later life can be reduced. Maintaining functional ability in older people can help to reduce healthcare costs and care dependency and promote wellbeing, enabling them to continue contributing to society.

Accelerating action on preventing non-communicable diseases and promoting mental health

- WHO will work with countries to strengthen their prevention efforts. This will include interventions to reduce the four main risk factors: tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity.
- WHO will combine prevention strategies with equitable access to effective treatment for non-communicable diseases.
- WHO will work for increased access to treatment and care of mental health disorders.
- WHO will work to implement cost effective interventions to prevent the occurrence of

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violence, road crashes and other causes of injury, and to provide the emergency and longer-term services that victims need.

Accelerating elimination and eradication of high-impact communicable diseases

- Despite being preventable and treatable, communicable diseases and infections – including HIV/AIDS, tuberculosis, malaria, viral hepatitis, sexually-transmitted infections, and neglected tropical diseases – continue to pose a major public health challenge in most countries, killing over 4 million people each year. Ending the epidemics of communicable diseases cannot be achieved without significantly accelerating prevention, control and elimination efforts – with highly cost-effective and high-impact interventions – and integrating disease-specific responses into people-centred health systems. Building on its strong record of combatting communicable diseases, WHO will work with countries to support their elimination efforts for these diseases.

Tackling antimicrobial resistance

- WHO will work with countries to support their elimination efforts for preventable and treatable, communicable diseases and infections, including HIV/AIDs, tuberculosis, malaria, viral hepatitis, STIs and neglected tropical diseases.

Addressing health effects of climate change in small island developing states and other vulnerable states

- These are the most vulnerable nations facing escalating climate- and pollution-related risks. Within these nations, climate change disproportionately affects the poorest, the most marginalised, and women and children. Air pollution is an increasingly serious risk factor for non-communicable diseases, causing 6.5 million deaths annually. WHO will scale up its efforts to prevent air pollution-related disease.
- WHO aims to ensure that health systems in all small island developing states are resilient to extreme weather and climate-sensitive disease.
- In order to build resilience to the increasing spread of vector-borne, waterborne, food-borne and work-related diseases, WHO will promote improved monitoring and surveillance, early warning systems and a coordinated and robust response, including awareness raising. With respect to air pollution (i.e. outdoor, household and workplace air pollution) and climate change mitigation, WHO will scale up its work with different sectors – including transport, energy, housing, waste, labour and urban planning – at the national and local level to monitor air quality, develop strategies for transitioning to healthier technologies and fuels and for ensuring that all populations breathe air that meets the standards of WHO's air quality guidelines, and that scientific evidence will be translated into effective policies.



FIGURE 11.12 Much of the morbidity – and most premature deaths – caused by NCDs can be prevented through interventions to reduce four main risk factors: tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity. Mental health disorders account for 13 per cent of the global burden of disease; however, the majority of people concerned have no access to treatment and care. In addition, injuries and violence are significant risk factors and cost-effective interventions exist both to prevent the occurrence of violence, road crashes and other causes of injury, and to provide the emergency and longer-term services that the victims need. In particular, relevant SDG targets call for increased efforts to tackle road traffic injuries and violence.

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FIGURE 11.13 Causes of antibiotic resistance

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1 BILLION MORE PEOPLE ENJOYING BETTER HEALTH AND WELLBEING

The number of people enjoying better health and wellbeing is a composite estimate derived from adding multiple SDG targets. The estimates consider action to meet life-enhancing targets during the period 2019–2023, comparing these against 'no intervention' scenarios (i.e. baseline status quo until 2023) and bearing in mind that this includes overlapping and non-mutually exclusive populations. The specific outcomes and impacts to be combined in the composite estimate will be specified in the impact and accountability framework. The goal is intended to stimulate collective action for health and to strengthen the Organization's contribution both in its role as a catalyst and in its rigorous monitoring to track progress.

SOURCE: WHO GPW13, p. 26

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FIGURE 11.14 Every year, non-communicable diseases (NCDs) cause the deaths of 15 million people between the ages of 30 and 70. Prevention efforts need to be combined with equitable access to effective treatment for cardiovascular diseases, cancer, diabetes, chronic respiratory diseases and mental health conditions.

ACTIVITY 11.3: THE WHO FRAMEWORK CONVENTION ON TOBACCO CONTROL

The WHO Framework Convention on Tobacco Control (WHO FCTC) is the first global health treaty. It has become one of the most rapidly and widely embraced treaties in UN history.

'Sixty-three per cent of the world's population is covered by at least one comprehensive tobacco control measure, such as graphic warning on cigarette packs, advertising bans or smoke-free laws' (WHO, *The World Health Organization: Working for better health for everyone, everywhere*, p. 13).

1 Identify the WHO priority in this scenario.

2 Explain this priority.

3 Justify how this priority is evident in this scenario.

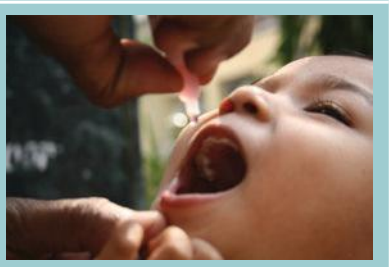
4 Describe how this work of the WHO promotes health and wellbeing and human development.



FIGURE 11.15 The WHO's six core functions form the basis of their work to achieve their priorities.

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TABLE 11.3 Work of the WHO in achieving their priority of **Promoting healthier populations**

Improving human capital across the life course	• Special focus on women, children and adolescents and critical stages: family planning, pregnancy and childbirth	
Accelerating action on preventing non-communicable diseases and promoting mental health	• Support to implement prevention strategies for NCDs, mental health and causes of injury • Combining prevention with equitable access for effective treatment • Increased access to treatment • Cost-effective interventions	
Accelerating elimination and eradication of high impact communicable diseases	• Support countries' elimination efforts for preventable and treatable communicable diseases	
Tackling antimicrobial resistance	• Increase awareness and understanding of antibiotic use • Promote research into addressing antimicrobial resistance	
Addressing health effects of climate change in small island developing states and other vulnerable states	• Support building of resilient health systems for small island developing states	

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CASE STUDY: UN TASK FORCE IN BHUTAN

Thimphu, 10 February 2017

Reducing harmful alcohol use, and improving diet and nutrition in Bhutan were among key areas focused on by the first joint mission to the country by the United Nations Interagency Task Force on the Prevention and Control of Non-communicable diseases (NCDs).

The task force visited Bhutan from 6–10 February to support the government in tackling NCDs – principally cardiovascular diseases, diabetes, cancers, and chronic respiratory diseases and NCD-related conditions.

Non-communicable diseases a growing concern

In Bhutan, NCDs cause more than half of all deaths, and the probability of dying prematurely from NCDs is 21 per cent. Also more than a quarter of the adult population has hypertension.

'Non-communicable diseases is a growing concern in Bhutan,' said the country's prime minister, Tshering Tobgay. 'As we live longer and enjoy greater prosperity, we are also succumbing to lifestyle diseases.'

While Bhutan is a development success story with decreasing poverty and improvement in human development, the forces of globalization and urbanization are causing an increase in NCDs in Bhutan.

United Nations Interagency Task Force joint mission

Bhutan is the third country in WHO's South-East Asia Region to host such a mission, which included representatives from the United Nations Development Programme (UNDP), United Nations Population Fund (UNFPA), United Nations Children's Fund (UNICEF), World Food Programme (WFP), the World Bank and the World Health Organization (WHO), which led the initiative.

During the visit, the Joint Mission met with Bhutan's Prime Minister, government ministers, parliamentarians and high-level officials from central and local government. Meetings with non-governmental and civil society organisations, academicians and the Bhutan Chamber of Commerce also took place.

The Mission was particularly concerned about the use of tobacco, especially among adolescents. Despite a ban on the sale of tobacco, statistics suggest that around one-third of men use tobacco in smoked and smokeless forms, while 60 per cent of the adult population chews doma (areca nut, betel leaves and lime), a practice associated with increased risk of cancer.

More than two-thirds of adults do not consume enough fruits and vegetables, and the average intake of salt is around twice the amount recommended by WHO. Obesity is also becoming an increasing issue for the country, while one in five children are stunted.

Behavioural change needed

But all this is set to change. During the last five years, rates of childhood stunting have shown a sharp decrease and the government has developed a comprehensive set of strategies and plans to tackle NCDs. The mission reviewed these with government and other partners in order to agree on a small set of priorities that would be most cost effective in reducing NCDs and which could be taken forward over the next 12 months.



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'Like in many countries, people in Bhutan are increasingly consuming pre-packaged foods and beverages which are high in fats, sugars and salt and these foods and beverages have now started to be sold at some schools as well,' says Dr Chizuru Nishida, Coordinator of the Nutrition Policy and Scientific Advice Unit at WHO Headquarters in Geneva who participated in the mission.

She adds, 'Providing information to facilitate people's behavioural change is important. But such behavioural change cannot be achieved if the food environment is not conducive for people to implement healthy dietary practices, in particular in schools.'

In 2016, the Bhutanese government spent approximately US$2.8 million referring almost 1300 people for medical treatment to India, mostly to treat cancers, and kidney and heart disease, Mr Tobgay said. 'This underscores the urgency to take preventative measures,' he adds.

A five-year NCD action plan to promote healthy lifestyles

Bhutan's government has approved a five-year NCD action plan to promote healthy lifestyles and reduce preventable illnesses in the country. 'I seek the support of all fellow-citizens to fight the growing scourge of non-communicable diseases,' Tobgay adds.

The UN Mission held detailed discussions with several government ministries, including the Gross National Happiness Commission, on how NCDs are reflected in the upcoming National Five Year Plan. The Mission also had in-depth meetings with the UN agencies in Bhutan to identify how its new SDG Plan will support government development and NCD strategies. Attention was also given to how the UN Country Team can help catalyse government action during the remaining lifetime of the current UN Development Assistance Framework, which ends 2018.

To respond to the challenges of the harmful use of alcohol, Bhutan has developed a comprehensive national alcohol policy framework, highlighting the need to implement regulatory measures to respond to the threat. Also active is a strong grassroots community network aiming to tackle harmful alcohol use.



FIGURE 11.16 UNIATF mission meets Tshering Tobgay, Prime Minister of Bhutan, February 2017

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'The harmful use of alcohol is considered an important risk factor for NCDs, which also contributes significantly to premature mortality due to liver cirrhosis as well as family problems and traffic injuries,' says Dr Vladimir Poznyak, Coordinator for the Management of Substance Abuse Team from WHO Headquarters in Geneva who was also part of the mission in Bhutan. 'Due to rapid social changes more attention should be paid to the regulation of commercial alcohol that will gradually replace traditional alcohol beverages in the country, particularly among young people.'

Strong UN-system support

The mission demonstrated that strong UN system-wide support exists to support action on NCDs in Bhutan and around the world. Mr Piet Vochten, UN Resident Coordinator a.i. and WFP Resident Representative in Bhutan, outlined the central role of the UN system as a whole in supporting Bhutan tackle NCDs.

'We are now seeing how NCDs impact the wellbeing of Bhutan at both individual and community levels, and furthermore is also now a significant drag on the national economy. Combined, NCDs are a real challenge to Bhutan's sustainable development,' he says.

The health sector alone cannot address issues such as pricing, regulation and enforcement of products that are harmful to people's health, Mr Vochten says, concluding that all parts of Government must work together to tackle the root causes of NCDs. 'Although we are a small team with limited resources, the UN team in Bhutan is committed to step up its action to support Government action against NCDs,' he adds.

A report with a set of recommendations for action in Bhutan is currently being finalized by Dr Nick Banatvala, the team leader, and the rest of the Joint Mission, in close collaboration with the Government and the UN team on the ground, to ensure that Bhutan is well placed to report at the Third High-level Meeting on NCDs in 2018 and continues its progress in meeting the NCD-related Sustainable Development Goals.

SOURCE: WHO (2017)

1. Identify the WHO priority that is reflected in the case study.
2. Explain why this is a WHO priority.
3. Describe the health issues affecting the population of Bhutan.
4. Describe the work of the WHO in this program.
5. Outline the importance of this action plan in the promotion of good health and wellbeing.
6. Select one of the UN SDGs and discuss how this work could help achieve this goal by 2030.
7. Explain how the work that is being done in Bhutan could be used to assist other countries in promoting good health and wellbeing.

ACTIVITY 11.4: STORIES FROM THE WHO

Visit the WHO website and read the WHO brochure *The World Health Organization: Working for better health for everyone, everywhere.*

1. Choose one example of the WHO's work.
2. State which WHO priority is reflected in your chosen example and discuss how this is being achieved.
3. Find another example for each of the WHO priority areas.

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DISCUSS



Discuss the importance of the WHO in the promotion of health and wellbeing, and human development. Provide specific references to the impact of the WHO priorities in each of these areas.

11.2 TYPES OF AID

There are many factors that contribute to inequalities in health status around the world. The main types of aid provided to low- and middle-income countries by Australia, alongside many other high-income countries and organisations around the world, are **emergency**, **bilateral** and **multilateral aid**. Each type of aid has a different **purpose**, and as a result their **characteristics** differ.

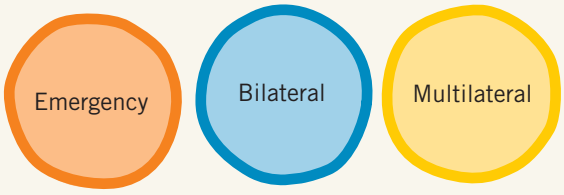


FIGURE 11.17 Types of aid

emergency aid: The rapid assistance given to people or countries in immediate distress to relieve suffering, during and after human-made emergencies (such as wars) and natural disasters (such as a flood, tsunami or earthquake); can also be called 'humanitarian aid'.

bilateral aid: Where aid is given by the government of one country directly to the government of another country. An example of bilateral aid is when Australia provides aid to East Timor.

multilateral aid: Where aid is provided through international organisations (such as the WHO, UN or the World Bank) to a country such as Syria. Multilateral aid combines donations from a number of high-income countries and distributes them to recipients, usually middle- or low-income countries.

purpose: What something aims to achieve.

characteristics: Features of what something looks like, what might be provided.

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DISCUSS



What examples of the three types of aid do you know of, or have heard about?

Discuss whether your examples are emergency, bilateral or multilateral.

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Emergency aid

Emergency aid is the rapid assistance given to people or countries in immediate distress to relieve suffering, during and after human-made emergencies (such as wars) and natural disasters (such as a flood, tsunami or earthquake). The purpose of emergency aid is to provide immediate relief in the area to effectively address the needs of those affected.

Sometimes referred to as 'humanitarian aid', this type of aid involves sending medicine, food, clean and safe water, temporary shelter, sanitation and other immediate requirements to people in areas of dire need. Governments and non-government agencies in several countries may work together to help keep people alive during the crisis by providing emergency aid.



FIGURE 11.18 Australian Aid hygiene and shelter tool kits en route to Vanuatu as part of the Australian Government's emergency relief after Tropical Cyclone Pam in 2015. Australian emergency supplies usually 'hit the ground' within 24 hours of a disaster.



FIGURE 11.19 Examples of emergency aid provisions



FIGURE 11.20 Emergency aid often includes the provision of survival essentials, including food and clean water.

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EXTENSION QUESTION 11.1

Suggest reasons why governments and non-government organisations respond to emergencies with the provision of aid.

The aid is delivered to repair local areas and repatriate citizens, but does not provide long-term health and wellbeing assistance. It is simply a short-term solution providing an immediate and initial response to ensure that the needs of those affected can be met. It does not address the causes of poverty or inequality; rather, it is about removing the immediate threats to health by providing the essentials needed for survival: food, water, temporary shelter and medicine.

EXTENSION QUESTION 11.2



Suggest the strengths and limitations of emergency aid. For example, how effective is the temporary shelter shown in this image?

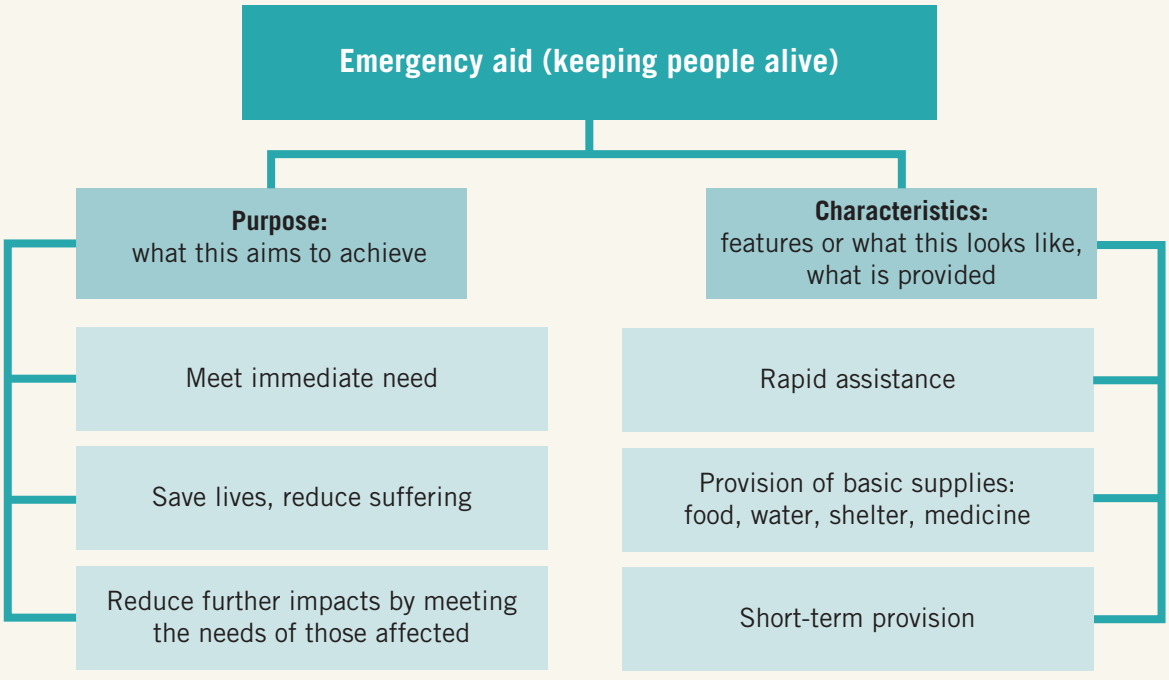


FIGURE 11.21 Purpose and characteristics of emergency aid

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CASE STUDY: CARITAS NETWORK RESPONDS TO POWERFUL EARTHQUAKE IN PAPUA NEW GUINEA

5 March 2018

Caritas Australia, the Catholic Church's international aid and development agency, with its partners on the ground, has started supporting affected communities in Papua New Guinea's central highlands, following the 7.5 magnitude earthquake which struck last week.

Strong aftershocks shook the mountainous region again on Monday, a week after the first quake.

Caritas is preparing to deliver emergency assistance including basic supplies like food, water and first aid, as well as supporting long-term needs like shelter.

It's estimated around 150 000 people remain in need of aid. The quake damaged major infrastructure in the country's remote highlands, including: hospitals, an airport, houses, schools, churches and roads. More than 30 deaths have been confirmed so far.

Four provinces have been affected, including the Southern Highlands, Hela Province, Northern Province and the Northern half of Western Province. The Government of Papua New Guinea has declared a national state of emergency.

The extent of the devastation has reportedly taken days to emerge because of the area's remoteness – about 500 km from the capital Port Moresby.

Caritas Australia's Disaster Response and Management Officer, based in PNG, Milton Kwaipo has been on the ground assessing the extent of damage in Hela Province.

'Water sources have been contaminated and this also includes clean and safe drinking water. These communities depend on water tanks but now have little if any drinkable water,' Mr Kwaipo said.

'There is a great need of help at this moment. There is a need for assistance in terms of food, water and medicine.

'Many families have also been badly affected by the landslides. Some are also scared to go to their gardens and collect food because of the continued tremors.'

SOURCE: Caritas Australia media release

1. Identify the type of aid being provided in this case study.
2. Outline the type of response that is provided.
3. Explain why this type of aid is critical.
4. Justify why this type of aid is the most appropriate type of aid for when disaster strikes.
5. Research another emergency aid response and consider:
   - Who has provided the aid?
   - Why has the aid been provided?
   - What is the outcome of the aid?
   - What might be needed in the future?

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Bilateral aid

Bilateral means 'two sides', and bilateral aid is where aid is given by the government of one country directly to the government of another country. The governments of both countries work together to ensure the aid being received is meeting the needs of the country and its people. The amount of aid given will depend on the needs and capabilities of both countries involved. For example, Australia works closely with the government of Papua New Guinea (PNG) to ensure that the program reflects PNG's development priorities, as well as reflecting the aid priorities of Australia and our ability to assist the needs of PNG.

The purpose of bilateral aid is to work with and provide other countries with the assistance they need to promote health and wellbeing, as well as sustainable economic growth and prosperity. For many countries providing bilateral aid, their assistance has been driven by the SDGs. In most situations, the bilateral aid partnership is between a high-income and low-income country. Bilateral aid is often given for political or strategic reasons, including developing or strengthening trade relationships. Some people are critical of this type of aid because it can be perceived as politically motivated.



FIGURE 11.22 Australia is proud to be a partner for healthcare in PNG, supporting the PNG Government with initiatives that will improve the lives of hundreds of thousands of people in remote communities. This includes improving access to primary healthcare across PNG by building new health centres and training healthcare professionals and providing routine immunisation support.

Bilateral aid is the most common type of aid, and examples include specific projects such as building hospitals and training medical personnel to provide access to healthcare.

EXTENSION QUESTION 11.3

Explain why bilateral aid is important for both donor and recipient countries.

Bilateral aid often involves providing essential infrastructure, such as supplying electricity, building and establishing roads, improving water supplies, or medical facilities such as hospitals and clinics. But it can also include a focus on education, food security, humanitarian needs, gender equality and building civil society. These services are all focused on promoting health and wellbeing, and human development. Australia has provided bilateral aid to Papua New Guinea (its nearest neighbour, and a middle-income country) that includes funding for education programs, developing skills (such as sustainable farming practices to ensure a safe and plentiful food supply), and establishing a farming industry in communities experiencing poverty.

ACTIVITY 11.5: A FOCUS ON BILATERAL AID WITH PAPUA NEW GUINEA

Using the #PNGAusPartnership find an example of bilateral aid between Australia and PNG.

1. Describe the reason for the program.
2. Discuss what this program is aiming to achieve.
3. Outline how this program reflects the characteristics of bilateral aid.
4. Justify why this type of aid is best for the desired aid program achievement.
5. Suggest how this program is improving the health and wellbeing of people in PNG.
6. Suggest how this program is improving the human development of people in PNG.

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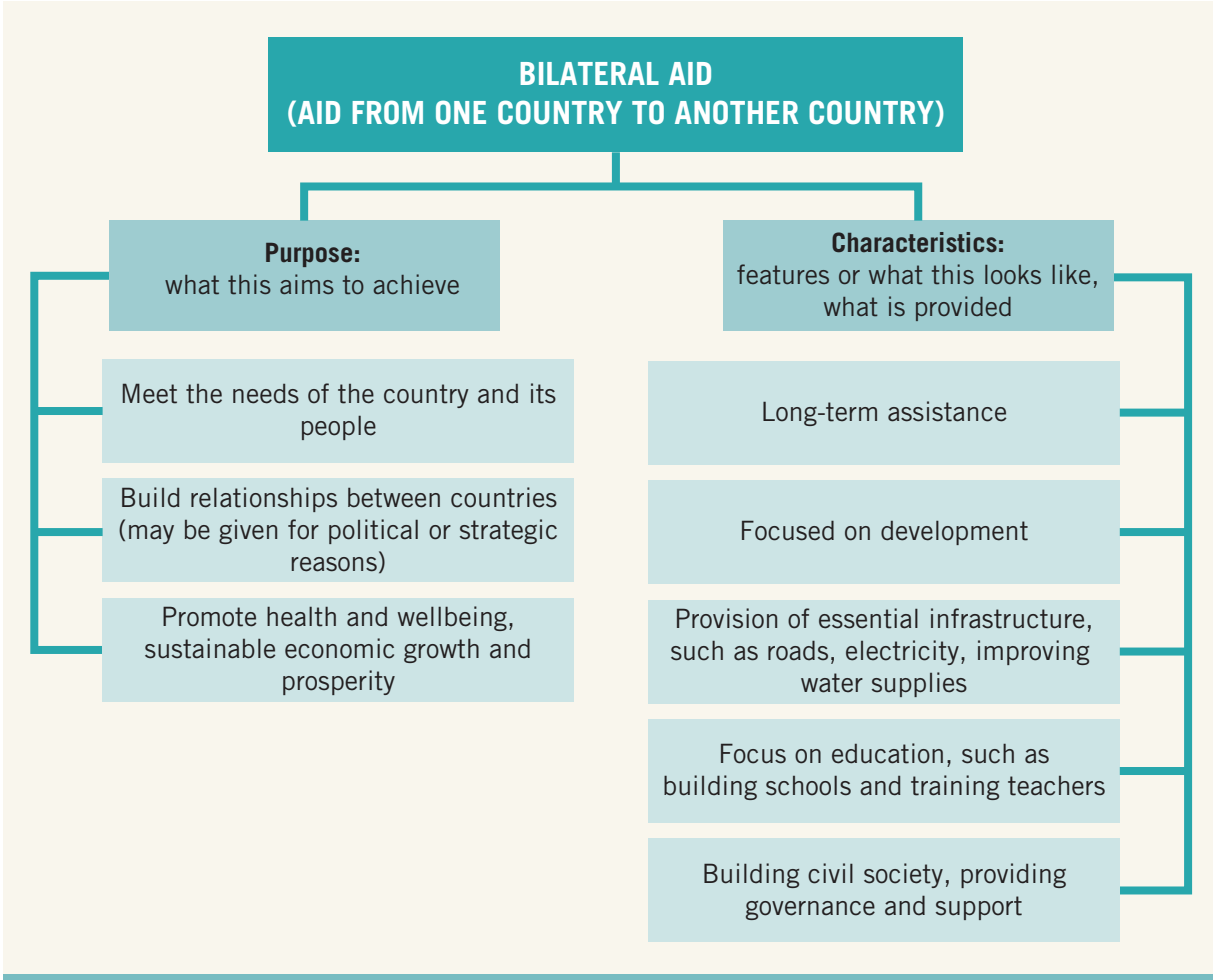


FIGURE 11.23 Purpose and characteristics of bilateral aid

Multilateral aid

Multilateral means 'many sides' where aid is provided through an international organisation such as the WHO, the United Nations or the World Bank. Multilateral aid combines donations from a number of high-income countries and then distributes them to the recipients, (middle- and low-income countries) such as Syria. The resources provided by governments of high-income countries to these international organisations are then used to fund programs focused on improving global health and wellbeing, and human development in low- and middle-income countries. Many of these aid programs have been working towards achieving the SDGs. The purpose of multilateral aid is to provide large-scale support at a global level, in order to address issues impacting global health and wellbeing, as well as human development.

Multilateral aid has the potential to reach many people, including those who need it the most. This type of aid can have a significant impact due to the large-scale projects that are able to be undertaken. Through its aid program, Australia works with multilateral organisations such as the World Bank, the United Nations and the World Food Programme (WFP). These partnerships enable and extend the reach of Australia's aid response in a larger scale than would be possible for any of the parties to achieve alone. Australia provides funding to organisations and funds including the United Nations (UNICEF, UNDP), the Global Fund to Fight AIDS, Tuberculosis and Malaria, the Global Partnership for Education and the Global Environment Facility.

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EXTENSION QUESTION 11.4



FIGURE 11.24 A young child about to be immunised with a vaccine, provided by the multilateral organisation GAVI Vaccine Alliance.

Explain how this type of aid program could assist in achieving SDG 3.

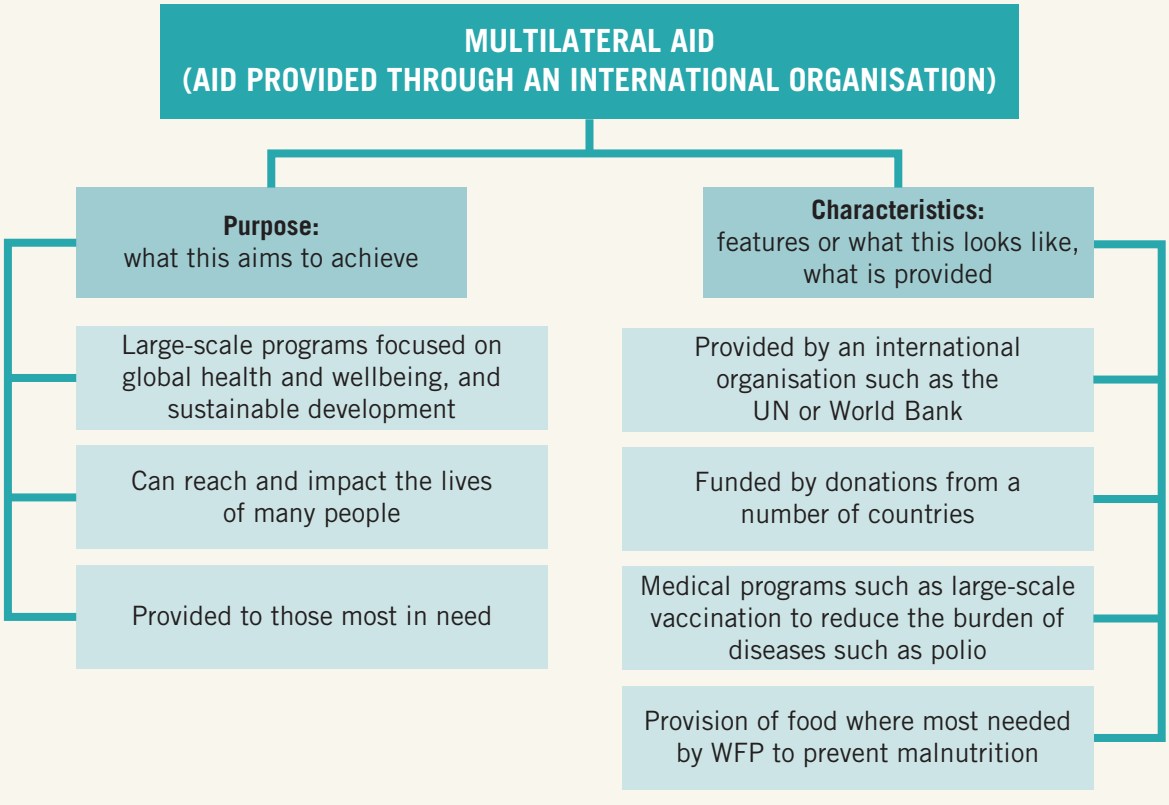
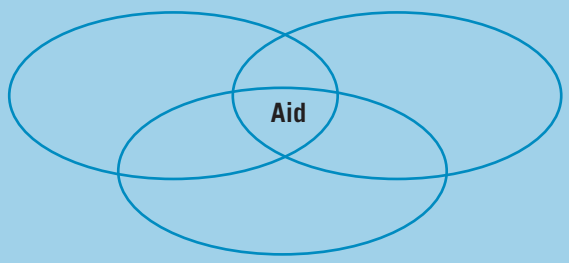


FIGURE 11.25 Purpose and characteristics of multilateral aid

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ACTIVITY 11.6: COMPARING CHARACTERISTICS



Complete the Venn diagram to compare the characteristics of the different types of aid.

ACTIVITY 11.7: INVESTIGATING THE TYPES OF AID

1 Use the internet to research an aid program for each of the different types of aid. Complete the table below.

2 For each type of aid, try and find one Australian and one international example.

TYPE OF AID	ISSUE AID IS ADDRESSING	ORGANISATION PROVIDING THE AID	COUNTRY AND PEOPLE RECEIVING THE AID	JUSTIFICATION OF WHY THIS IS THE BEST TYPE OF AID PROGRAM TO ADDRESS THIS ISSUE	WEBSITE REFERENCE
Emergency					
Bilateral					
Multilateral					

FIGURE 11.26 The WFP is another example of a multilateral aid program. This program is the frontline agency working to fight against global hunger by getting food to where it is needed and helping communities rebuild lives. It is the vision of the WFP that all people have access at all times to the food needed for an active and healthy life.



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11.3 AUSTRALIA'S AID PROGRAM

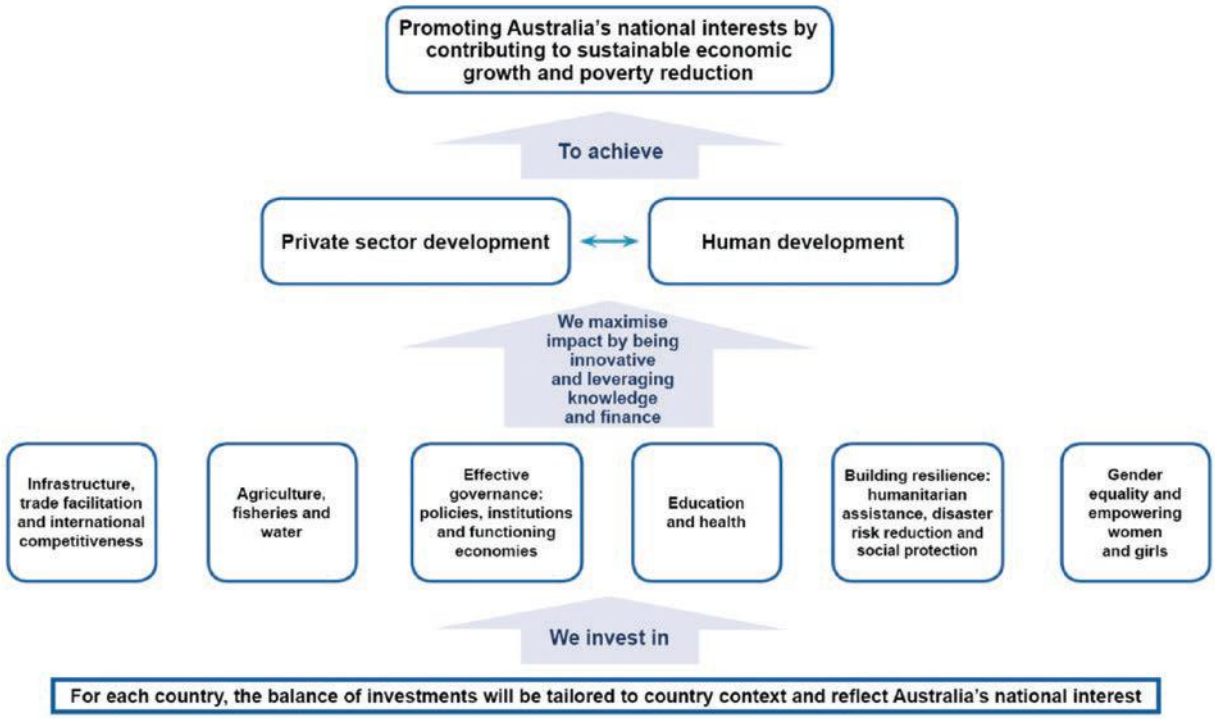
The Department of Foreign Affairs and Trade (DFAT) currently manages the Australian Government's overseas aid program. While the work of Australia's aid program is focused on working with neighbouring countries within the Indo-Pacific region, Australia also responds to emergency relief and humanitarian situations around the world.

Features of Australia's aid program

Essentially, Australia's aid work is based on 'promoting prosperity, reducing poverty, enhancing stability'. The purpose of the Australian aid program is to promote Australia's national interests by contributing to sustainable economic growth and poverty reduction. Aid is delivered to low- and middle-income countries based on the strategic framework that ensures Australian aid:

- pursues our national interest and extends Australia's influence
- impacts on promoting growth and reducing poverty
- reflects Australia's value-add and leverage
- makes performance count.

FIGURE 11.27 Australian Aid logo



SOURCE: The strategic framework for the aid program, DFAT

FIGURE 11.28 Strategic framework for Australia's aid program

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FIGURE 11.29 Features of Australia's Aid program

To achieve this, Australia's aid program focuses on two development outcomes: supporting private-sector development and strengthening human development.

The types of aid the Australian government contributes to include:

- **Emergency aid.** This is provided in times of disaster and crisis, directly to the country and area affected. Australia is able to respond quickly in times of crisis and provides lifesaving resources such as food, water, medicine and shelter, as well as medical personnel.
- **Bilateral aid programs.** This involves working with the government of another country to supply aid, such as the training of medical professionals or building bridges and roads. The Australian Government provides direct aid to 75 countries through bilateral programs.
- **Non-government organisations.** Providing funding to non-government organisations and supporting their aid programs. This type of aid is the most effective in meeting the needs of the most vulnerable populations.
- **Funding international multilateral aid programs.** These include the United Nations and the WHO. Funding these programs extends the impact of Australia's aid because these large-scale programs are not able to be provided effectively by individual countries.
- **Expert aid.** This uses Australian companies and individual experts to develop projects that will address the Australian Government's aid priorities.

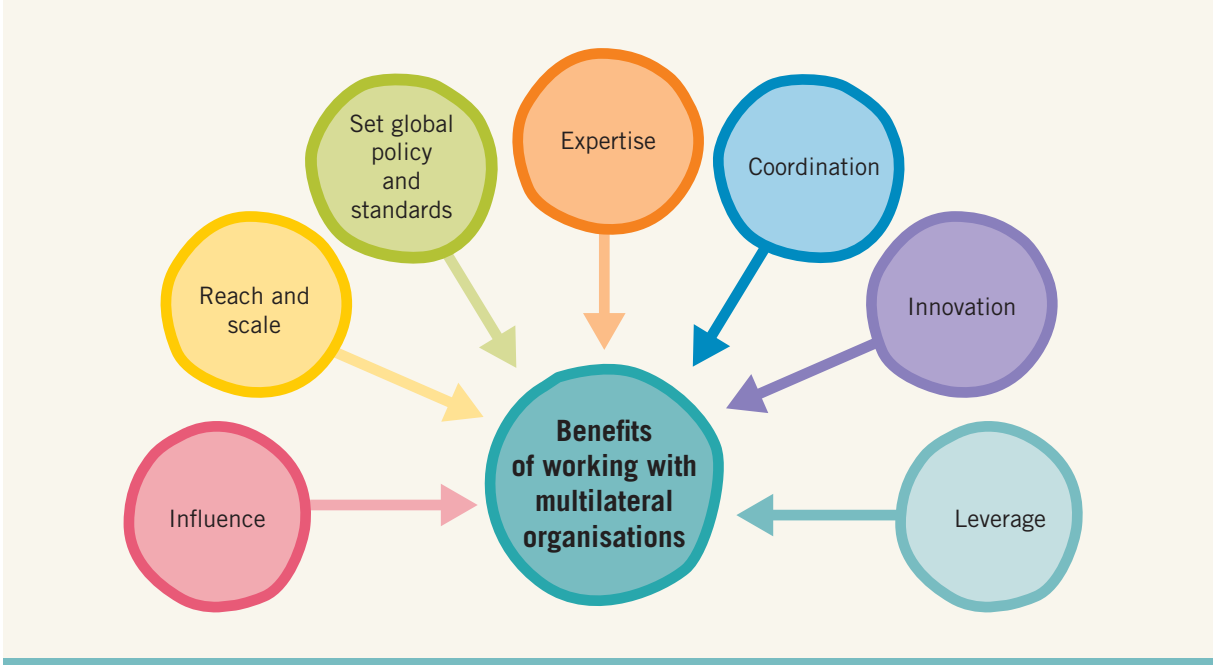


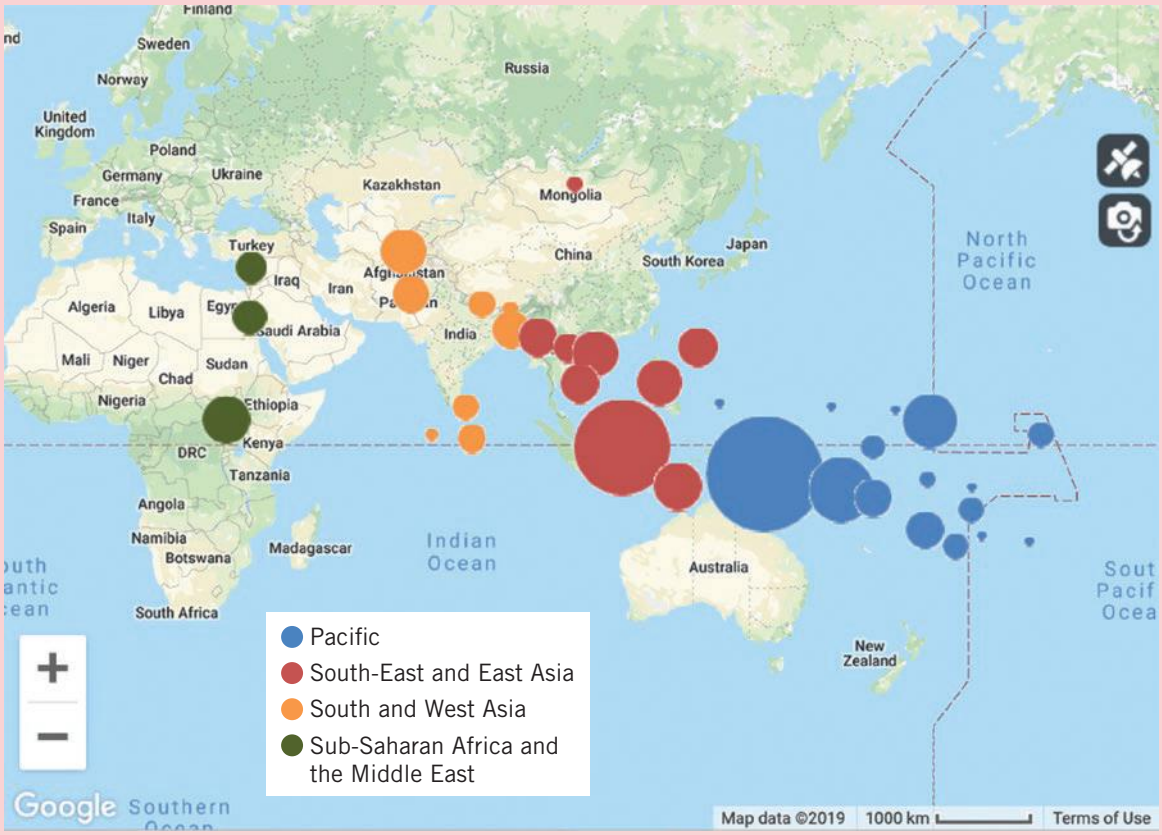
FIGURE 11.30 Why Australia works with multilateral organisations

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ACTIVITY 11.8: AID PARTNERSHIPS

A feature of Australia's aid program is partnerships. Visit the DFAT website (https://cambridge.edu.au/redirect/8658) and design a concept map to summarise why Australia works with multilateral organisations.

DISCUSS



SOURCE: Australian Government, Department of Foreign Affairs and Trade

FIGURE 11.31 Australia provides aid to a number of low- and middle-income countries around the world, with a focus on the Indo-Pacific region.

Discuss reasons why most of Australia's aid is devoted to countries close to its own shores (Indo-Pacific region).

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Partnerships

Australia's aid involves a range of partnerships. Working with a wide range of groups is essential for an effective aid program. The overall effectiveness of Australia's development program has much to do with the quality of partnerships – bilaterally, regionally and multilaterally.

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Bilateral partnerships	Multilateral partnerships	Private sector partnerships	NGO partnerships	Whole of government
The impact and reach of Australian aid is enhanced through strong and effective bilateral partnerships with other donors. By working in partnership, we learn from and leverage one another's experiences and resources to achieve our development objectives.	Multilateral organisations achieve significant development results and are important partners for the Australian aid program. Their reach, leverage, specialisation and other strengths play a critical role in helping Australia to meet its international development objectives. Around one-third of the aid budget is chanelled through multilateral organisations.	Partnerships with the private sector are an important way for Australia to achieve its aid and development objectives and maximise the overall development impact of its investments.	NGOs maximise the impact and reach of Australian aid and are key partners in our joint efforts to encourage sustainable economic growth and poverty reduction. NGOs can bring strong connections to local communities; access to areas that others don't or can't reach, such as in remote, fragile and conflict affected areas; comprehensive knowledge of poverty in particular contexts and deep development expertise to the aid program.	DFAT is only one of many Australian Government departments and agencies involved in delivering Official Development Assistance. Together, they provide a wide range of expertise that enables Australia to address the development, economic, security and political aspects of partner countries.
We work with countries to promote sustainable economic growth and prosperity by focusing on: aid for trade, humanitarian needs, health services, gender equality, water, sanitation and hygiene, infrastructure development, leveraging private sector finance, education, food security and building civil society.	United Nations (UNDP, UNICEF), GAVI, the Vaccine Alliance, Global Fund, UN Women, Global Partnerships for Education, Global Green Growth Institute, Green Climate Fund	We offer business: the ability to convene, broker and influence; deep knowledge of the business; political and regulatory environment in low-income countries; support in creating a more attractive business operating environment and catalytic funding. Businesses contribute: knowledge, ideas, capabilities and resources.	We work with NGOs who have demonstrated their ability to deliver results against our objectives, who offer value for money, and who have strong local partnerships that support collaboration, capacity building and sustainability. Australian NGOs must be accredited by DFAT. Eligible NGOs include: CARE Australia, TEAR, Australia, World Vision, Oxfam Australia, The Fred Hollows Foundation, Caritas Australia, PLAN International and ChildFund Australia.	Other Government Departments working in partnerships to deliver Australian Official Development Assistance include the Australian Federal Police (AFP) and The Australian Centre for International Agricultural Research.
Example: Australia provided $139 million in a bilateral partnership with Papua New Guinea on a bridge reconstruction project, helping to connect an estimated 100 000 people.	Example: Australia works with UN Women to support international efforts to empower women and promote gender equality. UN Women was created to bring together the work of four areas across the United Nations to create one centre of expertise that will meet the needs of women worldwide.	Example: DFAT is partnering with the Australian Council for Educational Research's (ACER) Centre for Global Education Monitoring to improve monitoring of learning. ACER is an independent educational research centre with self-generating income. This partnership is enabling countries in our region to access technical advice from a global leader on assessment. The Melbourne-based organisation is also using the new centre-based approach to consolidate lessons across its portfolio of work, and then share with the broader education research community.	Example: World Vision's Solomon Islands Maternal, Newborn and Child Health and Nutrition Project. CARE Australia's Safe Motherhood Project in Timor-Leste.	Example: The Australian Centre for International Agricultural Research works to improve the productivity and profitability of the agricultural sector in the Indo-Pacific region through international agricultural partnerships. The AFP undertake activities in the region aimed at establishing, developing and monitoring peace, stability and security.

FIGURE 11.32 Australia's aid partnerships (Source: DFAT)

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In partnership with the International Trade Centre and Austrade's Women in Global Business initiative, Australia is assisting women in small women-owned businesses to sell their products through linking them to buyers and trade-promotion organisations. Women's businesses perform better and grow at more than double the rate of other businesses. Female earnings are proven to drive poverty reduction, with women who have a high earning potential using their income and increased bargaining power to improve their families' wellbeing.

Australia's aid priority areas

The work of Australia's aid reflects the six aid priorities, all of which are working towards the achievement of private sector development and human development, reducing poverty through economic growth.

Agriculture, fisheries and water

Many people in low- and middle-income countries rely on agriculture and fishing for employment. Productive agriculture provides employment and income, empowers women and lifts people out of poverty. In order to meet global food supply requirements, productivity will need to increase dramatically, especially in the Indo-Pacific region. Water resources are also critical in this priority area, as competing demands for water grow.

These industries provide the livelihood for millions of people, particularly women and people in rural areas, with agricultural industries a strong foundation for economic development. Much of the work in the farming industry is carried out by women, so not only does work in this area impact economic development and increased food security; it also impacts gender equality and empowerment of women. Effective and sustainable farming and fishing practices are critical for the sustainability of our environment; already, over-fishing is threatening our fish supplies and the sustainability of the fishing industry.



FIGURE 11.33 Australia's aid is supporting agricultural productivity, sustainable fisheries management and water resource management.

The focus of work in this area is based on:

- **strengthening markets** – helping to increase small-scale farmers and fishers' participation in markets, encouraging private sector investment, developing and adopting innovative practices (with an emphasis on women's economic empowerment)
- **innovating for productivity and sustainable resource use** – improving food and agricultural productivity and promoting more efficient and sustainable use of natural resources, using international and Australian research and expertise
- **policy, governance and reform** – assisting partner countries to achieve more effective policy-setting to promote sustainable and inclusive growth and open trade, and improve the enabling environment for business, investment and innovation.

EXTENSION QUESTION 11.5

Explain how investment in these areas contributes to sustainability.

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FIGURE 11.34 Australia's aid priorities

Examples of Australia's work in this priority area include:

- new partnership developments with private enterprises in Cambodia, Indonesia, Fiji, Timor-Leste and Pakistan
- in Cambodia, reducing rural poverty and increasing food security by improving the productivity and incomes of smallholder rice farmers by constructing and rehabilitating irrigation, providing training in modern farming techniques and delivering access to farming resources, such as fertilisers and pesticides
- through the 'Grow Asia' partnership with the World Economic Forum, bringing together business, government and the community, and linking small-scale farmers to emerging regional and global markets.

Building resilience: humanitarian assistance, disaster risk-reduction and social protection

Australia has made a commitment to respond promptly and effectively to humanitarian disasters, in line with our global responsibilities and commitments. The Indo-Pacific region is vulnerable to disaster situations such as natural disasters, conflict and economic shocks (for example, dramatic food or fuel price increases), resulting in increased levels of poverty and insecurity. Our region is experiencing more frequent and severe climate-related disasters, such as floods, tsunamis, cyclones and earthquakes. In these disaster situations, humanitarian assistance is urgently needed to save lives. When the impact of a disaster exceeds a country's capacity to respond, Australia is ready to provide assistance. This priority is important because humanitarian crises undermine growth and gains made in improving development.

Social protection is a relatively new area of work in Australia's aid program. Australia supports social protection programs to help poor people deal with unpredictable daily stresses and unexpected shocks.

Examples of Australia's work in this priority area include:

- responding to disasters by rapidly sending life-saving assistance
- sending highly trained staff from its Crisis Response Team (CRT) to provide essential humanitarian support such as medical care. Team members have a high level of expertise in humanitarian response
- working with and providing funds to programs such as the UN World Food Programme to address the needs of hunger and food insecurity around the world
- working with countries to help them build their resilience and reduce the risks of the impact of future disasters on their country
- in the Philippines, supporting the Conditional Cash Transfer program, which has reached 4.4 million poor households, lifting 1.5 million households out of poverty since 2010. Support has also involved helping to develop the program by targeting vulnerable groups such as people with a disability.

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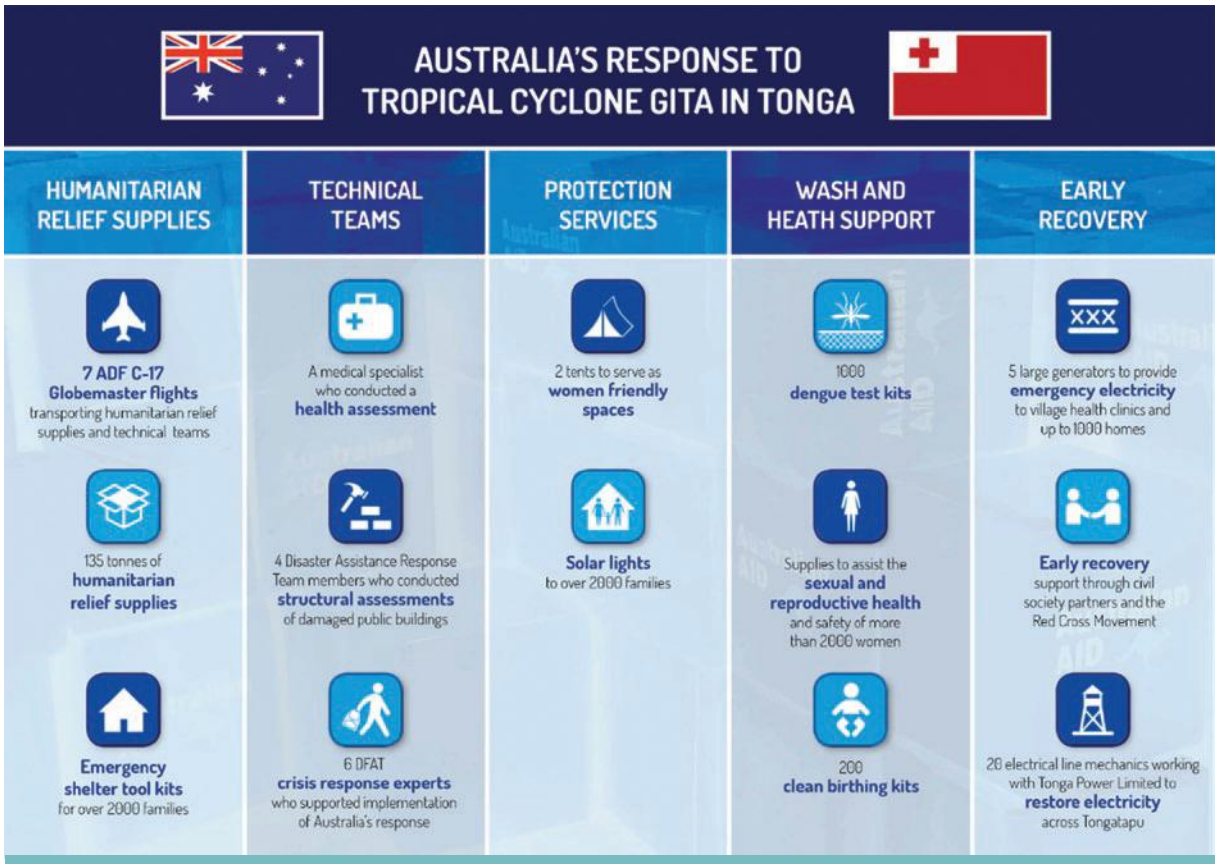


FIGURE 11.35 Australia's aid response after Tropical Cyclone Gita made landfall in Tonga on 12 February 2018, causing severe damage to the main island of Tongatapu. The cyclone caused US$164 million of damage (equivalent to 38 per cent of GDP).

Education and health

Quality education and health are not only SDG goals, but also critical in the improvement of human development, health and wellbeing. Quality education and healthcare help individuals, families, communities and nations to overcome poverty and realise their full potential. Receiving an education – even at primary school level – and having access to healthcare enables people to experience a decent standard of living, improve their livelihoods by being able to work and send their children to school, thus lifting them out of poverty.

In the Indo-Pacific region, many young people are not completing their education because they need to leave school to earn an income and help support their families. Women, girls and people with a disability are particularly disadvantaged, with reduced access to education through poor-quality and inadequate resources. Conflict is a significant factor affecting educational opportunities. The World Bank estimates that 42 per cent of out-of-school children are in conflict-affected countries. Yet, for the young people in these countries, education is critical to enable them to gain employment, escape poverty and be able to contribute to the peacebuilding process in their country, creating a better future for all.

Australia's investment in education will enable children – especially girls and children with a disability – to gain an education, learning the skills they need to obtain work or move on to further study, and to lead productive lives and participate in their community.

Girls who are educated are more likely to marry later and have fewer children, are

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FIGURE 11.36 Education is critical in the promotion of health and wellbeing, and in human development – particularly for girls. In 2019–20 Australia's estimated budget expenditure in this area was $619.1 million.

healthier themselves and have healthier children (reducing maternal and child mortality), and are more likely to find secure work and to educate their own children.

Examples of Australia's work in this priority area include:

- supporting the operating schools in remote areas of Fiji, targeting socially disadvantaged families and providing accessible education to children
- supporting teacher training, curriculum reform and improved learning assessment
- building and improving schools and their infrastructure resources in disadvantaged regions in Indonesia and other countries
- providing Australian Award scholarships that enable people from low- and middle-income countries to study in Australia or within their region, build industry networks and then return home with new training to contribute to economic and social development.

The priority is placed on health systems by Australia so that women, men and children can achieve better health, and live healthy and productive lives. Health challenges faced in our region include the dual burden of rising rates of non-communicable diseases (cancer, diabetes and cardiovascular disease), as well as the continuing impact of infectious diseases. These are a focus for Australia's aid.

Investment in health saves lives, increases life expectancy and enables economic and social growth, providing prosperity for individuals, communities and countries. The three core investments in health (water, sanitation and basic nutrition) are critical for improving health outcomes.

Examples of Australia's work in this priority area include:

- in Cambodia, the successful training of midwives, which has improved their capacity to provide quality reproductive, maternal and neonatal health services
- providing funds to the UNAIDS Programme, supporting the implementation of the UNAIDS Strategy with a focus on the Asia-Pacific region
- investing in the development of new drugs and diagnostic tools for malaria and tuberculosis.



FIGURE 11.37 Australia is Papua New Guinea's largest bilateral aid donor. Aid includes a focus on improving maternal and child health care. Australia's support of the Saving Lives, Spreading Smiles (SLSS) Program in partnership with PNG Government, UNICEF Papua New Guinea and P&O Cruises Australia will help to reduce preventable deaths and injuries during pregnancy and after birth in Milne Bay Province.

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EXTENSION QUESTION 11.6

Papua New Guinea has the highest rate of maternal mortality in the Pacific. Suggest examples of how Australia and PNG could work in partnership to improve maternal and child healthcare.

Effective governance: policies, institutions and functioning economies

Governance influences the ability of governments to develop and implement good policy, and the extent to which citizens have access to basic services and businesses flourish. In countries where governance is poor or corrupt, human development outcomes are also poor. Australia invests in building governance systems that have a direct role in promoting stability and peace, encouraging economic growth, working towards poverty reduction and advancing gender equality.

The focus of Australia's aid work in this area includes:

- strengthening transparent and accountable law and justice systems
- improving business regulations
- supporting efforts to address corruption
- building fairer and broader tax systems
- enabling quality public services
- preventing conflict and contributing to inclusive peace-building initiatives
- building strong and effective governance systems to promote stability, inclusive economic growth, poverty reduction, stronger gender equality and women's empowerment.

Examples of Australia's work in this priority area include:

- increasing women's leadership roles and political participation in municipal councils in Vanuatu
- working closely with the government of Timor-Leste to help diversify the country's economy, which is currently heavily dependent on oil and gas revenue, to enable it to be more resilient and sustainable in the future



FIGURE 11.38 The Credit Union Development program is providing people like Harn in rural Cambodia the chance to open village bank accounts or apply for microfinance loans to develop small businesses. This program is working to reduce poverty and boost economic prosperity in Cambodia. It is implemented by Credit Union Foundation Australia which is supported by the Australian Government through their NGO Cooperation Program.

- encouraging and supporting peace negotiations and political discussions in Myanmar and the Philippines, including promoting the role of women in peacebuilding
- supporting Pacific Island countries to prevent and combat corruption.

Gender equality and empowering women and girls

Gender equality and women's empowerment are core issues for development, growth, security, stability, health and wellbeing. Gender inequality is a critical issue in the Indo-Pacific region. If wage gaps between men and women were closed (currently women earn an average

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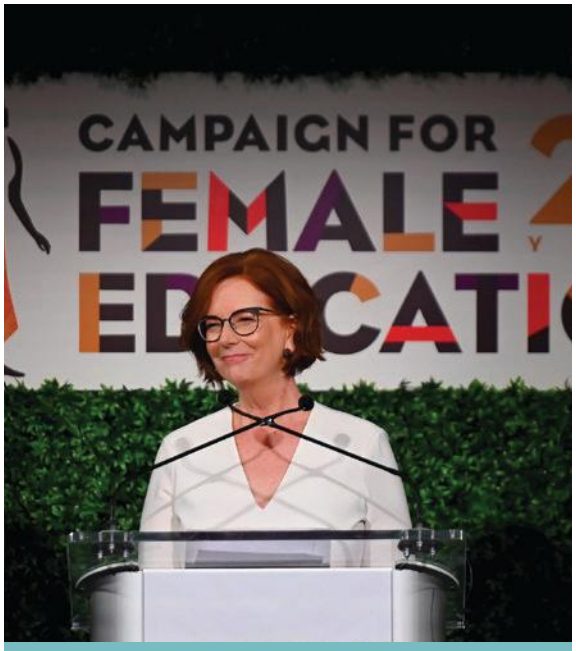


FIGURE 11.39 Australia's work in this priority includes: enhancing women's voice in decision-making, leadership and peace-building, promoting women's economic empowerment and ending violence against women and girls.

of 10–30 per cent less than men), individuals, families and communities would be lifted out of poverty. Women who are educated have fewer and healthier children, and are able to support their families better. It is suggested that by providing female farmers with equal access to resources, hunger could be reduced for an extra 150 million people.

Examples of Australia's work in this priority area include:

- working with women and girls who have been the victims of violence, providing counselling and support, emergency housing and legal advice, in countries such as Papua New Guinea, Afghanistan and Fiji
- working to address the under-representation of women in parliament in the Pacific as a part of its Gender Equality Fund – currently, women make up only 5 per cent of members of parliament compared with the global average of 22.5 per cent
- providing safe spaces for women as a part of emergency aid provisions.

ACTIVITY 11.9: SUPPORTING WOMEN'S ECONOMIC EMPOWERMENT IN VIETNAM

View the video *Supporting Women's Economic Empowerment in Vietnam*.

1. Outline the aim of the Australian aid project.
2. Name the Australian aid priority reflected in the program.
3. Identify the type of aid used in this program.
4. Describe how this program is being implemented, including the partnerships involved.
5. Describe how this program reflects the features of Australia's aid program.
6. Outline how the savings program has been used by women in this community.
7. Explain the impact this program has had on the women in this community.
8. Evaluate the impact of the aid program on the health and wellbeing of the women in this community.
9. Evaluate the impact of the aid program on the human development of the women in this community.

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Infrastructure, trade facilitation and international competitiveness

One of the largest constraints to development in our region is inadequate infrastructure. Strong infrastructure is vital for sustainable economic development, and for low- and middle-income countries, lack of infrastructure can be a significant barrier affecting trade opportunities and international competitiveness. Australia is committed to addressing the needs of inadequate infrastructure and creating the right conditions for sustainable economic growth, trade development and investment opportunities across the Indo-Pacific region. Infrastructure such as roads, large-scale water and sanitation projects, energy and transport have all been a focus of this aid priority area.

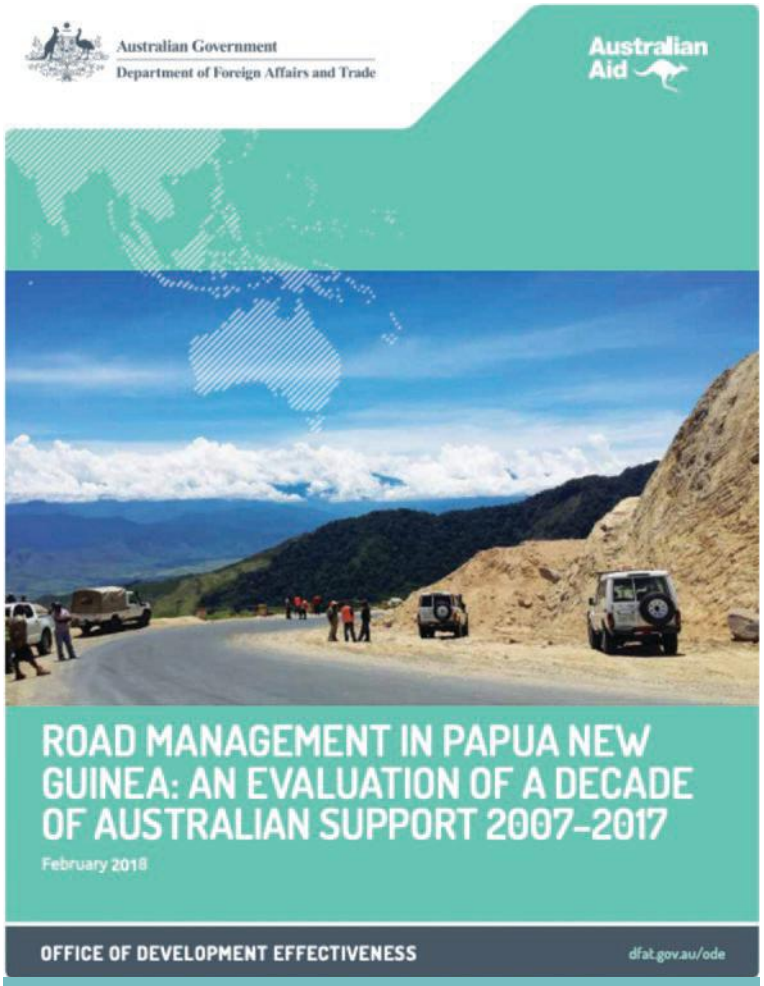


FIGURE 11.40 Improved transport infrastructure supports economic growth through increased accessibility, productivity and efficiency. Without safe and reliable transport, people cannot access markets to sell their produce or goods, families have difficulty accessing healthcare and children may not attend school. This makes it difficult for people to participate actively in the life of their community.

Infrastructure drives economic growth because it creates opportunities for trade and investment, generates employment and provides poor people with access to basic services. Reliable roads, improved access to safe water and sanitation, a reliable energy supply and technology infrastructure all contribute to the promotion of health and wellbeing, particularly for people living in poverty. Australia's experience and expertise in developing and providing infrastructure are highly important to our partner countries. We are considered a world leader in infrastructure areas such as sustainable urban planning and development, water resource management, as well as in developing innovative public-private partnerships.

Water and sanitation investment contributes to economic productivity and opportunity, and directly improves health. Increased access to water and sanitation improves productivity, reduces the time and costs associated with poor health and supports economic growth, increasing employment and earning potential. Stable and secure income reduces poverty and enables individuals and communities to provide for their needs, such as housing, education and healthcare, thereby promoting and improving health and wellbeing, and human development.

Higher productivity and economic benefits are realised from investments in information and communication technologies (ICT), including smartphones. This creates new jobs, lower costs, new economic opportunities and increased trade, as well as improved health and education services for people in need and

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the strengthening of social participation in communities.

Access to reliable energy is critical for individuals, communities and businesses. To deliver reliable and affordable goods and services, companies need reliable energy. This increases incomes through developments in productivity, such as farming practices. Efficient and reliable electricity provides families and communities with a decent standard of living, including safe lighting. Clean cooking fuels have health benefits: they prevent the harmful effects of indoor smoke from cooking on a fire and dramatically improve safety within the home.

ACTIVITY 11.10: HELPING TO RESTORE POWER IN TONGA

Cyclone Gita destroyed Tonga's electrical infrastructure. Australia answered the call to help restore their power. Watch the DFAT YouTube video *World Humanitarian Day 2018 – Cyclone Gita* and complete the following activities:

1. Name the type of aid used in this program.
2. State how Australian electrical industry personnel became involved in this partnership.
3. Explain how they worked together to support the needs of the Tongan people.
4. State the priority areas for the restoration of the power and explain why they were chosen.
5. Describe the experiences of the Australian workers.
6. Explain how restoring this infrastructure promoted health and wellbeing.
7. Identify the Australian aid priority being addressed.
8. Outline why it was important for Australia to be involved in this initiative.
9. State how this partnership assisted Tonga.



FIGURE 11.41 Trade can boost employment, incomes and government revenue, strengthening economic development. Aid for trade accounts for about 40 percent of all aid funding to Asia and Pacific regions.

Alongside infrastructure is investment in trade and international competitiveness. No country has achieved high and sustainable growth without international trade. Trade boosts sustainable economic growth, reduces poverty through employment and selling of goods and services, lifts living standards and develops the skills and knowledge of individuals and communities.

EXTENSION QUESTION 11.7

Using examples of Australia's aid program work, analyse the implications of increased trade for health and wellbeing.

Development and support of new and private-sector development businesses is also a focus within this priority.

Examples of Australia's work in this priority area include:

- a water and sanitation initiative in Indonesia – an economic program encouraging local governments to invest in their own water infrastructure

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- a focus on roads, including maintenance of existing roads and the construction of new roads, rail and airports
- as part of the Eastern Indonesia National Road Improvement Program, support for 20 major road projects across nine provinces – a total of 395 km of national roads and 1300 m of bridge structures
- in Papua New Guinea, support for the building and maintenance of the country's national priority roads, improving access to services and reducing business costs through the creation of better functioning road infrastructures and networks.

Aid support is not only in physical infrastructure development but also the governance and policy capacity needed to provide safe, sustainable, affordable and reliable infrastructure. Also provided are:

- grants and loans for the building of infrastructure such as roads, schools and hospitals
- microfinance to support the development of new businesses
- support to develop the skills and knowledge of people and to build their employment and income-earning capacity
- economic empowerment of women through their involvement in trade. In Papua New Guinea, women are being assisted to develop cooperatives and market their craft goods internationally.

ACTIVITY 11.11: TRADE FACT SHEET

Read the Australian Government's Aid for Trade Fact Sheet, located on the DFAT website, and complete the following activities:

1 State why trade facilitation is a priority area for Australia's aid.
2 Outline what 'Aid for Trade' is about. Name the SDGs to which this program contributes.
3 Explain how aid in this area will contribute towards the achievement of two SDGs.
4 List Australia's Aid for Trade priorities.
5 Explain how these reflect Australia's aid priority areas.
6 Outline one example of aid investments, including the type of aid and any partnerships involved.
7 Describe its contribution to promoting health and wellbeing.
8 Describe its contribution to promoting human development.

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11.4 ROLE OF NON-GOVERNMENT ORGANISATIONS

Many non-government organisations (NGOs) around the world provide assistance to those in need. NGOs are not-for-profit groups that are organised on local, national or international levels. They take different approaches to aid, which include specific projects or programs, emergency aid, volunteering, education, health and development. The aid provided by NGOs often focuses on communities. Many NGOs advocate and campaign on behalf of those in need. They provide resources and support through programs such as the provision of wells, safe water and sanitation; bringing food into areas experiencing famine; and providing healthcare services including prevention programs for diseases such as HIV, malaria and TB. Another focus area for many NGOs is education, creating sustainable long-term programs to help communities. By improving conditions and providing opportunities and choices, NGOs are able to promote health and wellbeing, and human development, beyond providing emergency aid during crisis situations.

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NGO focus – Tabitha Foundation Cambodia

The Tabitha Foundation Cambodia is a sustainable NGO that has helped more than half a million people through its high-impact community development programs.

Tabitha Cambodia was founded in 1994 by Janne Ritskes, a Canadian with 20 years' experience working in the slums of the United States, the Philippines, Kenya and Cambodia. The Tabitha Foundation's mission is 'to enable the poorest of the poor in Cambodia to recognise and develop inherent skills and resources in a way that brings dignity and respect within the people we work with; within the country and within the world; and that will be measurable and visible improvement in the lifestyles of the people we work with.'

Its vision is 'to develop processes which will enable people to actively make their own choices and processes which will result in alleviation of poverty – results which can be clearly identified and seen.'

Tabitha Cambodia is currently working in 37 areas within 15 provinces, and directly with 30 000 families to ensure a better life. This includes providing food and income security (to lift them out of poverty), safe water, housing and education for their children.

Tabitha Cambodia's main activities include the following programs.

Community development through savings program

Tabitha family development workers help families to develop their vision for a better future and encourage them to join Tabitha's savings program. Families are encouraged to save a small amount each week, for a savings cycle of 10 weeks. The savings are collected weekly by Tabitha workers and returned with 10 per cent interest at the end of the cycle. Before beginning the savings program, each family decides what they are saving for – their 'dream'. They are then encouraged to purchase their first 'dream', whether it be a new tarpaulin to keep off the rain, drinking glasses or a mosquito net.



FIGURE 11.42 'Dream' saving to purchase a fishing net can provide food and income for the family. This income can then be saved for future additions such as a house, animals and a productive vegetable garden.

The idea of saving a small amount of cash each week is at the centre of the program. As families continue in the program, they are gradually able to earn a stable income, their savings increase further and this improves their security through the building or rebuilding of their homes.



FIGURE 11.43 On average, it takes between five and seven years to raise people out of poverty into a middle-class, rural Cambodian standard of living.

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Saving also creates opportunities for children to attend school and the family can celebrate social occasions (such as a birth or death) because they have the money to do so. It costs the Tabitha Foundation $20 to support one family through between five and 10 saving cycles each year. Families must be in the savings program to participate in any other Tabitha program.

Water sources program

Providing safe, clean and reliable water is a vital part of the Tabitha Foundation's programs. Water availability can be an issue due to Cambodia's tropical climate. In the wet season, there is an abundance of water, but in the dry season there is no rain, and this can last up to six months. Without wells, villagers are forced to drink water from open ponds and rivers, which may be polluted, resulting in diarrhoea or other serious infections.



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FIGURE 11.44 Providing safe, accessible and reliable water is a key factor in improving health and wellbeing, and human development. Each water source provides clean water for daily use and also generates income for families, by watering crops and raising livestock. Tabitha has provided more than 19910 water sources since 1994.

The water sources program builds three main types of wells, with the decision about which well is chosen depending on the type and quality of water available. Without water, crops cannot be grown all year round, and this greatly impacts food and income security. Families with wells are able to grow certain crops during the dry season – such as tomatoes, beans and lettuce – providing food for the family and the opportunity to sell excess produce, thus generating income. The average distance walked to collect safe water is 3 km. The provision of a well means that family members are no longer required to spend three or four hours each day collecting water. Children can instead attend school and women can tend to their crops, farms and families.

Cottage industry program

The Tabitha cottage industry program pays workers a fair price for traditional handicrafts and woven silk, providing training, employment and income. The products are marketed worldwide and sell well because Cambodian silk is a specialty. This program has helped to re-establish the silk weaving industry in the Takeo province. Many of the women employed to make the handicrafts are former sex workers who have contracted AIDS or sexually transmitted diseases, and are living with significant health issues.



FIGURE 11.45 Former street women who now work as part of the Tabitha cottage industry program

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Secure employment and income enables them to change and rebuild their lives as well as work with dignity and pride.

Women are empowered in this program, and can earn an average of US$250 per month. They are able to live decent, independent lives, taking pride in the beauty of the products they are making. Income has been used to pay for livestock, bicycles, education, healthcare and materials for housebuilding and other essentials, achieving a better quality of life for both families and communities.

House-building program

The Tabitha Foundation encourages volunteer teams to travel to Cambodia to build houses for very poor families. Many families participating in the Community Development Program are able to save enough money to buy land and the materials to build a house. However, some very poor families are unable to save all the money required, perhaps because the head of the family is a widow, a single mother or a landmine victim, or the household consists of children orphaned as the result of AIDs, or the family lives in a very poor area. Community elders help the Tabitha staff to choose the neediest families who own land where the house will be built, and contribute a small amount towards building materials. Tabitha's volunteer house-building teams then finance the materials needed and work with local builders to build the house.

The ongoing benefits of this program include:

- using local knowledge and expertise (local builders) which builds self-worth and a chance to enhance their own personal capacity and be involved in the life of their community
- builders being able to earn income by working, which helps to break the poverty cycle
- a safe house and access to clean water, providing protection and sanitation, and thus improving the health and wellbeing of everyone in the family.

School-building program

As the health and wellbeing, and human development, of individuals and families improves, the wants and needs of people shift from basic requirements of life to dreams of educating their children and providing them with a better future. There is a shortage of schools in Cambodia, especially in rural areas. Communities approach and work with the Tabitha Foundation to request a school for reasons such as:

- No school is available, so one needs to be built.
- School buildings are no longer usable and need to be replaced.
- New classrooms need to be built because the school is too small to accommodate all the students.
- A middle school needs to be built because there isn't one available for this age group.

In partnership with the Cambodian Government and the local community, Tabitha has been building and equipping schools in response to requests from communities. Once the school is built, Tabitha gives the ownership and responsibility of running the school to the Cambodian Government, through the Ministry of Education. Over 80 schools have been built to support the educational needs of Cambodian children.



FIGURE 11.46 Once families have met their basic needs, their attention turns to educating their children.

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CASE STUDY: LY SOI'S STORY

Ly Soi and his wife have six children. Prior to becoming involved with Tabitha Cambodia, they made cakes to sell. They did not have a home, but lived in a small open area under some trees. Mr Ly started saving the equivalent of 25 cents a week with Tabitha; now he saves about $2.50 a week as he has built up his financial security and capacity.

A volunteer house-building team from Australia built a small house for Mr Ly and his family. Since that life-changing event, he has rented some land to grow vegetables, has a well, cement under his house, pigs, a cow, farm implements, clothing for his family, dishes and pans, beds and sleeping mats, and a plastic table and chairs. Mr Ly and his wife still make cakes to sell, but they also sell the vegetables they grow.

Previously, only one of Mr Ly's children attended school; now five go to school and his eldest son helps run one of his three businesses.

Mr Ly is highly respected in the community, and helps Tabitha's field worker to find more families to assist.

Mr Ly's dream for the future is to own some land for farming, and therefore increase his business. He would also like to see his five school-aged children go to college and his eldest son get married.

SOURCE: Tabitha Foundation, *Australia Schools Booklet* (2006)

Consider Ly Soi's story and the strategies employed by the Tabitha Foundation, and complete the following activities:

1. Outline the aims of the Tabitha Foundation.
2. Describe the initiatives used by the Foundation to promote health and wellbeing.
3. Describe the initiatives used by the Foundation to promote human development.
4. Suggest reasons why Tabitha has focused on these chosen programs.
5. List the changes experienced by Ly Soi since becoming involved with Tabitha.
6. Evaluate the impact that being involved in the Community Development Program has had on Ly Soi and his family.

AOS 2

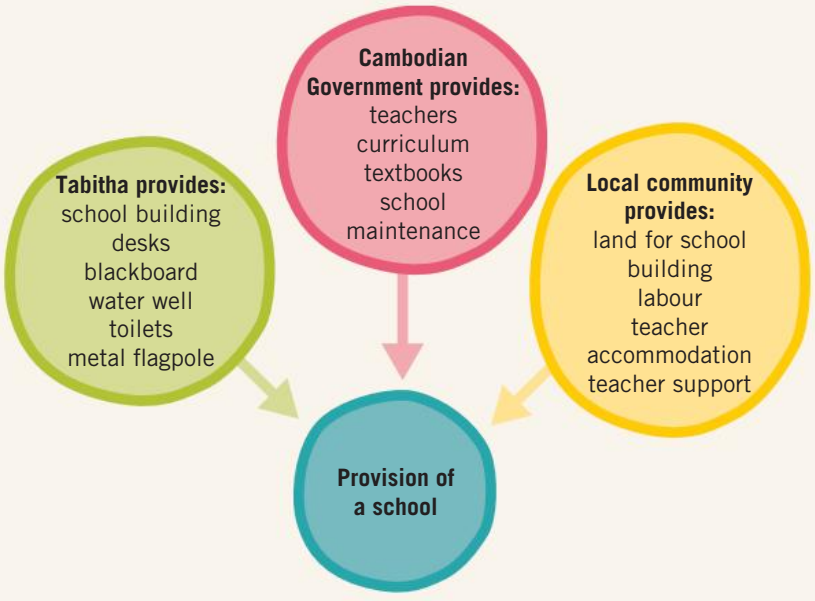


FIGURE 11.47 Working collaboratively to build and provide a school and education for Cambodian children

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NGO focus – World Vision Australia

World Vision is an NGO that provides short-term and long-term assistance to 100 million people worldwide (including 2.4 million children), working with children, families and communities to overcome poverty and injustice. It works with people of all cultures, faiths and genders to achieve its goal, doing this through relief and development, policy advocacy and change, collaboration, education about poverty, and an emphasis on personal growth, social justice and spiritual values. World Vision works with poor communities at the grassroots level, empowering them with knowledge, skills and resources to lift themselves out of poverty. The aim of many World Vision programs is to enable communities to become self-reliant through a range of initiatives such as health improvements, education, skills training, agricultural development, access to finance, small business workshops and leadership development. The programs and work of World Vision include emergency relief, long-term development projects, advocacy, collaboration and education. Working in over 90 countries around the world, World Vision Australia's projects emphasise:

- the needs of children
- long-term viability and sustainability
- education (including literacy) and skills training
- gender equality
- HIV and AIDS education and prevention
- affordable technology solutions.

FIGURE 11.48 World Vision is an international NGO.

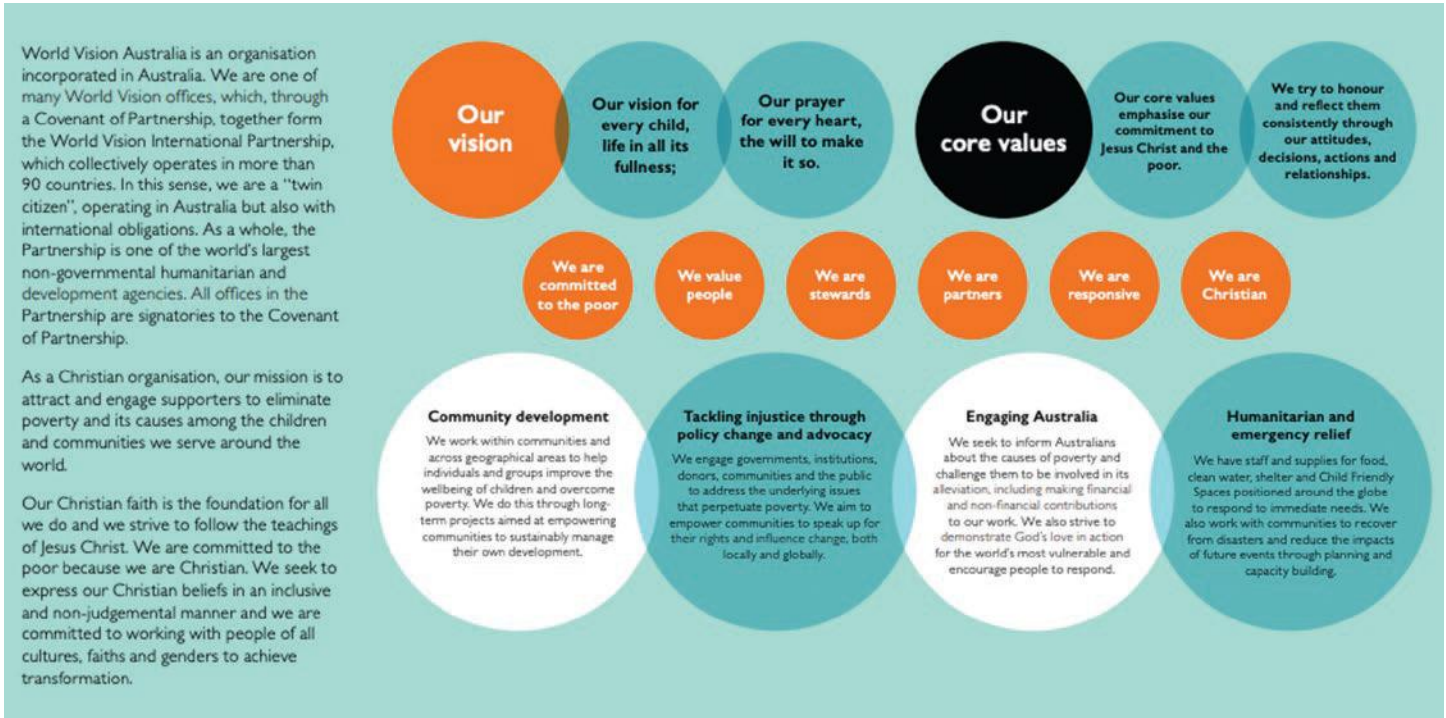


FIGURE 11.49 The vision, core values and key focus areas of the work of World Vision Australia

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World Vision Australia receives funding from the Australian Government to support its aid programs, but the NGO is also significantly funded by initiatives such as child sponsorship, fundraising such as the 40-Hour Famine, cash donations and emergency relief appeals. World Vision is Australia's largest charitable group, with Australians making the most donations to World Vision of any charity. It is through the support of more than 400 000 Australians that World Vision is able to assist more than 20 million people every year. Through partnerships with the Australian Government, foreign governments and multilateral organisations, World Vision is able to reach and assist more communities in need.

Each year, World Vision evaluates its programs to ensure they are effective. Elements in the NGO's annual review and evaluation include outcomes for communities, child wellbeing outcomes, gender and disability reporting.



"I come here because I like to learn," says Yacob (centre) having fun at a World Vision child friendly space in Cox's Bazar, Bangladesh.



SOURCE: World Vision 2018 Annual Report

FIGURE 11.50 Stories of real change – people who have benefitted from World Vision's programs focusing on improving health and wellbeing, and human development.

AOS 2

ACTIVITY 11.12: WORLD VISION PROGRAMS

Visit the World Vision website and find out about one of its many programs working to enable people to overcome poverty. Examples include the REACH project, Community Development Programs and the Literacy Boost program.

1 Identify the name of your chosen program.

2 State where your program is working.

3 Describe the purpose of the program.

4 Explain how the program is being implemented.

5 Evaluate the effectiveness of the program in promoting health and wellbeing.

6 Evaluate the effectiveness of the program in promoting human development.

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World Vision promotes health and wellbeing, and human development, through all its programs. It works in local communities, and with local communities, to provide them with the skills, knowledge and resources they need to improve their own lives. Many of the health issues being experienced in these communities are preventable, with a nutritious food supply, access to healthcare and a decent standard of living (including safe water and sanitation) being the priorities. This reduces the burden of disease and increases life expectancy. It also enables adults and children to experience good health and have the energy needed to work or attend school. Aid programs are addressing poverty and working to create strong, resilient and self-reliant communities. Achieving this creates the opportunity for individuals to reach their full potential – both adults and children. Building strong communities enables people to actively participate in the life of their community and be involved in decision-making. The skills developed in community programs (such as farming or saving) can be shared and continued, creating sustainable practices and ensuring that the needs of current generations are being met without compromising the ability of future generations to meet their own needs.



FIGURE 11.51 The NGO Australian Aid operates in the Solomon Islands.

Examples of other NGOs that focus on promoting health and wellbeing, and human development include:

- Oxfam
- CARE Australia
- SurfAid
- Red Cross
- Caritas
- Save the Children
- the Birthing Kit Foundation.

FIGURE 11.52 The Red Cross is another NGO that works in health and wellbeing, here at at refugee camp in Greece.



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ACTIVITY 11.13: SAFE BIRTHING KITS

The vision of the Birthing Kit Foundation is for 'a world in which preventable maternal and newborn mortality and morbidity has been eliminated'. The Foundation works in low-income countries to enable safe pregnancy, and clean childbirth and postnatal environments.

Visit the Foundation's website and complete the following activities:

1 Outline the purpose of the Birthing Kit Foundation.
2 Describe its program focused on reducing maternal mortality.
3 List five countries where this NGO works.
4 Outline how the Foundation implements its program and provides the birthing kits to these countries.
5 Review one of the 'stories from the field' to complete the following:
   a Explain how the provision of the birthing kit promotes health and wellbeing, providing examples in your response.
   b Explain how the provision of the birthing kit promotes human development, providing examples in your response.
6 Evaluate the role of the Birthing Kit Foundation in promoting health and wellbeing, and human development.

CHAPTER SUMMARY

- The priorities and work of the WHO
  - The WHO is the UN agency for promoting good health and wellbeing. Its goal is 'to build a better, healthier future for all people all over the world'.
  - The **three** WHO priorities are:
    - achieving universal health coverage – 1 billion more people benefitting from universal health coverage
    - addressing health emergencies – 1 billion more people protected from health emergencies
    - promoting healthier populations – 1 billion more people enjoying better health and wellbeing.
- Different types of aid, their purpose and characteristics
  - Emergency aid – the rapid assistance given to people or countries in immediate distress to relieve suffering, during and after human-made emergencies or natural disasters
  - Bilateral aid – aid provided directly from the government of one country to the government of another
  - Multilateral aid – aid provided via international organisations such as the WHO or the World Bank.

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- Features of Australia's aid
  - › Achieving the SDGs
  - › Strengthening private sector development
  - › Enabling human development
  - › Partnerships
  - › Strengthening economic growth and poverty reduction
  - › Regional stability
  - › The purpose of the Australian aid program is to promote Australia's national interest by contributing to sustainable economic growth and poverty reduction.
- Priority areas of Australia's aid program
  - › The priorities of Australia's aid program are:
  - › infrastructure, trade facilitation and international competitiveness
  - › agriculture, fisheries and water
  - › effective governance: policies, institutions and functioning economies
  - › education and health
  - › building resilience: humanitarian assistance, risk reduction and social protection
  - › gender equality, and empowering women and girls.
- Role of non-government organisations (NGOs) in promoting health and wellbeing, and human development
  - › Many NGOs worldwide assist those in need by undertaking emergency relief, advocacy, awareness/addressing of health issues such as food security and the provision of resources such as education and healthcare.
  - › The Tabitha Foundation Cambodia is an NGO working to enable the poorest Cambodians to recognise and develop skills and resources in a way that brings dignity and respect. Its programs focus on community development savings, provision of water sources, cottage industry-focused fair trade, and house and school building.
  - › World Vision is another NGO that works with poor communities at the grassroots level, empowering them with knowledge, skills and resources to enable them to lift themselves out of poverty.
  - › World Vision works with people of all cultures, faiths and genders to achieve their goals, doing this through relief and development, policy advocacy and change, collaboration, education about poverty, and an emphasis on personal growth, social justice and spiritual values.



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KEY QUESTIONS

SUMMARY QUESTIONS

1 Describe the work of the WHO.
2 List the three WHO priority areas.
3 Provide an example of the WHO's work in each of the WHO priority areas.
4 Describe the different types of aid.
5 Provide an example for each type of aid.
6 State the reasons why Australia gives aid.
7 Outline the priorities of Australia's aid program.
8 Provide an example of how Australia is providing aid, reflecting its priority areas.
9 Discuss the role of NGOs in promoting health and wellbeing.
10 Discuss the role of NGOs in promoting human development.

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EXTENDED RESPONSE QUESTION

SOURCE

Malaria vaccine pilot launched in Ghana

WHO Ghana welcomed the Ministry of Health's launch of the world's first malaria vaccine in a landmark pilot programme. Top health officials, WHO representatives, community leaders, and mothers and children gathered on 30 April 2019 to officially begin the vaccine rollout. The country-led phased vaccine introduction is supported by WHO and national and global health partners.

Malaria remains one of the world's leading killers, claiming the life of one child every two minutes; most of these deaths are in Africa. In Ghana, about 20 percent of all children have malaria parasites in their blood.

'Malaria is one of the most devastating maladies in our history and we in Africa bear the brunt of its toll on the world,' said Dr Kaluwa. 'Globally, and in Ghana, we have made significant gains to control malaria in the last 15 years, but progress has stalled and even reversed in some areas. We need new solutions as we continue our fight against malaria and this vaccine gives us a promising new tool.'

The pilot programme is designed to generate evidence and experience to inform WHO policy recommendations on the broader use of the malaria vaccine. It will look at reductions in child deaths; vaccine uptake, including whether parents bring their children on time for the four required doses; and vaccine safety in the context of routine use.

The vaccine is a complementary malaria control tool – to be added to the core package of WHO-recommended measures for malaria prevention, including the routine use of insecticide-treated bed nets, indoor spraying with insecticides, and the timely use of malaria testing and treatment.

The WHO-coordinated pilot programme is a collaborative effort with ministries of health in Ghana, Kenya and Malawi and a range of in-country and international partners, including PATH, a non-profit organization, and GSK, the vaccine developer and manufacturer, which is donating up to 10 million vaccine doses for this pilot.

SOURCE: WHO (2019)

QUESTION

Justify the WHO priorities being addressed by this program and explain how, through their work, the WHO are contributing to the achievement of the key features of SDG 3. (8 marks)

EXAMINATION PREPARATION QUESTIONS

Australia's aid program has been responsible for the provision of increased access to safe water and sanitation for over 1.7 million people.

A Identify an Australian aid priority reflected in this aid program achievement. (1 mark)

B Describe an Australian aid program that may have been implemented to increase access to safe water and sanitation. (3 marks)

C Explain how access to safe water and sanitation is contributing to the promotion of health and wellbeing, and human development. (3 marks)

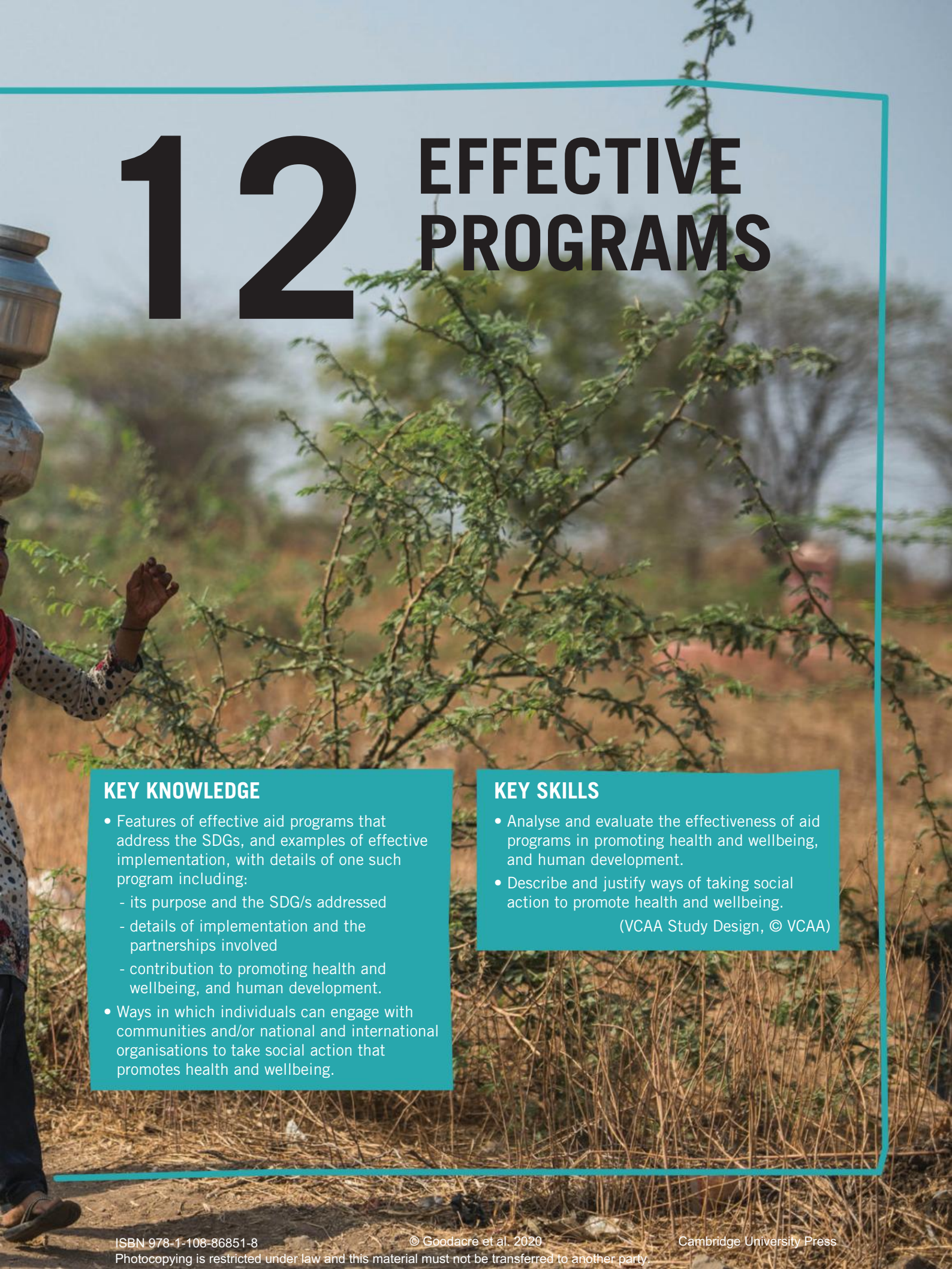
D Identify another priority of Australia's aid program. (1 mark)



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12 EFFECTIVE PROGRAMS

KEY KNOWLEDGE

- Features of effective aid programs that address the 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.

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INTRODUCTION

The focus of this chapter is evaluating programs that are being implemented to address and achieve the Sustainable Development Goals (SDGs). This includes the organisations involved, how a program is delivered (implemented) and the extent to which the program is effectively meeting it purpose. There are many excellent and effective programs being implemented globally, promoting the health and wellbeing, and human development of those most in need. You will analyse and evaluate programs by using the four principles/features of effective aid in this chapter or other methods such as the Ottawa Charter for Health Promotion, the social model of health, the dimensions of sustainability or features to increase the effectiveness of health promotion.

The chapter considers how individuals, including yourself, can make a difference through social action. There are many different ways for individuals to take social action by engaging with communities or national and international organisations, to promote global health and wellbeing, always working to achieve the SDGs. This chapter brings together the different areas you have studied already: your knowledge of the importance of health and wellbeing and human development, factors and global trends that are contributing to differences in health and wellbeing, health status, and human development with an understanding of how to end differences by everyone working together to achieve this global goal.

What you need to know

- The features of effective aid
- Examples of effective implementation with details of an effective aid program
  - Its purpose and SDG/s addressed
  - Details of implementation and partnerships involved
  - Contribution to health and wellbeing and human development
- Ways in which individuals can be involved in social action that promote health and wellbeing
- The dimensions of health and wellbeing
- The concept of human development

What you need to be able to do

- Analyse and evaluate (using examples) effectiveness of aid programs promoting health and wellbeing, and human development.
- Describe and justify (using evidence) ways of taking social action to promote health and wellbeing.

AOS 2



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12.1 FEATURES OF EFFECTIVE AID

A large number of aid programs and strategies aimed at improving health and wellbeing, and human development, are being implemented in many low- and middle-income countries. For programs to be effective, they must be sustainable and address the needs of the most vulnerable. With the SDGs set as the means to achieve the Global Agenda for Change, a large proportion of aid is focused on impacting and achieving the set 2030 targets. Much work needs to be done to achieve these targets, and this will require effective, transformative aid that involves all countries (high-, middle- and low-income).



FIGURE 12.1 Effective aid programs involve the local community through inclusive partnerships and ownership to ensure their needs are being met, and enabling members to develop the skills and knowledge needed to continue beyond the initial aid program.

EXTENSION QUESTION 12.1

Suggest why it is important for aid programs to be sustainable.

For aid to have a positive impact on health and wellbeing, as well as human development, it needs to be capable of continuing in order to make an impact beyond the duration of the program. The long-term needs of individuals and communities must be met and the aid programs must be sustainable to have a real impact. In December 2016, at the Second High-Level Meeting of the Global Partnership for Effective Development Co-operation, in Kenya, a commitment to effective development cooperation as a means to achieve the universal and inter-related SDGs was reaffirmed. Four principles of effective aid programs were identified.



FIGURE 12.2 The four features (principles) of effective aid

ACTIVITY 12.1: GLOBAL PARTNERSHIP MONITORING FOR EFFECTIVE AID

Watch the YouTube clip *Global Partnership Monitoring* from the Effective Development Corporation.

1 Name the four effective development principles (features).

2 Describe what the 2016 Monitoring Report found for each feature.

3 Outline what the identified challenges are.

4 Suggest how these challenges could be addressed.

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Transparency and mutual accountability

Transparency is an important feature of effective aid. Transparency ensures that all key stakeholders are working together, for a common goal, and in a way that is easy for everyone to see what actions are occurring. Transparent practices form the basis for enhanced accountability. It is about honesty, integrity, openness, communication, and accountability. In countries where corruption is more common, transparency is important for people to be able to trust the aid being delivered and the people delivering it. Transparency is also important because it decreases the likelihood of people being taken advantage of. It is vital for financial accountability to be transparent with all the money and resources being used for the program and nothing else. Openness between all parties involved creates a high level of accountability – a belief that all people involved are working together for the effective delivery of the program. When everyone knows what is happening and who is responsible, then it is much easier to hold people accountable for the goals they have all set out to achieve.

transparency: Used in social contexts as operating in such a way that it is easy for others to see what actions are performed. It implies openness, communication and accountability.

Mutual accountability includes accountability between those involved in delivering aid, accountability to the intended beneficiaries of the aid, as well as to the local community organisations involved. Mutual accountability is supported by everyone sharing the same purpose and results focus. By working towards a common goal and holding all involved accountable, a program is more likely to be effective.

Aid programs are often supported by high-income countries, multilateral organisations and non-government organisations (NGOs). These organisations operate with transparency so that people involved, such as community donors, can see where the money has been spent. These organisations also publish annual reports showing transparency within their organisations.

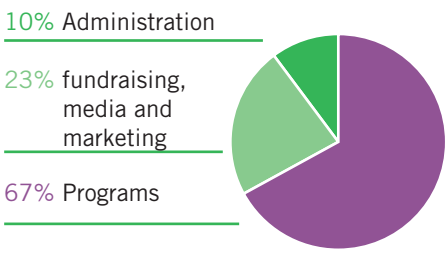


FIGURE 12.3 Oxfam is transparent about how their money is spent and accountable for all money donated for their programs that focus on tackling poverty.

Results focused

Investments in programs must be focused on achieving their goals and offer long-term sustainable solutions. Efforts must be focused on eradicating poverty and reducing inequalities, helping those most in need. If efforts do not bring about effective change, where people can break from the poverty cycle, have improved health and wellbeing, and human development, the program is not effective. In order to be able to increase the success of a program it needs to be based on a specific set of goals or aims. For example, a program might aim to increase the number of children who regularly attend school. Then to measure the success of the program we can look at the results in relation to how well the goal/s have been met. Also, the actions must be sustainable, which means they can continue beyond the duration of the program. One of the most effective ways to generate change is the provision of education. Involving local people in the decision making process also assists in achieving results; they need to be included in decision making for the program to be successful. Results often look at data and might include, for example, measuring the number of people involved in the program or measuring changes in behaviour (such as immunisation rates or exercise levels) following the implementation of a program. Results might look at change in health status after the implementation of a program or how effective the program was in meetings its initial aims.

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Inclusive partnerships

Partnerships provide strength in a program and most programs involve more than one stakeholder – NGO, government, local community or even multilateral or bilateral aid partnerships. By working in partnerships, aid programs can be most effective. Openness, trust, mutual respect and learning are the core of effective partnerships and each member of the partnership needs to recognise and value the contribution of the others. Inclusive partnerships can provide financial support such as funding, but partnerships can also provide resources such as knowledge and expertise. For example, an aid organisation might bring the knowledge and expertise about how to build infrastructure while the local government provides knowledge and expertise about the local climate, conditions and culture. This information will be important in guaranteeing the success of the building project and assist the aid organisation in understanding the local people and conditions. Partnerships also involve the sharing of resources required (such as material and labour) to ensure the aims of the program can be achieved. Inclusive partnerships involve working with local community members, especially women. Involving local communities ensures that skills and knowledge can continue beyond the program because when all parties are included in the partnership, they are more likely to feel ownership and empowerment.

Country ownership

Effective programs involve local people, especially those who are most in need. By involving the local people and respecting their values, culture, customs and rights, a program is more likely to be accepted by the local people. This will increase involvement in the program, which will result in it being more successful because if local people are involved in all stages of an aid program they are more likely to be able to continue the initiative once support is withdrawn. For example, if an aid agency goes to a local village to build a well and then leaves without any interaction with the local people, they may not gain the locals' respect and appreciation for the well. Further, the local people will not know how to use the well properly, possibly drawing water from the well but not storing it safely. This can lead to it being contaminated with waterborne disease and people may mistakenly assume the well is not effective.

If the aid agency works with the local people at all stages of the project, the latter can advise on the best location for the well, help source local materials, help build the well so that they will know how to repair it if needed, and they will learn about how to store water safely. When the local people are involved, they are more likely to respond positively to the aid and become empowered to take control of their own lives. The most effective programs involve those who are most vulnerable recognising the aid that they most need, knowing what the program aims to achieve, and getting involved in the decision making. The program must be culturally appropriate to enable all people involved to have feelings of dignity, respect and ownership. Each program should be focused on the community in need and be tailored to suit local needs to ensure effective results – a one-size-fits-all approach will not always be effective. This can include using local people to facilitate or support the program (including elders and women), and messages using the local language.

The effectiveness of an aid program can also be determined using frameworks such as:

- The elements of sustainability (Chapter 8)
- The social model of health (Chapter 4)
- The Ottawa Charter for Health Promotion (Chapter 4)
- Evaluating effective aid (Chapter 6).

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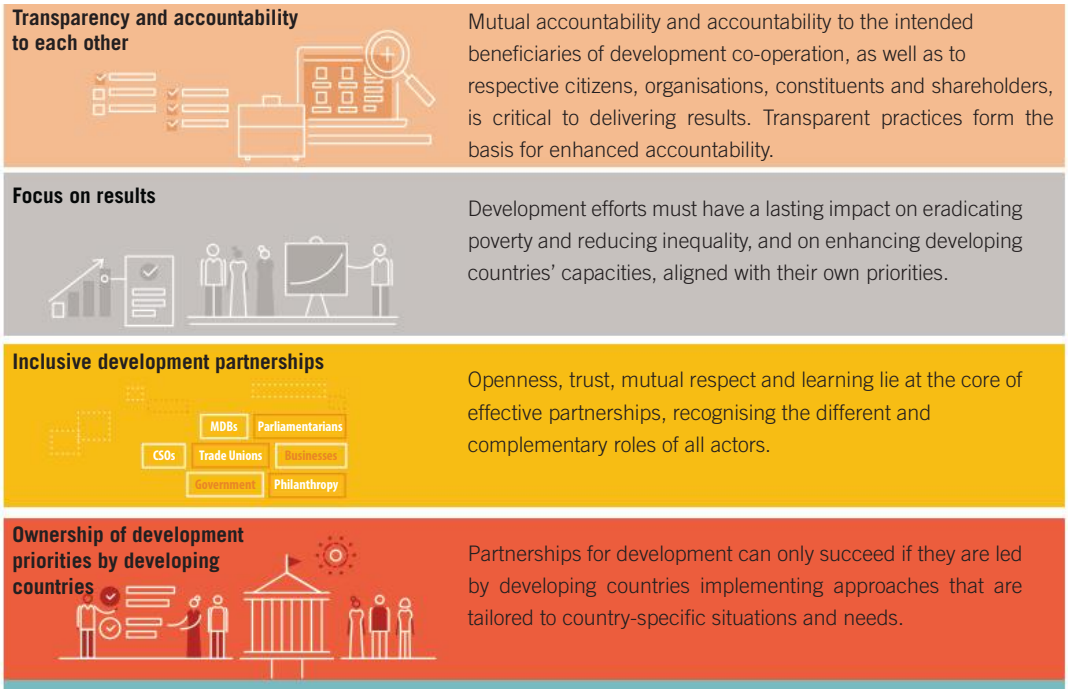


FIGURE 12.4 Summarising the principles of effective aid programs

CASE STUDY: EVALUATING EFFECTIVE AID

Girls' education in Bangladesh: A promising journey

Bangladesh has made much progress in improving its human development indicators, faring well above its South Asian neighbours on several fronts.

Chief among these achievements is girls' education, for which Bangladesh now stands as a model.

Since the 1980s, secondary school enrolments for girls jumped from 39 per cent in 1998 to 67 per cent in 2017.

Such progress is the result of several incentives, especially the Female Secondary School Assistance Project (FSSAP), which was instrumental in achieving gender parity since it started in the early 1990s, first as a pilot and then as a nationwide program.

FSSAP was part of a coordinated effort to increase girls' enrolment and retention in secondary schools by providing stipends and tuition waivers. Building on this success, the World Bank introduced a second-generation stipend program for the poorest children that benefited 2.3 million students, of whom 55 per cent were girls.

However, despite better enrolment rates, educations outcomes for girls remain inadequate as low and unequal levels of learning persist.

Data from the 2017 Bangladesh Bureau of Educational Information and Statistics show that dropout rates for girls are at a high 42 per cent at the secondary school level; completion rates are low, with grade 10 rates bottoming at only 10 per cent, and secondary level completion rates reaching a mere 59 per cent.

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FIGURE 12.5 Share of individuals that have at least completed Grade 6 after completing/passing Grade 5, by gender and age (%)

These trends carry through tertiary education, resulting in low female labour force participation.

What explains these high female dropout rates?

Child marriage, household responsibilities, high levels of pregnancies, lack of access to appropriate information about sexual and reproductive health, mental health issues and school-based violence are some of the main factors and contribute to lost years in schooling.

According to the 2017 Bangladesh Human Capital Index, children in Bangladesh lose an average of 4.5 years of schooling.

Ensuring that students complete secondary education is at the core of the 2018–22 Secondary Education Development Program (SEDP), which draws on lessons learned from two decades to improve quality and access to education.

A key feature of the program is the Adolescent Girls' Program, which aims to improve girls' retention in secondary schools through a unique collaboration between the Ministry of Education and the Ministry of Health and Family Welfare.

The school-based program will address menstrual management, ensure separate sanitation facilities for girls, and provide female students with cash incentives to attend school.

It will also tackle mental wellbeing, knowledge about sexual and reproductive health and gender-equitable behaviour.

The successful female stipend scheme will be harmonised through a nationwide uniform targeting strategy, which is expected to complement the efforts of Adolescent Girls Program.

Prioritising girls' education is the first vital step to economic development in Bangladesh.

The next critical step is to leverage the better-educated female labour force to propel economic and social progress in Bangladesh.

SOURCE: World Bank Blogs

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1 Outline the reasons why girls are dropping out of school.
2 Suggest the purpose of this program.
3 Determine whether this is indeed an effective aid program. Justify your response using the features of effective aid.
4 Identify the relevant SDGs this program addresses.
5 Describe how this program has impacted the health and wellbeing of girls in Bangladesh.
6 Describe how this program has impacted the human development of girls in Bangladesh.
7 Explain how this program contributes to sustainability.
8 Research another aid program and evaluate its effectiveness.
   a Briefly describe the program.
   b Evaluate the effectiveness of the program using the four features of effective aid.

12.2 EFFECTIVE AID PROGRAMS

Alongside the SDGs, there are a number of effective aid programs that focus on the issues that are causing inequalities in global health and wellbeing, and human development. While many programs have been successful, including those highlighted later in this chapter, some have not been so effective. For programs to be effective in promoting health and wellbeing, and human development, they must be sustainable. Here is a snapshot of some effective aid programs that are contributing to the promotion of health and wellbeing, and human development.

WaterAid

WaterAid is an international NGO dedicated to the provision of clean and safe domestic water and sanitation and hygiene education to the world's poorest people. Its vision is 'a world where everyone, everywhere has access to safe water, sanitation and hygiene'. Some 785 million people still lack access to a basic water service, and one in four people lives without a decent toilet that is private. Diarrhoeal diseases caused by dirty water and poor sanitation kill a child under the age of 5 every two minutes, not to mention the number of hours girls spend walking daily to collect water, stopping them from attending school or work.

Purpose of the program

WaterAid enables the world's poorest people to gain access to clean water, decent toilets and good hygiene, allowing them to unlock their potential. Extreme poverty cannot be eradicated without universal access to safe water, sanitation and hygiene. The WHO has attributed 80 per cent of all sickness and disease to inadequate water or sanitation.

FIGURE 12.6 'Sokmal (far right) and Soeymom (second right) and their family live in Kratie province, alongside the Mekong River. They use the river for everything from bathing to fishing to collecting water. The river water is not safe to drink and has been contaminated by local industries. When the water hasn't been boiled for long enough, it gives the children a stomach ache and makes them sick' (WaterAid Annual Report 2018).
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SDGs addressed



SDG 6: Clean water and sanitation. This program is working to achieve universal and equitable access to safe and affordable drinking water and sanitation for all. Water sources management is also a focus, with local community members trained to look after and protect infrastructure and participate in the management of community water and sanitation.



SDG 1: No poverty. People who are not ill from waterborne diseases are able to work and earn a living. Providing wells near homes and in villages ensures equal rights and access to the resources.



SDG 2: Zero hunger. Safe water and sanitation provide people with the water they need to grow crops and keep livestock, providing a secure food supply.



SDG 3: Good health and wellbeing. Safe water and sanitation prevent diseases such as cholera and the spread of disease, reducing maternal and under-5 mortality.



SDG 4: Quality education. Children will be well enough to attend school and will not be required to collect water; rather, they can focus on their education. This program also includes the provision of toilet facilities at schools.



SDG 5: Gender equality. Having access to water will enable women to focus on the needs of their families and be productive, possibly earning an income, rather than having to walk long distances to collect water. Women are trained as educators, empowering them and enabling participation in the community.



SDG 13: Climate action. Climate change is more likely to lead to extreme weather conditions, including drought, flood and contaminated water. Having access to safe water and sanitation ensures that communities are more resilient in times of need and reduces the impact of disasters on their water supplies.



FIGURE 12.7 'Because of the new water source being closer to our homes, we have more time to do our household chores. And because the new water is clean, we no longer have to queue because the pond would dry up and we had to wait for water to seep back into it. We sometimes spent half the day here. Now I can rest longer in the morning. I have more time for cleaning my environment, cooking and weaving baskets. We are able to buy some clothes and buy better food to prepare for our children – like greens, beans and rice' (Mbinge, Ghana).

Implementation of the program and partnerships involved

WaterAid tackles this issue from all angles. They work in partnerships with local communities and their governments to build and bring safe water, clean toilets and hygiene education to the community. Pumps and wells, as well as toilets, are built in close proximity to homes and villages, increasing access to water and enabling good sanitation practices. Education programs teach children and adults the importance of sanitation practices, such as washing hands after using the toilet.

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FIGURE 12.8 WaterAid works with local communities and trains people to maintain their water resources to enable self-reliance and ensure the longevity of the program.
© WaterAid/Tom Greenwood

WaterAid works in collaboration with local partners because they understand local issues. WaterAid provides locals with the skills and support to help their community set up and manage sustainable projects to meet their water and sanitation needs. They use technologies that work in the local context. They also train local people to maintain the wells, tanks and toilets, to ensure the longevity of the resources. The focus is on training local members of the community and this enables them to train others, building their capacity and empowering community educators.



FIGURE 12.9 'All schools in Papua New Guinea are now mandated to have clean water, decent toilets and good hygiene after the country's Department of Education launched a new policy in August. WaterAid supported the development and drafting of this policy, which also includes a focus on accessibility and the needs of female students. The government has now taken this forward and – through the development of their Sports Policy – they will ensure that all sporting facilities in the country also have an appropriate level of water, toilet and handwashing services' (WaterAid Annual Report 2018–19).
© WaterAid/Andrew McConnell

Contribution to health and wellbeing

The simple well and pumping building program is having a positive impact on communities, which have reported that the benefits of the WaterAid program have included:

FIGURE 12.10 Examples of the contribution of the WaterAid program to improved health and wellbeing.

Physical health and wellbeing	Better diet and nutrition, fewer deaths from waterborne infectous diseases
Social health and wellbeing	Children more likely to attend school, developing friendships and positive relationships
Emotional health and wellbeing	More time as a family as women no longer needing to collect water increasing feelings of emotional security
Spiritual health and wellbeing	Giving people a sense of hope and purpose in life
Mental health and wellbeing	Increased feelings of empowerment and optimism

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Safe water improves *physical* health and wellbeing with reduced risk of diseases. Exhaustion and injury from collecting water are avoided. Safe water close to home increases feelings of safety and security, contributing to *mental* health and wellbeing. Greater opportunities for farming – due to water access – lead to more possibilities for decision-making. People are able to use logic and reasoning, children are encouraged to go to school, improving *mental* health and wellbeing. Providing for one's family reduces stress and negative emotional reactions. Increased feelings of security and being able to cope with everyday life contribute to improved *emotional* health and wellbeing. People develop a sense of purpose, contributing to *spiritual* health and wellbeing. Being able to contribute to one's community, look after one's family and experience good health status all enhance a person's sense of worth and value, impacting health and wellbeing.

Contribution to human development

Water and sanitation are basic human rights, necessary to achieving human development. Individuals and communities have stated the following benefits and contributions to their improved way of life:

- empowerment of women and marginalised groups
- an increase in the number of children at school
- more teachers accepting positions in schools
- increased farming capacity
- increased family income
- improved housing
- the ability to plan for the future and participate in community decisions.

These statements, made by communities in receipt of this aid, clearly demonstrate how the WaterAid program has contributed to improved human development. Women are no longer having to spend the whole day collecting water, and are instead looking after their families or generating income. Adults are able to participate in the life of their community, and children attend school. This program has assisted in creating an environment in which people can develop to their full potential and lead productive lives. They are attending school, gaining secure employment and now living a longer, healthier life. The range of things people can be and do has increased. These communities are now planning for the future and people are actively involved in this.

An effective program

Results focused – WaterAid has reached 24 million people worldwide, providing them with safe water and sanitation. Morbidity and mortality rates have reduced, and life expectancy has increased. Having access to safe, clean water close to home has seen the development of farming and income generation for members of the community. People are able to grow larger quantities more efficiently, reducing the impact on the environment and providing better wages and a secure income. With growth and income in the community, financial resources can be put towards maintenance of infrastructure and also spent on children's education and community decision-making.

Country ownership – The outcomes of this program have empowered people to take control of their lives because they are involved in the program from the beginning. The program is implemented in a culturally appropriate way, meeting the needs of the community. This has ensured its sustainability and effectiveness. The locals are involved in the building of infrastructure, delivery of education and continuation of the program into the future.

Inclusive partnerships – WaterAid works with local people to understand their needs and wants. Appropriate water infrastructure is built in an appropriate location and members of the community are taught the skills and knowledge needed to maintain the infrastructure. A key feature of the aid program is education about the importance of safe water and sanitation, building the capacity of community members. With local women being trained to educate others, the information, emphasis and teachings will be able to continue long after the aid has finished.

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FIGURE 12.11 'Before WaterAid's partner came we had illnesses. We couldn't save money. But now we've become more prosperous. It is getting better for us. I say to people … that they should wash their hands before eating. I educate the community about good practices.' Monika Nayak, a tea picker from Bangladesh, talks about the impact of good hygiene on her community. © WaterAid/GMB Akash/Panos

Transparency and mutual accountability – WaterAid is a dedicated international NGO working with governments and local communities. This local involvement ensures that the program reaches those in need and the implementation of the program is transparent. Information is not only available to those involved in the delivery of new toilets and water infrastructure, but their organisational structure includes annual reporting to show where all their funding is allocated and highlighting the results of the program.

This aid program is having a significant impact on health and wellbeing, and human development. It is not only meeting the needs of the current generation, but also those of future generations.

World Food Programme: School Meals

The World Food Programme (WFP) is the United Nations' food aid agency mandated to combat global hunger worldwide.

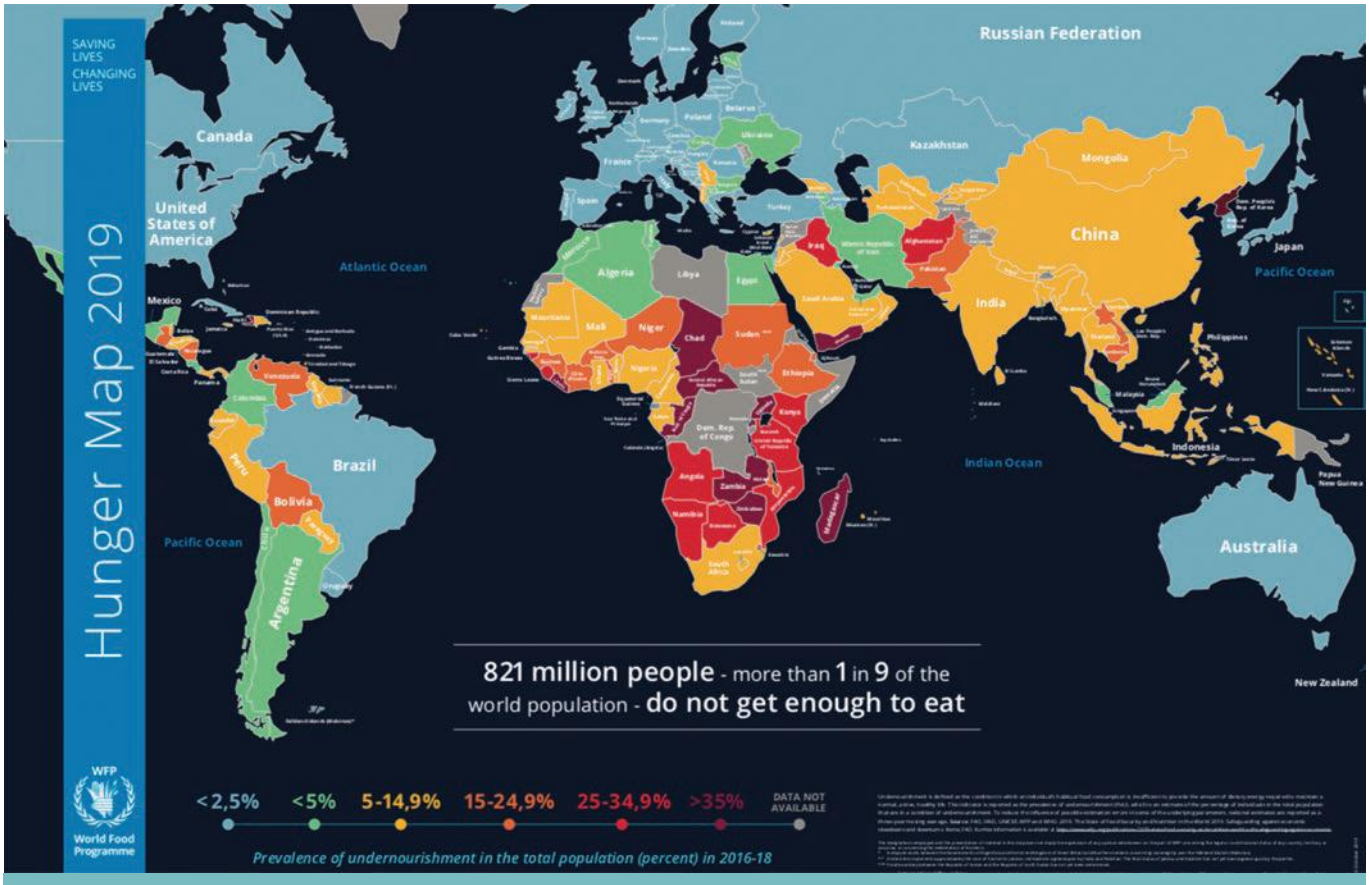


FIGURE 12.12 World Hunger Map 2019

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Its Strategic Plan aligns with the Global Agenda for Change, and has been guided by the Sustainable Development Goals. The heart of the work of the WFP includes responding to emergencies, providing direct assistance and strengthening countries' capacity to respond to needs in emergency situations. It also works with communities to improve nutrition and achieve food security. School Meals is one of the WFP aid programs addressing hunger and food security.

EXTENSION QUESTION 12.2

Analyse the implications of hunger for health and wellbeing, and human development, as an individual, national and global resource.



FIGURE 12.13 The Zero Hunger #HealthyNotHungry road map forms the backbone of the WFP's SDG (Global Goals) campaign.

Purpose of the program

Every day, 821 million people, or one in nine, go to bed on an empty stomach. One in three are suffering from some form of malnutrition. Food security is a major global challenge, and is the focus of SDG 2: Zero hunger. The consequences of not having enough food, or the wrong food, not only cause suffering and poor health, but also impact on access to education, employment and gender equality. This is undermining gains in development and preventing the achievement of a world with zero hunger.



FIGURE 12.14 'Nearly half the world's schoolchildren, some 310 million, in low- and middle-income countries eat a daily meal at school. India now feeds more than 100 million children; Brazil 48 million; China 44 million; South Africa and Nigeria each more than 9 million' (WFP, *The impact of school feeding programmes*, 2019).

The School Meals program has been a WFP strategy since its beginnings in 1961. In 2018, 16.4 million children benefitted from the nutritious WFP meals and snacks. The program helps families support the needs of their children (nutritional, health and educational) and provides food security. The program specifically targets those in need, such as former child soldiers, disabled children, those affected by HIV/AIDs and orphans. The WFP also works to build the capacity of governments, leading to improved national school feeding programs in 65 countries and feeding another 39 million children.

SDGs addressed

The School Meals program is achieving much more than simply feeding children and addressing hunger and under-nutrition. The program promotes children's access to education, gender equality health and nutrition; social protection and local economics and agriculture.

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SDG 2: Zero hunger. Child and adolescent malnutrition is being addressed through the provision of meals or snacks in the program. This is leading to enhanced nutrition and health, and decreased morbidity. This program is fighting hunger among the poorest children.



SDG 1: No poverty. Children who are eating nutritious food, and who have improved health and increased access to and levels of education, will be more likely to break the cycle of poverty. Healthier children will result in less money needing to be spent on healthcare, and more being able to be spent elsewhere. Healthier children attending school will not need to be cared for by their parents during the day, enabling them to work and generate a better living. The School Meals program looks for opportunities for economic development in local communities by sourcing and cooking foods used in the program locally Linking farmers to the School Meals program supports rural economies, creating employment opportunities, addressing the causes of poverty and making the program more sustainable.



SDG 3: Good health and wellbeing. Children need sufficient nutrition to grow, both physically and mentally. School provides strong social connections and builds the self-esteem of young people. The School Meals program has a direct health benefit: improving nutrition and health status. The program works to make the meals as nutritious as possible. Macronutrient deficiencies can cause irreversible damage to growing bodies. Programs often also include deworming and fortification for increased health benefits. The program is reducing child mortality rates and increasing life expectancy and human development through improved health and increased access to education. Healthier children grow into healthier and happier adults. Educated people and their children tend to be healthier, with the benefits passed on from parents to their children and the impact of this goal making a sustainable positive contribution to future generations.



SDG 4: Quality education. To be part of the program, it is necessary to be attending school, increasing your rate of school enrolment and attendance. More students are completing higher levels of education due to the provision of school meals. The program also has a positive impact on learning. Due to the provision of nutritious food and improved health status, the learning capacity of children is increased. Students who are not hungry are able to concentrate better, and this has a positive impact in cognitive development. Education is also critical for breaking the poverty cycle and ending discrimination.



SDG 5: Gender equality. Girls struggle more than boys to gain access to education. The School Meals program provides an incentive for families to keep their daughters in school. Children – especially girls – are often withdrawn from school to help at home. When adolescent girls are out of school, they are more vulnerable to forced marriage, early pregnancy, violence and human trafficking. Women and girls are also more likely to be experiencing hunger and malnutrition than boys. This program keeps girls at school, increasing attendance rates and with every year of secondary education equating to an increase of 25 per cent of wages in later life. This program is empowering girls and women, and narrowing the gender gap.

Implementation of the program and partnerships involved

The School Meals program is the provision of food to school children. This occurs either through providing breakfast or lunch (sometimes both) to children while they are at school, or as take-home rations, where families are given food if their children are attending school. Some programs provide complete meals, while others provide fortified high-energy biscuits or nutritious snacks, such as date bars. Where possible, the program sources local food, generating employment and economic opportunities for the local community. In some low-income countries, School Meals are often the only regular meal a child receives.

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EXTENSION QUESTION 12.3

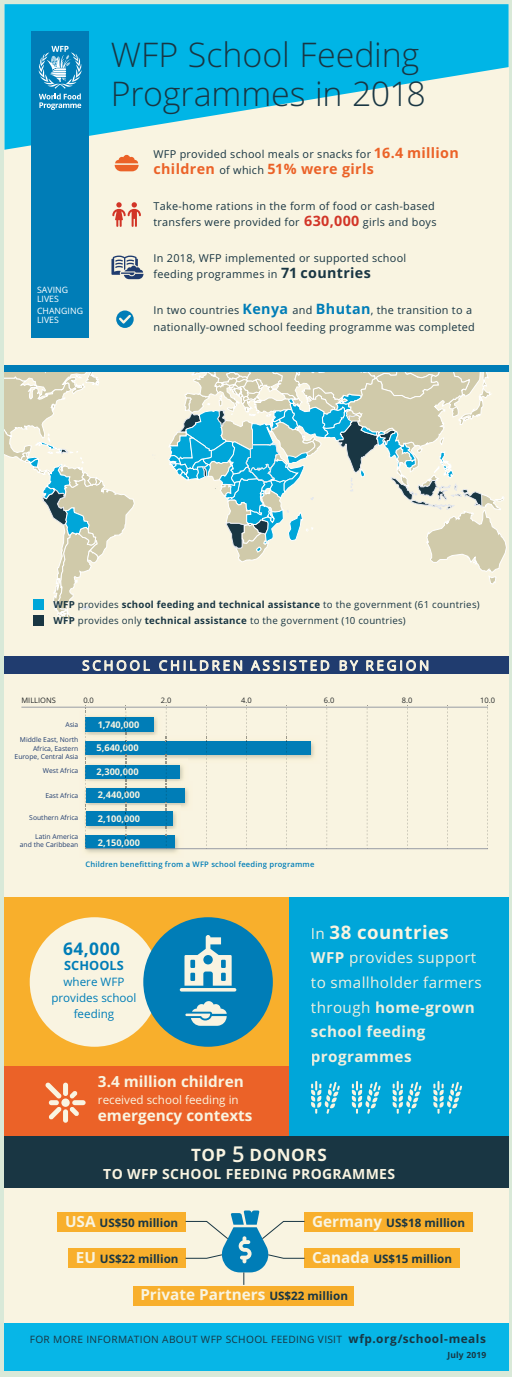


FIGURE 12.15 WFP's School Meals is an effective aid program, helping to ensure every child has access to education, health and nutrition.

Analyse the importance of this program for children globally. Suggest reasons why this program is so successful.



FIGURE 12.16 'The Government of Kenya took full ownership of the national school feeding programme in June 2018, now providing hot meals to over 1 million children' (WFP).

The type of aid used in this program is multilateral. The WFP works in a collaborative approach with governments and communities to build and take over the ownership of the program in local communities and reach the most vulnerable people.

Contribution to health and wellbeing

Nutritious meals promote *physical* health and wellbeing, addressing the issues of malnutrition and enabling efficient functioning of the body. They provide energy for children to attend school, concentrate and play. Attending school contributes to *mental* health and wellbeing by developing improved decision-making skills, an increased sense of confidence and optimism about the future. Children can play, creating strong and meaningful friendships with their peers and teacher and developing a sense of community. There is also exposure to different social situations, opportunities to develop empathy for others, communication skills and a sense of personal accountability, all contributing to *social* health and wellbeing. *Emotional* health and wellbeing is improved because when children feel excited and engaged at school,

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they learn how to manage their emotions and they develop resilience. They are more likely to feel happy and fulfilled than sad and stressed, and to be able to control their emotions. Attending school gives children a sense of hope for their future, a sense of purpose and being valued, all contributing to *spiritual* health and wellbeing.

Contribution to human development

This program provides incentives for children to attend school and develop skills and knowledge. Children are encouraged to stay at school and increased education levels improve employment and earning opportunities for them as adults. Farmers in the local community are involved in the production of the food in the program, developing strong economic stability, jobs and income. Regular and stable income enables the requirements needed for a decent standard of living, food, shelter, access to education and healthcare. This also creates opportunities for individuals to participate in their community and contribute to decision-making. This program is expanding people's choices and enabling people – especially children – to reach their full potential and lead productive lives.

ACTIVITY 12.2: WFP SCHOOL MEAL PROGRAM

Evaluate the effectiveness of the WFP School Meal Program using the features of sustainable programs and the four features of effective aid to support your answer.

Nothing But Nets: fighting malaria

Every two minutes, a child dies from malaria. Malaria is a major threat. Half the world's population is at risk, particularly children, women and refugees; yet this is a treatable and preventable disease.

Nothing But Nets is the world's largest global grassroots campaign focused on saving lives by preventing malaria. This multilateral aid program created by the United Nations Foundation has raised over $70 million to help deliver 13 million bed nets to families in need, as well as other critical malaria interventions. Nothing But Nets works with UN partners such as UNICEF, UN Refugee Agency and the WHO.



FIGURE 12.17 Provision of a mosquito net is one of the most effective strategies in the fight against malaria. Insecticide-treated bed nets create a barrier against the malaria-carrying mosquitoes, killing them before they can bite and transmit the deadly disease.

ACTIVITY 12.3: UNDER THE NET

Watch *Under the Net: A Virtual Reality Experience* on YouTube or via the Nothing But Nets website.

1 This is the story of Amisa. State where she is living and what she wants to do when she grows up.
2 Outline why she is living here and where she came from.
3 Identify what is 'the biggest killer here'.
4 Describe the living conditions experienced by Amisa and her family.

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5 Suggest why malaria 'scares' Amisa, including the most dangerous time of the day and why this is so.
6 Explain why a decent standard of living, particularly housing, is critical for protection from malaria.
7 Outline why Amisa is 'so thankful' to get her new mosquito nets.
8 Describe the purpose of the mosquito nets.
9 Explain what the program provides and why these are critical resources in the fight against malaria.
10 State the purpose of the Nothing But Nets program.
11 Name the SDGs this program addresses and describe how each one is addressed.
12 Outline how this program works as a collaborative approach to achieve the other SDGs.
13 Describe the impact this program has had on the health and wellbeing of Amisa and her family.
14 Describe the impact this program has had on the human development of Amisa and her family.
15 Analyse the effectiveness of this program.
16 Evaluate whether this program has been effective. Justify your response.

ACTIVITY 12.4: A FOCUS ON GENDER INEQUALITY

The Pacific Island countries have the world's lowest representation of women in parliament. One of Australia's aid priorities is gender equality and empowering women and girls. Visit the Department of Foreign Affairs and Trade website and research an aid program in a Pacific Island country where Australia is working to improve issues of gender inequality.

1 Describe the purpose of this program.
2 Outline the details of how this program is being implemented, and with whom Australia is working in partnership.
3 Identify the SDGs addressed by this program.
4 Describe the collaborative approach in this program.
5 Explain how each different SDG is addressed through the work being done in encouraging women to run for office.
6 Analyse how this program will contribute to the promotion of health and wellbeing.
7 Analyse how this program will contribute to the promotion of human development.

Other effective SDG aid programs

There are a large number of effective aid programs working to realise the targets of the SDGs by 2030. They include:

- Global Fund to Fight AIDS, Tuberculosis and Malaria
- World Vision's Literacy Boost
- UN Women
- He for She
- Caritas Australia's Climate Justice
- Red Cross Maternal Health program
- Bill and Melinda Gates Foundation.

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EXTENSION QUESTION 12.4

Research one of the programs listed on the previous page. Identify the relevant SDGs that each of the aid programs listed is working towards achieving. Suggest the contributions these programs will make to health and wellbeing, and human development.

ACTIVITY 12.5: RESEARCH

Research an aid program not discussed in this chapter, either one that has been mentioned in this chapter or one of your own choice. Present the following information:

- name of the aid program
- purpose of the program
- SDGs addressed
- how this program works as a collaborative approach to achieve the SDGs
- how the program is implemented and partners involved
- contribution to health and wellbeing
- contribution to human development
- justification of the effectiveness of the program.

DISCUSS



FIGURE 12.18 Stand up and support the SDGs on your social media #Globalgoals

Discuss this African Proverb: 'If you think you are too small to make a difference, try sleeping in a closed room with a mosquito.'

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12.3 TIME TO TAKE ACTION

You may think, 'Why does it matter? What difference can I make?' Individually and collectively you can make a real difference. A little goes a long way! What you do next will probably involve **social action**.

social action: Individual or group behaviour that involves interaction with other individuals or groups; organised action toward social reform.

#ActNow be aware, be an advocate

The number one action being encouraged by the UN is to be aware about global health and wellbeing, be an advocate and spread the word.

When you hear or see something that is wrong, speak out. Don't stand by and accept violent, sexist or discriminating behaviours. Don't allow inequality to continue. Share positive stories about equality and empowerment – particularly stories about those who are being discriminated against. Everyone should have the same opportunities, regardless of gender, race, sexual orientation, social background, disability or religion.

Be active in your community, know your rights and advocate for the rights of others. Work to ensure your local, state and national governments are all engaging in the actions and responsibilities they should be to promote global health and wellbeing. Showing support and lobbying governments and organisations

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encourages them to make change. Gathering support can initiate change because it sends a powerful message to the key stakeholders.



FIGURE 12.19 Examples of social action

ACTIVITY 12.6: I SUPPORT ...

World leaders, celebrities and everyday citizens have supported the SDGs.

1 Decide which SDG you want to promote.
2 Download the relevant Global Goals graphic and share it at school and through school-approved social media.



FIGURE 12.20 Use social media to learn more about ways in which you can engage and take social action to promote health and wellbeing, such as downloading the SDGs in Action app, following organisations such as the United Nations and the WHO, and sharing their messages through your social media accounts.

EXTENSION QUESTION 12.5



On 15 March 2019, thousands of Victorian students skipped school for climate change protests. Justify how being involved in this social action promotes health and wellbeing.

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Ethical purchasing

Consumers have power through their purchasing choices. By supporting ethical and fair products you are ensuring vulnerable farmers and workers are not being exploited. By avoiding products made by companies that are not manufacturing with a social conscience, you impact their profits and can encourage change in their practices. This is another example of an effective social action.



FIGURE 12.21 Divine Chocolate is committed to using Fairtrade certified ingredients.

CASE STUDY: A GLOBAL VILLAGE OF CHANGE

The story of Thankyou, a social enterprise

Search online for the Thankyou short film: *A Global Village of Change*. View the film and discover a national organisation making an international impact.

1. Have you ever purchased a Thankyou product? Why?
2. Explain the inspiration for the launch of Thankyou water.
3. Describe the social action taken by this team.
4. Explain what the different products are aiming to improve.
5. Outline the power of the consumer market in taking action to promote health and wellbeing.
6. Identify the SDGs the Thankyou group is addressing through its product range.
7. Do you believe that 'everyone wants to make a difference'? Discuss the advice for making a difference that you take away from this story.
8. Analyse the impact of Thankyou on the health and wellbeing of people around the world, including all the dimensions.
9. Analyse the impact of Thankyou on the human development of people around the world.
10. Suggest why David Koch has described today's young people as a 'powerful generation'.



FIGURE 12.22 Thankyou water – one of the Thankyou products

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11 Identify what Daniel Flynn believes has made the Thankyou company successful as a medium for social action.

12 Justify why consumers should be purchasing Thankyou products.

13 Research another example of a social action action – at home or in your community – that is having an impact on an international level.

ACTIVITY 12.7: THE LAZY PERSON'S GUIDE TO SAVING THE WORLD

Go online and read the UN's *The Lazy Person's Guide to Saving the World*.

1 Describe how reading this guide makes you feel.

2 List your top five actions that promote health and wellbeing.

3 Sort the actions into the following categories:

a engaging with communities

b engaging with national and international organisations.

4 Design five tweets that promote taking social action for the promotion of health and wellbeing.

5 Do you believe that these actions will be effective in making change? Justify your response.

6 Commit to one action, one change that you can make today to make a positive impact.

7 This is not an exclusive list. Prepare 10 more suggestions for the ways in which individuals can engage with communities and/or national and international organisations to take social action that promotes health and wellbeing.

8 Describe the impact an action can have on promoting health and wellbeing.

Donations: time, money or things

As an individual, you can donate time, money or resources (such as clothing) to communities and organisations that work to promote health and wellbeing; for example, World Vision. You can also volunteer your time – either at home or abroad – to help those in need; for example, by fundraising or travelling to build a safe house for people living in a low-income country; by teaching English to newly relocated refugees to Australia and helping them improve their health and wellbeing by providing social support and new friendships. You can take part in activities such as WaterAid's Water Challenge, World Vision's 40-Hour Famine or Oxfam's Trailwalker to raise funds for, and awareness of, the work these organisations do to promote health and wellbeing.

Think sustainably and don't waste

Live within your means and think about what you truly need rather than what you want. High-income countries can be extremely wasteful. This includes food as well as energy use and water. Understand the issues around climate change. Use public transport, and walk or ride your bike rather than drive the car. Not only is this better for the environment; it also saves money and reduces the number of cars on the road, which could help to reduce road traffic incidents. Don't use plastic bags: reduce, reuse and recycle. Think about the origin of the food you are eating and consume sustainably. Plant trees and help to regenerate our environment. Don't waste or contaminate water. Turn off your lights, be mindful of your impact on the earth.

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EXTENSION QUESTION 12.6

Describe and justify two examples of social action that could be taken to address SDG 3: Good health and wellbeing.

There are many different ways in which individuals can engage and make a difference to health and wellbeing at home and abroad. The first step is taking action and becoming involved. What each person can and does will differ, but each person can make a difference – a big difference – to their life, the people in their communities and communities in need around the world.

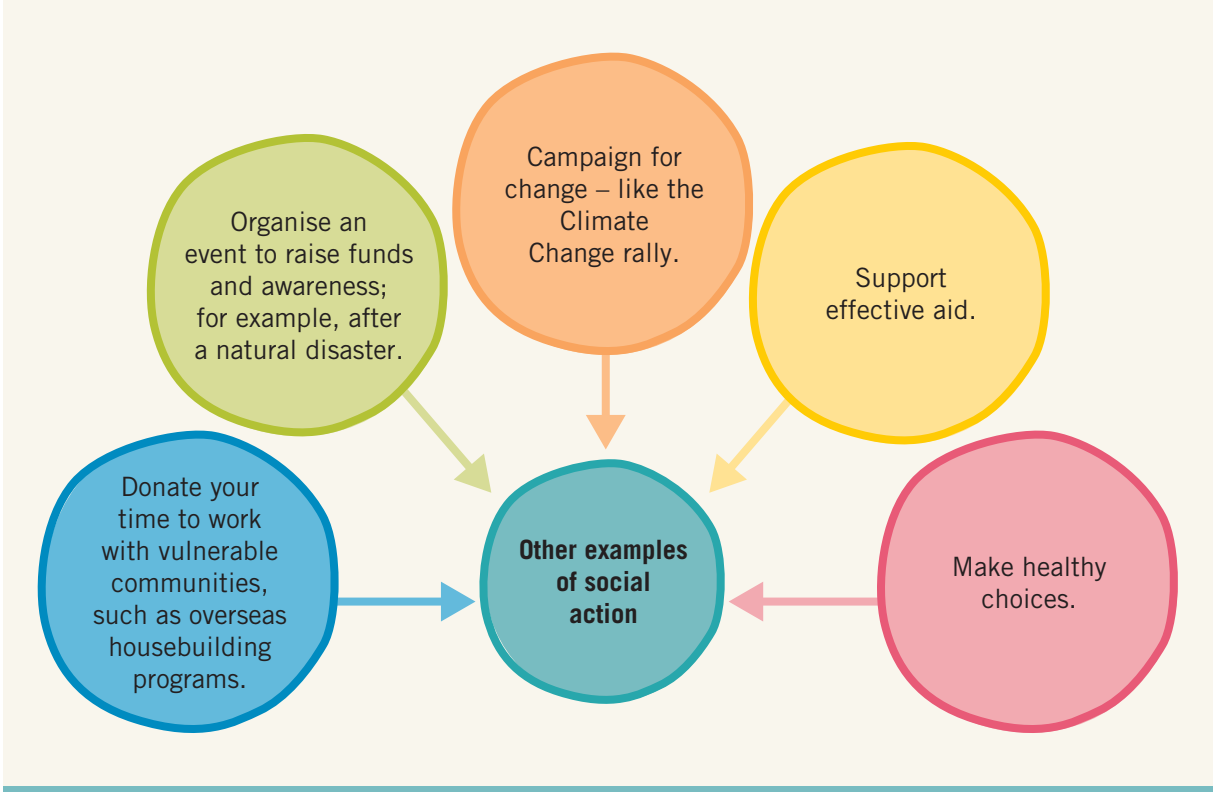


FIGURE 12.23 Examples of social action

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ACTIVITY 12.8: TAKE ACTION

1 Describe examples of social action you can take to engage with communities to promote health and wellbeing. Justify one of your actions.
2 Describe examples of social actions you can take to engage with national and international organisations to promote health and wellbeing. Justify one of your actions.
3 Explain how both of these actions will promote health and wellbeing.

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CHAPTER SUMMARY

- The features of effective aid:
  - Transparency and mutual accountability
  - Results focused
  - Inclusive partnerships
  - Country ownership
- Example of effective programs: WaterAid
- Key features of effective programs:
  - WaterAid focuses on building wells to supply safe water and promote good sanitation practices, building toilets and providing hygiene education to the community. They also train local workers to ensure the longevity of the program and empower local people.
- Purpose and SDG/s addressed:
  - WaterAid has a key focus on providing safe water and sanitation; the program is not only aligned with SDG 6, but also works to achieve a number of other SDGs as well.
  - The WaterAid program is implemented in partnership with the local community, and provides clean, safe water and sanitation education programs.
  - The program contributes to improved health and wellbeing by reducing illnesses from unsafe water, such as cholera. Women no longer have to walk long distances to collect water, improving their physical and mental health. Less money needs to be spent on healthcare and, with greater access to water, more crops can be produced, increasing the nutritious food supply.
  - The program contributes to improving human development because people are able to generate a secure income. The community works together during the implementation of the program and maintains the water resources once complete, engaging community participation and decision-making. Children are able to attend school; women are able to work; and people realise their full potential and have a decent standard of living.
- Ways in which individuals can be involved in social action to promote health and wellbeing:
  - being aware
  - being an advocate
  - speaking out (lobbying) about social change (such as attending a Climate Change rally) because political pressure encourages governments and organisations to make change if the issue is seen as important to the community
  - actively promoting social change and action using social media
  - making donations or contributions to aid agencies in times of need and on a regular basis to support aid work
  - supporting fair trade
  - thinking and acting sustainably, and ensuring resources are available now and in the future
  - using purchasing power for good.



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KEY QUESTIONS

SUMMARY QUESTIONS

1 Describe the features of an effective aid program.
2 Analyse the importance of all the features working together for a program to be effective.
3 Outline the importance of effective aid in the promotion of global health and wellbeing.
4 Explain why many aid programs are focusing on achieving the SDGs.
5 Describe two ways in which an individual can engage with communities to take social action to promote health and wellbeing.
6 Justify why taking social action is important.
7 Suggest two examples of how social action could have a positive impact.
8 Name a national or international organisation working to promote health and wellbeing.
9 Outline one way in which individuals can become involved with this organisation to promote health and wellbeing.
10 Explain why people are being encouraged to get behind the SDGs and promote their individual goal commitment.

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EXTENDED RESPONSE QUESTION

There are many examples of effective aid programs focused on working towards achieving the SDGs.

Provide an example of an effective aid program to address the SDGs, including:

- its purpose and the SDG/s being addressed
- how the program is being implemented and the partnerships involved
- contribution to promoting health and wellbeing, and human development
- evaluation of its effectiveness using two features of effective aid. (10 marks)

EXAMINATION PREPARATION QUESTIONS

Australia is working with the Philippines Government to provide a pathway out of poverty by investing in education and emphasising the delivery of quality education.

Australia is helping to improve the learning outcomes of Filipino school children and ensuring that more children finish primary and secondary education. We are working with our partners to train teachers, build educational facilities like classrooms and day care centres, strengthen school-based management systems, and provide teaching and learning materials.

SOURCE: DFAT (2013)

A Identify an SDG that is being addressed by this aid program. (1 mark)

B Discuss the purpose of this aid program. (2 marks)

C Outline how this program could improve health and wellbeing, and human development, in the Philippines. (4 marks)

D Suggest how this program could be analysed to judge its effectiveness. (3 marks)

E Describe and justify a further example of social action that could be taken to address improving education in low-income countries. (4 marks)



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GLOSSARY

asthma A chronic condition that affects the small air passages of the lungs. When exposed to certain triggers, the airways of people with asthma will narrow, making it hard for them to breathe.

atherosclerosis The hardening and thickening of the walls of the arteries as a result of deposits of atheroma (a substance known as plaque) on their inner lining; this build-up of atheroma may slow down or stop blood flow.

benign tumour An abnormal growth that is not cancer and does not spread to other areas of the body.

bilateral aid Where aid is given by the government of one country directly to the government of another country. An example of bilateral aid is when Australia provides aid to East Timor.

biological factors Factors relating to the body that impact on health and wellbeing and overall levels of health status.

biomedical model of health Focuses on the physical or biological aspects of disease and illness. It is a medical model of care practised by doctors and health professionals, and is associated with the diagnosis, cure and treatment of disease.

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.

cancer A range of diseases categorised by uncontrolled and abnormal cell growth. Cancer cells can spread to other parts of the body, causing further damage.

cardiovascular disease Includes all diseases and conditions of the heart and blood vessels (including heart, stroke and vascular diseases) caused mainly by blood supply to the heart, brain and legs.

cerebrovascular disease Any disorder of the blood vessels supplying the brain or its covering membranes. A notable and major form of cerebrovascular disease is stroke.

characteristics Features of what something looks like, what might provided.

cholesterol A waxy, fat-like substance used by the body to build cell walls. It is either produced in the liver or absorbed from animal fats eaten.

chronic diseases Diseases marked by a long duration and frequent recurrence that often progress slowly, especially degenerative diseases such as osteoarthritis.

chronic medical condition A condition that has been present for at least six months, is likely to be present for six months or is terminal.

chronic obstructive pulmonary disease (COPD) A progressive and long-term lung disease where damage to the lungs obstructs oxygen intake and causes increasing shortness of breath.

cisgender Describes someone who feels they identify with their birth sex.

collaboration The action of working with someone to produce something.

comorbidity When people who have a disease or condition also have one or more other diseases or conditions.

dementia A general term for disorders that are characterised by deteriorating mental processes (such as Alzheimer's disease or vascular dementia). Symptoms include impaired memory, understanding, reasoning and physical functioning.

diabetes mellitus A metabolic disease in which high blood glucose levels result from defective insulin secretion, insulin action or both.

disability-adjusted life year (DALY) A measure of burden of disease; one DALY equals one year of healthy life lost due to premature death and time lived with illness, disease or injury.

discrimination When a person, or a group of people, is treated less favourably than another person or group because of their background or certain personal characteristics such as age, ethnicity, religion, gender, sexual orientation or socioeconomic status (Australian Human Rights Commission).

double burden of disease Characterised by the coexistence of communicable diseases (often associated with poverty) and noncommunicable diseases (often associated with wealth) within the one country.

dynamic Constantly changing.

emergency aid The rapid assistance given to people or countries in immediate distress to relieve suffering, during and after human-made emergencies (such as wars) and natural disasters (such as a flood, tsunami or earthquake); can also be called 'humanitarian aid'.

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emotional health and wellbeing Relates to the ability to express feelings in a positive way. It 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 you feel emotionally secure and relaxed in everyday life.

environmental factors The surroundings in which we live, work and play; the environment includes water and air, workplaces, roads, nature, schools, recreation settings and exposure to hazards.

equity Equity in relation to health and wellbeing refers to addressing the causes of inequality and providing strategies to ensure fairness. Equity is not about treating everyone equally but rather providing what individuals or groups require for health and wellbeing (VCAA FAQ, © VCAA).

extreme poverty Currently measured as someone living on less than US$1.90 per day.

fibre A type of carbohydrate that the body does not digest.

gap amount The difference between the Medicare benefit and the schedule fee.

grain (cereal) foods The entire class of cereal/grain foods, including whole or partially processed cereal grains (e.g. rice, breads, cereals, oats, corn and barley), breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley. It excludes cereal or grain-based products with a significant amount of added fat and sugar, such as cakes, pastries, pasta, noodles, polenta and biscuits.

Gross Domestic Product The total value of goods produced and services provided in a country during one year.

Gross National Income (GNI) per capita Value of country's total annual income, expressed in US dollars, and divided by its population to indicate the average income of the country's citizens.

health 'A state of complete physical, social and mental wellbeing, and not merely the absence of disease or infirmity' (WHO, 1946).

health-adjusted life expectancy (HALE) A measure of burden of disease, based on life expectancy at birth, but including an adjustment for time spent in poor health. It is the number of years in full health that a person can expect to live based on current rates of ill-health and mortality.

health promotion 'The process of enabling people to increase control over and improve their health' (WHO, 1998).

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).

health system Activities whose primary purpose is to promote, restore and/or maintain health.

high-density lipoproteins (HDL) Known as the 'good' cholesterol, they recover cholesterol from cells, vessel walls and other lipoproteins to take back to the liver for disposal. HDLs tend to prevent or reverse the build-up of plaque in the arteries.

human development The process of increasing the opportunities and freedoms that people have to develop to their full potential and lead productive, creative lives in accord with their needs and interests (adapted from the UN Development Programme, 1990).

illness The state of feeling unwell, or being in poor health, often due to disease or injury.

immunisation Making someone immune to infection, typically by vaccination.

incidence The number or rate of new cases of a particular condition during a specific time.

infant mortality The number of deaths among children aged under one year in a given period.

infant mortality rate The number of deaths among children aged under one year in a given period, per 1000 live births in the same period.

insoluble fibre Mainly cellulose; makes up the structural part of plant cell walls; has a major role in adding bulk to faeces to reduce the risk of colorectal cancer.

International Health Regulations (IHR) Legally binding health regulations that provide countries with a set of rules to follow in the event of a disease outbreak.

life expectancy 'An indication of how long a person can expect to live; it is the number of years of life remaining to a person at a particular age if death rates do not change' (AIHW, 2008).

low birthweight The weight of a baby at birth that is less than 2500 g.

low-density lipoproteins (LDL) These carry most of the cholesterol from the liver to the cells. If there is an excess of cholesterol or it cannot be properly delivered to the cells, LDL (known as 'bad' cholesterol) tends to accumulate in the vessel walls, forming plaque and hardening the artery. This condition is known as atherosclerosis.

malignant tumour A mass of cancer cells that is likely to penetrate the tissues or organ in which it originated as well as move to other sites.

mass migration The movement of large numbers of people from one geographical area to another. This is different to individual and seasonal migration.

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maternal mortality Refers to the number of deaths of women due to pregnancy, childbirth or during the six weeks after the end of pregnancy.

maternal mortality ratio The number of mothers who die as a result of pregnancy, childbirth or any related cause per 100 000 women who give birth.

Medicare Australia's universal healthcare system, which aims to improve the access to healthcare for all Australians and to provide access to adequate healthcare at little or no cost to all Australians in need of treatment, regardless of age or income.

Medicare safety net An additional rebate scheme introduced by the federal government for the benefit of patients, covering a range of doctor's visits and tests received out of hospital. It provides for reimbursement of 100 per cent of the MBS fee for out-of-hospital services once the relevant threshold has been reached.

mental health and wellbeing The current state of wellbeing relating to the mind or brain and its 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. It is associated with low levels of stress and anxiety, positive self-esteem, as well as a sense of confidence and optimism.

microfinance Small, low-cost loans and financial services provided to individuals who lack the resources to secure traditional credit.

morbidity 'Refers to ill-health in an individual and the levels of ill-health in a population or group' (AIHW, 2008).

mortality The number of deaths caused by a particular disease, illness or other environmental factor.

multilateral aid Where aid is provided through an international organisation (such as the WHO, UN or the World Bank) to a country such as Syria. Multilateral aid combines donations from a number of high-income countries and distributes them to the recipients, usually middle- or low-income countries.

obesity A condition in which a person's weight is 20 per cent or more above 'normal' weight, or they have a BMI of 30 or more.

optimal health and wellbeing The best possible state of an individual's health and wellbeing for their age.

osteoarthritis A group of diseases involving the degradation of joints and cartilage, causing stiffness and tenderness in the joints, as well as inflammation, pain and locking.

Ottawa Charter for Health Promotion An approach to health-promotion development by the World Health Organization that attempts to reduce inequalities in health. The Ottawa Charter for Health Promotion was developed from the social model of health and defines health promotion as 'the process of enabling people to increase control over, and to improve, their health' (WHO, 1998). The Ottawa Charter identifies three basic strategies for health promotion: enabling, mediating and advocacy.

out-of-pocket costs The difference between the Medicare benefit and what the doctor charges.

overweight A condition in which a person's weight is 10 to 20 per cent higher than 'normal', as defined by a body mass index (BMI) of 25 to 30.

peak bone mass Refers to the genetic potential for bone density.

perinatal condition A condition occurring in the baby during the period shortly before or after birth (usually up to 28 days after).

Pharmaceutical Benefits Scheme (PBS) An Australian Government program that provides prescription medication to Australian residents, as well as foreign visitors covered by a Reciprocal Health Care Agreement.

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. Physical health and wellbeing 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.

phytochemicals Bioactive chemical compounds found in plants; also known as antioxidants.

polyp An abnormal growth of tissue (tumour) projecting from a mucous membrane such as the intestine.

postpartum The period of time following childbirth.

prerequisites for health The fundamental conditions and resources that provide a secure foundation for health and wellbeing, as defined by the WHO.

prevalence 'The number or proportion of cases of a particular disease or condition present in a population at a given time' (AIHW, 2008).

primary healthcare Refers to an individual's first contact with the healthcare system.

public health The organised response by society to protect and promote health, and to prevent illness, injury or disability.

purpose What something aims to achieve.

quintile A group derived by ranking the population according to specified criteria related to socioeconomic status and dividing it into five equal parts.

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regional and remote populations People who live in areas situated outside any city or metropolitan (urban) area that has a population greater than 100 000 people.

schedule fee A fee set for a service by the Commonwealth Government.

secondary healthcare Includes health services and medical care provided by specialists after a referral from a primary healthcare professional.

self-assessed health status An overall measure of a population's health based on a person's own perceptions of their health.

social action Individual or group behaviour that involves interaction with other individuals or groups; organised action toward social reform.

social health and wellbeing Relates to the ability to form meaningful and satisfying relationships with others and 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 society. Social health and wellbeing is supported by strong communication skills, empathy for others and a sense of personal accountability.

social justice People are treated fairly with equal rights for all.

social model of health A conceptual framework within which improvements in health and wellbeing are achieved by directing effort towards addressing the social, economic and environmental determinants of health. The model is based on the understanding that in order for health gains to occur, social, economic and environmental determinants must be addressed.

social protection Covers assistance and support services provided to persons who are: elderly, disabled, survivors, unemployed, destitute, homeless, low-income earners, Indigenous people, immigrants, refugees, alcohol and substance abusers, and have occupational injuries and diseases. It also covers assistance and support services provided to families and children.

sociocultural factors Aspects of society and the social environment that impact on health and wellbeing and overall levels of health status.

socioeconomic status (SES) Sometimes referred to as social class; the key elements of income, education level, employment status and occupational type determine a person's socioeconomic status.

soluble fibre Fibre in the form of pectins and gums found in fruits, vegetables, oats and legumes. It has a binding effect that can lead to the increased removal of cholesterol from the body, delay blood glucose absorption and contribute to healthy bacteria.

spiritual health and wellbeing Not material in nature but 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. Spiritual health can be highly individualised; for example, in some spiritual traditions it may relate to organised religion, a higher power and prayer, whereas in other practices it can relate to morals, values, a sense of purpose in life, connection or belonging.

subjective Influenced by or based on a person's feelings, opinions and experiences.

sustainable 'Meeting the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations, 1987).

type 2 diabetes mellitus A disorder in which a person's body produces insulin in order to metabolise blood sugar, but either does not produce enough or does not use it effectively.

transgender Describes someone who does not identify with their birth sex.

transparency Used in social contexts as operating in such a way that it is easy for others to see what actions are performed. It implies openness, communication and accountability.

under-5 mortality The number of deaths among children under five years of age.

under-5 mortality rate (U5MR) 'The number of deaths of children under five years of age per 1000 live births' (WHO, 2008).

universal health coverage 'The goal of universal health coverage is to ensure that all people obtain the health services they need without suffering financial hardship when paying for them' (WHO, 2014).

vaccination The process of providing immunity (orally or via injection) against infectious disease.

wellbeing A complex combination of all dimensions of health, characterised by an equilibrium in which the individual feels happy, healthy, capable and engaged.

whole foods Refers to foods themselves (for example, fruit, vegetables, bread, pasta, lean meat, milk, yoghurt) and not the food component (for example, calcium, iron, protein).

years lost due to disability (YLD) The non-fatal component of the disease burden; a measurement of the healthy years lost due to diseases or injuries.

years of life lost (YLL) The fatal burden of disease of a population, defined as the years of life lost due to death.

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