11 Sustainable Development Goals and the World Health Organization

11.1 Overview

Key knowledge
- Rationale and objectives of the United Nations (UN’s) Sustainable Development Goals (SDGs)
- Key features of SDG 3: ‘Ensure healthy lives and promote wellbeing for all at all ages’
- Relationships between SDG 3 and SDGs 1, 2, 4, 5, 6 and 13 that illustrate collaboration between the health sector and other sectors in working towards health-related goals
- Priorities and work of the World Health Organization (WHO)

Key skills
- Describe the objectives of the UN’s SDGs and justify their importance
- Describe key features of SDG 3 and analyse its relationships with other SDGs in collaborative approaches to improving health and wellbeing, and human development globally
- Explain the priorities and the work of the WHO and discuss how the WHO priorities are reflected in different scenarios

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FIGURE 11.1 The Sustainable Development Goals are framing agendas and political policies from 2016 to 2030. Their goals are to end extreme poverty, fight inequality and injustice and address climate change.
11.2 Objectives and rationale for the Sustainable Development Goals and key features of SDG 3

KEY CONCEPT Understanding the SDGs, including their rationale and objectives
11.2.1 What are the Sustainable Development Goals (SDGs)?
The 17 Sustainable Development Goals (SDGs), also referred to as the global goals, include 169 targets to be achieved by 2030. The goals were developed through a collaborative process by all United Nations member states, non-government organisations, and people around the world with an interest in making the world a better place. The goals include ambitious targets and plans about how each of them can be achieved. They tackle global challenges and aim to meet the needs of all people in all countries. They direct action in five areas of importance (see figure 11.2):

- **People.** End poverty and hunger, in all their forms and dimensions, and ensure that all human beings can fulfil their potential with dignity and equality and in a healthy environment.
- **Planet.** Protect the planet from degradation through sustainable consumption and production, management of natural resources and acting on climate change to support the needs of present and future generations.
- **Prosperity.** Ensure all people can enjoy successful and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.
- **Peace.** Foster peaceful, just and inclusive societies that are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.

**FIGURE 11.2** The SDGs direct action in five areas of importance for humanity and the planet.
• **Partnership.** Implement the SDGs with a global partnership for sustainable development, focused on the needs of the poorest and most vulnerable, with the participation of all countries, stakeholders and people.

### 11.2.2 Rationale for the SDGs

There were three main reasons, or rationale, for the introduction of the Sustainable Development Goals:

1. A new set of goals and targets were needed when the Millennium Development Goals (MDGs) finished in 2015. The MDGs provided a global framework of action to address poverty and make global progress on education, health and wellbeing, hunger and the environment. They resulted in significant improvements in global health and wellbeing and human development. More than 1 billion people were lifted out of extreme poverty, progress had been made against hunger, more girls were attending school and some action had been taken to protect the planet.

2. Progress in all areas was uneven across regions and countries, leaving millions of people behind, especially the poorest and those disadvantaged due to sex, age, disability, ethnicity or geographical location. This showed there was still a lot of work to be done.

3. New global challenges had emerged that needed to be considered. These included the impact of increasing conflict and extremism, widespread migration, economic and financial instability and large-scale environmental changes. These challenges have the capacity to undermine many of the achievements that had been made through the MDGs.

### 11.2.3 Objectives of the SDGs

The 17 global goals work together to achieve three major objectives:

- end extreme poverty
- fight inequality and injustice
- address climate change.

To achieve these objectives, the SDGs aim to end poverty and hunger; promote health and wellbeing; address inequalities within and among countries; build peaceful, just and inclusive societies; protect human rights; and promote gender equity and the empowerment of women and girls, all underpinned by the promotion of a sustainable world. A sustainable world means people can escape poverty and enjoy decent work without harming the Earth’s essential ecosystems and resources; where people can stay healthy and get the food and water they need; where everyone has access to clean energy that doesn’t contribute to climate change; and where women and girls are afforded equal rights and equal opportunities. The three dimensions of sustainability underpinning the goals are social, economic and environmental.

![FIGURE 11.3 The UN’s 17 Sustainable Development Goals](image)

11.2.4 The Sustainable Development Goals are interconnected

One goal is no more important than any other — they complement and interconnect with each other. They are designed as a set of goals and targets that are integrated, interdependent and indivisible. Their achievement requires collaboration across all sectors and at national, international, regional and local levels.

11.2.5 SDG 3: Good health and wellbeing

Good health and wellbeing contributes to the achievement of many of the SDGs. In turn, the achievement of other SDGs helps achieve good health and wellbeing. It is for this reason that SDG 3: Good health and wellbeing is the focus of this topic, along with its relationship with other selected SDGs, which are:

- SDG 1: No poverty
- SDG 2: Zero hunger
- SDG 4: Quality education
- SDG 5: Gender equality
- SDG 6: Clean water and sanitation
- SDG 13: Climate action.

This topic will investigate each of the key features of SDG 3 and then explore the relationship between SDG 3 and the other selected SDGs as represented in figure 11.4.

11.2 Activities

Access the SDG weblink and worksheet in the Resources tab, then complete the worksheet.

11.2 EXERCISE 1 TEST YOUR KNOWLEDGE

1. When were the Sustainable Development Goals (SDGs) introduced and by whom?
2. What is the target year for the achievement of the goals?
3. What was the rationale (the reasons) for the introduction of the SDGs?
4. What are the objectives of the SDGs?
5. What are the five areas of importance?
6. What are the dimensions of sustainability that underpin the SDGs?
7. Why are the goals described as being interconnected?

11.2 EXERCISE 2 APPLY YOUR KNOWLEDGE

1. Why is collaboration needed across all sectors to achieve the goals and targets?
2. “There can be no sustainable development without peace and no peace without sustainable development”. Explain this statement.
11.3 Sustainable Development Goal 3: Good health and wellbeing: key features

**KEY CONCEPT** Understanding the key features of SDG 3: Good health and wellbeing

**GOOD HEALTH AND WELLBEING: ENSURE HEALTHY LIVES AND PROMOTE WELLBEING FOR ALL AT ALL AGES**

Goal 3 aims to promote physical and mental health and wellbeing, and extend life expectancy by addressing the major causes of morbidity and mortality in high, middle- and low-income countries. The goal includes a number of features each with individual targets. These are:

- reduce maternal mortality to less than 70 per 100,000 live births
- end preventable deaths of newborns and children under five, reducing neonatal mortality to 12 per 1000 live births and under-5 mortality to 25 per 1000 live births
- end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases (NTD), and combat hepatitis, water-borne diseases and other communicable diseases
- reduce by one third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and wellbeing
- strengthen the prevention and treatment of substance abuse, including drugs and alcohol
- halve global deaths and injuries from road traffic accidents
- ensure universal access to sexual and reproductive healthcare services
- achieve universal access to affordable essential medicines and vaccines
- reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
- strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries, as appropriate
- support the research and development of vaccines and medicines for communicable and non-communicable diseases and provide access to affordable essential medicines and vaccines
- increase investment in healthcare services and qualified healthcare staff, especially in low-income countries and small island developing states
- strengthen the capacity of all countries for early warning, risk reduction and management of health and wellbeing risks.

SDG 3 aims to achieve good health and wellbeing for everyone, at every stage of life. Its key features include targets for improvements or outcomes for a range of global health and wellbeing issues as well as actions or means of implementation targets that must be met if Goal 3 is to be achieved.

The features of Goal 3 that represent outcomes for health and wellbeing are to:

- reduce maternal mortality
- end preventable deaths of newborns and children under five
- end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases (NTD), and combat hepatitis, water-borne diseases and other communicable diseases
- reduce non-communicable diseases
- promote mental health and wellbeing
- reduce substance abuse, including drugs and alcohol
- reduce road traffic accidents
- reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

The features of SDG 3 that represent the ‘means of implementation’ or actions are:

- achieving universal health coverage. This is a prerequisite for achieving SDG 3 and includes expanding health and wellbeing services so all people have access to the health and wellbeing services they need at a cost which does not cause them to suffer financial hardship
- ensuring an adequate and well-trained health workforce is in place in every country

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*6 Key Concepts in VCE Health & Human Development Units 3 & 4 Sixth Edition*
having access to **essential medicines and vaccines**
having access to sexual and reproductive healthcare services
strengthening the implementation of the WHO Framework Convention on Tobacco Control in all countries
supporting the research and development of vaccines and medicines for communicable and non-communicable diseases
increase investment in healthcare services and qualified healthcare staff, especially in low-income countries and small island developing states
strengthen the capacity of all countries for early warning, risk reduction and management of health and wellbeing risks.

The key features of SDG 3 are represented in figure 11.5 which shows how the actions or implementation targets will contribute to improved health and wellbeing outcome targets.

**FIGURE 11.5** The key features of SDG 3

<table>
<thead>
<tr>
<th>ACTIONS (Implementation targets)</th>
<th>OUTCOMES (Health and wellbeing targets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieve universal health coverage, including affordable access to quality and healthcare services and essential medicines and vaccines</td>
<td>Reduce maternal mortality</td>
</tr>
<tr>
<td>Access to sexual and reproductive healthcare services</td>
<td>End preventable deaths of newborns and children under five</td>
</tr>
<tr>
<td>Strengthen prevention and treatment of substance abuse</td>
<td>End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases (NTD), and combat hepatitis, water-borne diseases and other communicable diseases</td>
</tr>
<tr>
<td>Strengthen the implementation of the WHO Framework Convention on Tobacco Control</td>
<td>Reduce non-communicable diseases and promote mental health and wellbeing</td>
</tr>
<tr>
<td>Support the research and development of vaccines and medicines for communicable and non-communicable diseases</td>
<td>Reduce road traffic accidents</td>
</tr>
<tr>
<td>Increase investment in healthcare services and a well-trained workforce</td>
<td>Reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</td>
</tr>
<tr>
<td>Strengthen capacity for early warning, risk reduction and management of health and wellbeing risks</td>
<td>Reduce substance abuse, including drugs and alcohol</td>
</tr>
</tbody>
</table>

**11.3 EXERCISE 1 TEST YOUR KNOWLEDGE**
1. State the name of SDG 3 and its aim.
2. What is the difference between the features of SDG 3 that represent health and wellbeing outcomes and the features that represent ‘means of implementation’ or action features?
3. Describe universal healthcare.
11.3 Exercise 2 Apply your knowledge

1. Why is universal healthcare considered to be a prerequisite for achieving Goal 3?
2. Why is it important to strengthen the capacity of all countries for early warning, risk reduction and management of health and wellbeing risks?
3. The features of SDG 3 can be grouped under a range of categories. Refer to figure 11.5 and complete the following table that represents one way the features can be grouped.

<table>
<thead>
<tr>
<th>Health and wellbeing outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population groups</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Disease groupings</td>
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<tr>
<td></td>
</tr>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Causes of burdens of disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2. Reduce road traffic accidents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actions or ‘means of implementation’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal healthcare</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Substance control</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Medicines and research</td>
</tr>
<tr>
<td>Early warning and protection</td>
</tr>
</tbody>
</table>

11.4 Sustainable Development Goal 3: Good health and wellbeing: key feature — maternal and child health

11.4.1 Key feature — maternal and child health and wellbeing

1. Reduce maternal mortality

Maternal mortality refers to the number of mothers who die due to complications related to pregnancy and childbirth. Most maternal deaths occur in low- and middle-income countries as a result of five main causes (figure 11.6).
Malnutrition can also increase the risk of maternal mortality, particularly in low- and middle-income countries. Iron-deficiency anaemia contributes to 20 per cent of all maternal deaths.

**Improvements in maternal mortality**
The number of mothers who survive childbirth has improved significantly since 1990. The maternal mortality ratio was reduced by 37 per cent worldwide between 1990 and 2015, or from 385 maternal deaths per 100 000 live births to 216 per 100 000 (see figure 11.7).

**Reasons for improvements in maternal mortality rates**
- more women having access to sexual and reproductive health and wellbeing services, including antenatal care. Antenatal care ensures qualified health workers can monitor the mother’s and baby’s health and wellbeing and reduce the risk of complications.
- more births being assisted by skilled health personnel. During childbirth, skilled birth attendants can assist with obstructed labour and provide medical assistance if a caesarean section is required or if haemorrhaging occurs. Giving birth in a medical clinic greatly reduces the risk of infection during childbirth.
- fewer adolescent girls are now having children. In 2018, the adolescent birth rate was 44 births per 1000 women aged 15–19. Pregnancy during adolescence increases the risk of maternal mortality, as girls are often still developing and their bodies are less able to cope with pregnancy and childbirth. Stillbirths and newborn deaths are 50 per cent higher among infants born to adolescent mothers compared to infants born to mothers aged 20 to 29.
- greater access to family planning services. In 2018, 77 per cent of women aged 15–49 had access to modern contraceptive methods or family planning services. This enables families to plan the number of children they have and the spacing of births. By allowing two years between births, mothers and infants are more likely to survive pregnancy and childbirth and remain healthy.
SDG 3 aims to reduce maternal mortality rates from 216 per 100 000 to less than 70 per 100 000 live births by 2030. However, every day hundreds of women are still dying during pregnancy or from childbirth-related complications. Most of these deaths occur in low-income countries, particularly in sub-Saharan Africa and southern Asia where approximately 800 women die each day and the maternal mortality ratio is approximately 14 times higher than in higher-income countries.

Reducing maternal mortality rates
Most maternal deaths can be prevented by providing access to sexual and reproductive healthcare services, in particular antenatal care during pregnancy, skilled birth attendants during childbirth, as well as care and support for mothers in the weeks after childbirth. In 2016, 90 per cent of all births in most high-income and upper-middle-income countries were attended by skilled birth attendants. However, in low-income and lower-middle-income countries less than half of all births were assisted by skilled health personnel. Women living in rural areas are much less likely to have access to these services compared to those living in the city. Only half of all pregnant women globally can access the recommended four antenatal care visits.

Preventing unintended pregnancy through universal access to family planning is critical to further improvement in the health and well-being of women and reducing maternal mortality. While access to modern methods of contraception for women aged 15 to 49 increased to 77 per cent in 2018, there are still many women who do not have the means to control the number of children and the timing and spacing of births. This figure is much higher in countries such as sub-Saharan Africa where only half of all women can access modern methods of contraception.

Adolescent pregnancy has also declined steadily in almost all regions but remains high in sub-Saharan Africa. In 2018, the adolescent birth rate in sub-Saharan Africa was 101 per 100 000 women aged 15–19 years (see figure 11.10).

2. End preventable deaths of newborn and children under 5
Many infant deaths occur in the neonatal period — the first 28 days of life. Up to half of all these deaths occur within the first 24 hours of birth, and 75 per cent occur in the first week. In 2016 2.6 million newborns died, with most of these deaths occurring in the first week of life. The 48 hours immediately
following birth is the most crucial period for newborn survival. Three quarters of these deaths are due to premature birth, birth asphyxia (lack of breathing at birth), birth trauma and infections. Children who reach their fifth birthday have a much greater chance of surviving into adulthood. However, every day in 2016, 15 000 children died before reaching their fifth birthday with acute respiratory infections, diarrhoea and malaria being the leading causes of death (see figure 11.11).

**FIGURE 11.10** Improvements in maternal mortality can be achieved by increasing women’s access to sexual and reproductive healthcare services.

**FIGURE 11.11** Prematurity, acute respiratory infections, birth asphyxia and birth trauma are responsible for three quarters of all deaths under five.

**Table:** Prematurity, acute respiratory infections, birth asphyxia and birth trauma are responsible for three quarters of all deaths under five.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage of total under-five deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prematurity</td>
<td></td>
</tr>
<tr>
<td>Acute respiratory infections</td>
<td></td>
</tr>
<tr>
<td>Birth asphyxia and birth trauma</td>
<td></td>
</tr>
<tr>
<td>Other communicable, perinatal and nutritional conditions</td>
<td></td>
</tr>
<tr>
<td>Congenital anomalies</td>
<td></td>
</tr>
<tr>
<td>Diarrhoea</td>
<td></td>
</tr>
<tr>
<td>Neonatal sepsis</td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td></td>
</tr>
<tr>
<td>Tetanus</td>
<td></td>
</tr>
</tbody>
</table>

**Improvements in infant and child health and wellbeing**

The global under-five mortality rate was reduced by more than half, from 90 to 41 deaths per 1000 live births, between 2000 and 2016. This represented a reduction from 9.9 million to 5.6 million deaths.

Neonatal mortality rates also declined from 31 deaths per 1000 live births in 2000 to 19 in 2016, representing a reduction from 4 million neonatal deaths in 2000 to 2.6 million in 2016. Sub-Saharan Africa and southern Asia had the highest neonatal mortality rates at 28 deaths per 1000 live births.

Improved access to antenatal care, more births being assisted by skilled health personnel, fewer young mothers giving birth and greater access to family planning services have all contributed. Since 2000, higher rates of childhood vaccination have saved almost 15.6 million lives and reduced the number of reported...
cases of measles by 67 per cent. Approximately 85 per cent of children worldwide received at least one
dose of the measles vaccine in 2017 compared to 73 per cent in 2000.

SDG 3 aims to end preventable deaths of newborns and children under five and reduce neonatal mortality
from 19.2 per 1000 live births in 2015 to 12 per 1000 live births in 2030. It also aims to reduce under-five
mortality rates from 43 deaths per 1000 live births to 25 per 1000 live births. However, one million infants
continue to die in their first week of life, and 2.6 million will die during their first 28 days of life. Four
out of every five deaths of children under the age of five occurs in sub-Saharan Africa and southern Asia.
Children born into poverty are almost twice as likely to die before the age of five as those from wealthier
families. Children of educated mothers — even mothers with only primary schooling — are more likely to
survive than children of mothers with no education.

End preventable deaths of newborns and children under five
Preventable deaths of newborns and those under five (U5MR) can be reduced by ensuring that mothers have
access to sexual and reproductive health services, especially safe childbirth practices and neonatal care.
Many deaths of children under five are due to preventable causes such as malnutrition, malaria, diarrhoea,
measles and pneumonia. Breastfeeding, access to nutritious food, access to safe water, health and wellbeing
services including vaccinations, and antibiotics are important for reducing the under-five mortality rate. To
achieve this, there needs to be increased investment in healthcare services. There are many children globally
who are not vaccinated or do not receive the full vaccination schedule due to lack of access to healthcare.
Investment by the global community is also needed for research and development of new vaccines to
prevent diseases such as malaria, HIV and many tropical diseases, which are responsible for the deaths of
many children (figure 11.12).

**FIGURE 11.12** There are many factors that can contribute to ending preventable deaths of newborns and
children under-five particularly in low-and middle-income countries.
11.4 EXERCISE 1 TEST YOUR KNOWLEDGE
1. What are the five main causes of maternal mortality?
2. Outline three ways that maternal mortality rates can be reduced.
3. When do most infant deaths occur?
4. What factors have contributed to reductions in under-five mortality rates?

11.4 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Describe how access to sexual and reproductive health and wellbeing services can help reduce maternal and child mortality.
2. Why would children born into poverty be almost twice as likely to die before the age of five as those from wealthier families?
3. Discuss why universal healthcare could help reduce under-five mortality.
4. Refer to figure 11.11. Compare the main causes of death of newborns to those that cause the death of children under five.
5. Create a table or mind map summarising the key points for SDG 3 — maternal and child health and wellbeing.

11.5 Sustainable Development Goal 3: Good health and wellbeing: key feature — communicable diseases

A feature of Goal 3 is to end epidemics of communicable diseases, in particular AIDS, tuberculosis, malaria and neglected tropical diseases. It also aims to reduce hepatitis, water-borne diseases and other communicable diseases.

11.5.1 AIDS

AIDS (Acquired Immunodeficiency Syndrome) is caused by the Human Immunodeficiency Virus (HIV), which damages and weakens the body’s immune system. The body loses the ability to fight infections, and the infected person eventually develops AIDS. Those with AIDS are at high risk of developing infections, cancers and other diseases such as tuberculosis, which eventually leads to death. The HIV virus is transmitted via the exchange of infected bodily fluids such as blood, semen, vaginal secretions and breast milk. It is usually spread by sexual intercourse without a condom and by the sharing of needles and syringes. It is estimated that between 75–85 per cent of adults who are HIV positive contracted the infection through unprotected sexual intercourse. HIV can also be passed from an infected mother to a child during pregnancy, birth or through breastfeeding.
There is currently no cure for HIV and no vaccine to prevent the disease. However, antiretroviral drugs (ART) help delay and, in some cases, prevent the progression of HIV to AIDS. ART involves a combination of three or more drugs that stops the virus from reproducing so people with HIV can enjoy healthy lives and reduce the risk of transmitting the virus to others. However, ART does not eliminate the virus from the body and the drugs need to be taken continuously.

**Improvements in HIV/AIDS-related deaths and illness**

An estimated 35 million people have died from AIDS-related illnesses since the start of the epidemic. However, progress has been made in reducing mortality from AIDS-related illnesses and the rate of new infections (see figures 11.15 and 11.16). Progress has also been made in preventing mother-to-child transmission of HIV and reducing deaths of mothers who are infected with HIV.

This progress has been due to substantial investment in health services, enabling more people to access ART treatment, ongoing research and development for better ways to diagnose the disease and cheaper medicines. Between 2013 and 2017 the percentage of people living with HIV and receiving ART increased from 39 per cent to 59 per cent. This represented approximately 20.9 million people receiving ART. In 2017, 77 per cent of pregnant women living with HIV had access to ART to prevent transmission of HIV to their babies.

**FIGURE 11.15** The change in HIV infections between 2000 and 2017

![Graph showing the change in HIV infections between 2000 and 2017](image)


SDG 3 aims to end the epidemic of AIDS by 2030. Despite the achievements since 2005, this remains a significant challenge for the global community.

- AIDS is a major cause of morbidity and mortality, particularly in low- and middle-income countries.
- While mortality rates have fallen since 2005, 940 000 people died from HIV-related causes in 2017.
- Sub-Saharan Africa is the most affected region.
- AIDS continues to be the leading cause of death among those aged 10 to 19 years in Africa, the second most common cause of death among youth globally and the leading cause of death for women of reproductive age worldwide.
In 2017 there were around 1.8 million new HIV infections, with around 36.9 million people living with HIV. Of these, 1.8 million were children less than 15 years old. Most of these children live in sub-Saharan Africa and were infected by their HIV-positive mothers during pregnancy, childbirth or breastfeeding.

- Of the 36.9 million people living with HIV, 25 per cent do not know their HIV status.
- In 2017, global ART coverage was 59 per cent of adults and children, however only 52 per cent children and adolescents living with HIV were receiving ART.
- Approximately 20 per cent of pregnant women living with HIV do not have access to ART.

**Ending the AIDS epidemic**

Ending the AIDS epidemic requires that all population groups have access to prevention, diagnosis and ART. This requires continued investment in healthcare services and ART, and cost-effective testing and ongoing research and development into a vaccine. Measures are also needed to remove discrimination and stigma which is a key barrier to accessing HIV services (figure 11.17).

The spread of HIV can be prevented by implementing a combination of actions including using condoms; voluntary male circumcision; pre-exposure medication that works to keep the HIV virus from taking hold in the body; promoting gender equality; and providing access to secondary education. There is still a lack of knowledge about HIV, its causes and how it can be prevented, particularly among youth. In sub-Saharan Africa, less than 40 per cent of youth aged 15 to 24 have correct knowledge about HIV.
11.5.2 Malaria

Malaria is a life-threatening disease caused by parasites that are transmitted to people when bitten by infected female mosquitoes. Young children and pregnant women are at greater risk of contracting the disease. Malaria destroys the body’s red blood cells and causes fever, headache, diarrhoea and vomiting. If left untreated, malaria can disrupt the blood supply to internal organs, causing death.

Actions to control and eradicate mosquitoes is the most effective way of preventing malaria. This is known as vector control and includes the use of insecticide-treated mosquito nets, which protect a person while they are sleeping; the spraying of the inside walls of homes with insecticide to kill and repel mosquitoes; and the use of antimalarial medicines. Once infected, malaria can be cured with quick diagnosis and treatment.

Improvements in malaria

Morbidity rates from malaria have decreased over time but since 2015, improvements have slowed. In 2016, malaria was responsible for the deaths of 445,000 people which was similar to the previous year. Reductions in mortality rates have been significant in the African region falling by 31 per cent, however, Africa continues to account for about 90 per cent of malaria cases and deaths worldwide (figure 11.19).

In terms of incidence, the rates of malaria have increased since 2013. An estimated 216 million cases of malaria occurred in 2016 compared to 210 million cases in 2013 and 237 million cases in 2010 (figure 11.20).

- Between 2000 and 2016, the number of deaths from malaria declined by 6.2 million or by 62 per cent globally.
- The incidence rate of malaria has increased since 2013, yet remains lower than in 2010, decreasing by 18 per cent globally or from 76 to 63 cases per 1000 population at risk, between 2010 and 2016.
- Malaria incidence in the African regions reduced from 256 to 206 cases per 1000 population at risk from 2010 to 2016 representing a 20 per cent reduction.
- Globally, more countries are moving towards the elimination of malaria. In 2016, 44 countries reported fewer than 10,000 malaria cases, up from 37 countries in 2010.
The use of insecticide-treated bed nets and internal spraying of homes with insecticide are considered to have made major contributions to the reduction in morbidity and mortality rates. The use of insecticide-treated bed nets was estimated to account for 50 per cent of the decline among children aged 2–10 years in sub-Saharan Africa. Between 2004 and 2015, 900 million insecticide-treated mosquito nets were provided to people living in malaria-prone countries in Africa, which meant 54 per cent of the at-risk population slept under a treated net. However, the number of people protected by insecticide treated bed nets has been decreasing. In 2016, there were 80 million fewer people sleeping under insecticide treated bed nets that in 2010.

The proportion of the population at risk being protected by the internal spraying of homes has also declined from 5.8 per cent in 2010 (180 million people) to 2.9 per cent in 2016 (100 million people).

More effective diagnosis has made it easier and quicker for people suffering from fever caused by malaria to receive treatment, which has also helped reduce mortality rates. The world’s first malaria vaccine is in the process of being piloted. Preventative treatment given to pregnant women after the first trimester can prevent maternal death, anaemia and low birth weight, a major cause of infant mortality. Between 2010 and 2016, access to preventative malaria treatment for pregnant women increased from 6 per cent to 31 per cent. The World Health Organization estimates 6.8 million malaria deaths since 2001 have been prevented through the introduction of antimalarial strategies.

Malaria can also be reduced by removing or spraying stagnant water which is a breeding ground for mosquitoes.

**Ending the malaria epidemic**

While progress has been made to end the epidemic of malaria by 2030, greater efforts are needed if the target for SDG 3 is to be achieved. Malaria continues to have a devastating impact on people’s health and wellbeing. At the beginning of 2016:

- malaria was still endemic in 91 countries
- 100 million people are still not protected by insecticide treated bed nets
- there were 216 million new cases of malaria which was an increase from 2015
- and an estimated 445 000 malaria deaths worldwide, most of which were children under five
- malaria claimed the life of one child every two minutes.

Ending the epidemic of malaria requires significant financial investment in healthcare and the health workforce to ensure universal access to diagnose, treat and prevent malaria. Mass-distribution of insecticide-treated bed nets is needed along with more people being protected by the indoor spraying of their homes. Health systems in low-income countries are often under-resourced and not accessible to those most at risk of malaria.

Investment in the research and development of new vector control strategies, improved ways to diagnose the disease and more effective medicines are needed. Access to clean water and sanitation is also important to ensure that breeding grounds for mosquitoes are controlled (figure 11.23).
Other challenges affecting the ability of countries to control and eliminate malaria include the risks posed by conflict in malaria endemic zones, changing climate patterns and mosquito resistance to insecticides, particularly those used for indoor residual spraying.

### 11.5.3 Tuberculosis

Tuberculosis (TB) is a disease that affects the lungs. It is highly contagious and is caused by bacteria that can spread from person to person via the air through coughing and sneezing. 90 per cent of TB sufferers are adults. Its symptoms include night sweats, persistent cough, tiredness, weight loss and coughing up blood. If left untreated, TB destroys lung tissue and results in death. It mostly affects adults, although all age groups are at risk. The chances of developing TB are much higher among people infected with HIV. TB is preventable with vaccinations and, if diagnosed early, can be treated and cured with appropriate drugs.
Improvements in tuberculosis
In 2017, 10 million people developed TB and the disease was responsible for 1.6 million deaths. This represented a decline in mortality from those suffering from TB of 23 per cent in 2000, to 16 per cent in 2017 which is a reduction from 28 per 100 000 to 17 per 100 000. Worldwide, the incidence of TB is declining by approximately 2 per cent each year falling from 172 per 100 000 population in 2000 to 133 per 100 000 in 2017 (figure 11.24).

Major advances in the prevention, diagnosis and treatment of TB have contributed to these reductions. The BCG vaccine, which was developed almost 100 years ago has been shown to prevent TB in children. In 2017, 158 countries reported providing BCG vaccination as part of their childhood vaccination programs, with 120 of these countries reporting coverage of at least 90 per cent. According to the World Health Organization, effective diagnosis and treatment of TB saved an estimated 54 million lives between 2000 and 2017.

**FIGURE 11.24** Global trends in estimated TB incidence and mortality rates, 2000–2017

![Graph of TB incidence and mortality rates](image)


Ending the tuberculosis epidemic
Whilst the disease burden caused by TB is falling in all regions, it is not fast enough to meet the targets set. Nearly all cases of TB can be cured yet the disease is still one of the top ten causes of death worldwide, and caused more deaths than HIV in 2017.

- Over 95 per cent of TB deaths occur in low- and middle-income countries and the disease is among the top five causes of death for women aged 14–44.
- In 2017, there were an estimated 10.4 million people worldwide who contracted TB, of which 58 per cent were among men, 32 per cent were women and 10 per cent were children.
- Of the 10 million new cases of TB that occurred in 2017 only 6.4 million were officially notified to national authorities and to WHO. This means many people are not receiving adequate diagnosis and treatment for the disease.
- Regular BCG vaccinations are still not reaching all children, putting many of them at risk.

Ending the TB epidemic depends on the provision of universal health coverage so all people have access to vaccination, early detection and effective treatment, especially the poor. Increased funding is needed for health and wellbeing services for the prevention, diagnosis and treatment of the disease. Increased funding for health and wellbeing services and trained health workers would also ensure that all cases of TB are reported and accurate data can inform health decisions.

Greater investment in research and development is needed for new and better ways to diagnose the disease, and for the development of resistant drugs and vaccines. There is currently no vaccine that is
Effective in preventing TB in adults, either before or after exposure to TB infection. New TB drugs have begun to emerge, particularly those better able to treat drug-resistant TB, and there are 13 vaccines in various stages of trialing. Funding is needed to enable further development and implementation of these. Access to clean water and sanitation is also important to prevent the spread of TB (figure 11.25).

**FIGURE 11.25** Ending the epidemic of TB requires the global community to work together to address a range of factors.

- Provide universal health care
- Access to clean water and sanitation
- Increased funding for health and wellbeing services
- More trained health workers
- Research and development for more effective drugs and vaccines
- Research and development to improve diagnosis
- Improved reporting

**11.5.4 Neglected tropical diseases**

Neglected tropical diseases (NTDs) are a diverse group of 18 diseases that mainly occur in tropical and subtropical environments. Their diversity includes the different ways in which they are transmitted as well as their different biological make-up. They all have a significant impact on health and wellbeing. They are referred to as neglected because they have received very little funding from governments and other organisations for research, prevention and control. Neglected tropical diseases thrive in the poorest, most marginalised communities, where people lack access to clean water and sanitation, have limited access to health and wellbeing services and who live in close contact with domestic animals and livestock. People are also at risk when they are in contact with infectious vectors such as mosquitoes, ticks, fleas and other carriers that transmit viruses or parasites.

These diseases can cause severe pain and permanent disability and, together, contribute around 150,000 deaths each year and globally account for 27 million disability-adjusted life years (DALY) (figure 11.26).
FIGURE 11.26 Global burden on NTDs (ranking based on the DALY in 2013)

In 2016, 1.5 billion people required mass or individual treatment and care for NTDs, down from 1.6 billion in 2015, and 2 billion in 2010. Two parasitic conditions that are responsible for considerable morbidity and disability are schistosomiasis, which affects over 240 million people and trachoma, which affected 232 million people and is responsible for an estimated 2.2 million people being visually impaired.

Preventing neglected tropical diseases

Strategies that are effective in reducing morbidity and mortality from neglected tropical diseases include:

- safe and effective drugs that can prevent and treat infection
- vector control to remove carriers of these diseases such as mosquitoes, ticks, flies, fleas, bugs and worms
- veterinary public health measures for diseases and infections that are transmitted between animals and humans
- improved water and sanitation.

Improvements in neglected tropical diseases

Vector control and medicines have been successful in reducing several neglected tropical diseases (see figure 11.26). Several of these diseases are close to being eliminated and are no longer a public health problem. All countries have eliminated leprosy as a public health problem since 2010 and guinea-worm disease is also close to being eradicated. Improvements have also been made in addressing schistosomiasis with 9.4 million more treatments being provided in 2017 than in 2016.

Ending the epidemic of neglected tropical diseases

The SDG target is to reduce by 90 per cent, the number of people needing treatment for these diseases by 2030. To achieve this, research and development for new and effective drugs and cost-effective diagnostic tests is needed. Additional funding to provide universal health care is necessary to ensure all those at risk have access to diagnosis, treatment and medication. Funding is required for the development of new forms of insecticides as increasing levels of resistance to the current insecticides being used is threatening the progress that has been made in controlling some of these diseases. Ongoing commitment and funding for vector control and veterinary public health measures is necessary and has already been shown to be effective. Accurate mapping of disease distribution is also important. Actions outside the health sector are needed, such as access to clean water and sanitation, especially in remote areas where these diseases are more prevalent (figure 11.29).

Other barriers to addressing neglected tropical diseases include global warming, climate change, ongoing urbanisation, and the global travel of people and goods — all which have the potential to increase the spread of these diseases.

11.5.5 Hepatitis

Hepatitis is inflammation of the liver caused by a viral infection. There are five types of hepatitis that contribute to the global burden of disease, and have the greatest potential for outbreaks. These are referred to as types A, B, C, D and E. The five hepatitis viruses are very different — they differ in the way they are transmitted, how they affect population groups and health and wellbeing (see figure 11.30).

Hepatitis A and E are food- and water-borne infections. Outbreaks of these types of hepatitis are more likely to occur in communities with contaminated water and poor sanitation. Hepatitis A and E can cause extreme fatigue, nausea, vomiting and abdominal pain. They can be prevented through improved sanitation, hygiene and food supply. There is also a vaccine for hepatitis A and E. Treatment includes bed rest and providing fluids to prevent dehydration.

Hepatitis B and C are blood-borne infections, and are transmitted through unsafe injections and medical procedures and, less commonly, through sexual contact. Hepatitis B can be transferred from mothers to babies at birth. Hepatitis B and C are the most common cause of liver cancer and cirrhosis. In 2015 there were approximately 240 million people living with chronic hepatitis B and 130–150 million with chronic hepatitis C. The number of people living with hepatitis C virus is increasing, despite there being an effective cure. Hepatitis C is found worldwide, but the most affected regions are central and east Asia and north and west Africa. Most infections in these countries are caused by unsafe medical injections and other medical procedures. Hepatitis C epidemics related to injecting drug use occur in all regions, with an estimated 67 per cent of people who inject drugs infected with the hepatitis C virus. Hepatitis D is transmitted through contact with infected blood and only occurs in people who are already infected with the hepatitis B virus.
FIGURE 11.29 Ending the epidemic of neglected tropical diseases requires action in a range of areas and ongoing funding and commitment from the global community.

FIGURE 11.30 Types of hepatitis: causes, symptoms and transmission.

Hepatitis

- **Hepatitis A and E** (food and water borne infection)
  - More likely to occur in communities with contaminated water and poor sanitation.
  - Symptoms include: extreme fatigue, nausea, vomiting and abdominal pain.
  - Can be prevented through improved sanitation, hygiene and food supply. There is also a vaccine for hepatitis A and E.

- **Hepatitis B and C** (blood-borne infections)
  - Transmitted through unsafe injections and medical procedures and, less commonly, through sexual contact.
  - Hepatitis B can be transferred from mothers to babies at birth.
  - Hepatitis B and C are the most common cause of liver cancer and cirrhosis.

- **Hepatitis D** (blood borne)
  - Transmitted through contact with infected blood and only occurs in people who are already infected with the hepatitis B virus.
All forms of hepatitis are responsible for an estimated 1.4 million deaths per year, which is similar to the death rates from HIV and tuberculosis. Hepatitis B accounts for 66 per cent of deaths, hepatitis C 30 per cent and hepatitis A and E are responsible for the remainder (figure 11.31). Hepatitis is also a growing cause of mortality among people living with HIV.

**Percentage of deaths attributed to hepatitis viral infections, 2015**
The prevalence of hepatitis B is higher in sub-Saharan Africa and East Asia, where between 5–10 per cent of the adult population is chronically infected and mother-to-child transmission is the most common form of transmission.

**Preventing hepatitis**
Hepatitis A and B can be prevented through immunisation and by ensuring blood supplies are screened and safe from the virus before being used for transfusions. Hepatitis A, B and C transmission can also be prevented with safe injection and safe sex practices. An increasing number of countries are now vaccinating infants against hepatitis B as part of their vaccination schedules.

Several blood tests are available to diagnose and monitor people with hepatitis A and B, although no treatments are available. Most sufferers of hepatitis A will recover with bed rest and fluids. Those with chronic hepatitis B infection can be treated with drugs that can slow the progression of cirrhosis, reduce incidence of liver cancer and improve long-term survival, but this generally does not cure hepatitis B infection. Therefore, most people who start hepatitis B treatment must continue it for life. In low- and middle-income countries there is limited access to services for the diagnosis and treatment of hepatitis and those who are diagnosed are often in the late stages of liver disease. In low-income countries, most people with liver cancer die within months of diagnosis. Hepatitis A and E can be prevented with access to clean water and sanitation.

**Ending the epidemic of hepatitis**
To end the epidemic of hepatitis, large-scale vaccination programs are needed, particularly for those at high risk of hepatitis A, B and E and to prevent mother-to-child transmission. Access to clean water and sanitation is also important. Safe practices in healthcare settings are needed to ensure blood and surgical safety. Prevention programs that are successful in reducing hepatitis C infection rates need to be expanded and more funding for universal health coverage to provide affordable health and wellbeing services is needed to ensure people have access to the healthcare they need. Sufferers of hepatitis B need affordable medicines for the remainder of their lives (figure 11.33).
11.5 Activities
1. Work individually or in pairs and research one neglected tropical disease. Include a description, how it is transmitted, its impact on health and wellbeing and the regions or countries where most people are affected. Share with the rest of the class.
2. Use concept mapping software to create a concept map illustrating each disease group covered in this section. For each disease group include a description of the disease, how it is transmitted, its impact on health and wellbeing and actions taken to reduce its spread.

11.5 EXERCISE 1 TEST YOUR KNOWLEDGE
1. What is the relationship between HIV and AIDS?
2. How is HIV transmitted?
3. What factors have contributed to the reduction in new cases and deaths from AIDS?
4. What is malaria and how can it be prevented?
5. What factors have contributed to the reduction in malaria deaths?
6. How can TB be prevented and treated?
7. What are neglected tropical diseases?
8. Explain how neglected tropical diseases can be reduced through vector control.
9. Which neglected tropical diseases cause considerable morbidity and mortality?
10. Which forms of hepatitis cause the greatest number of deaths?

11.5 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Why would the decreasing number of deaths from AIDS result in an increase in the number of people living with HIV?
2. Climate change is a barrier to reducing NTDs. Explain why.
3. Describe three actions that need to be taken to meet the SDG 3 target for malaria.
4. Refer to figures 11.15 and 11.16. Provide two reasons for the trend evident in each of the graphs.
5. Refer to figure 11.26 and identify the neglected tropical disease that saw the greatest reduction in DALY between 1990 and 2013.
6. ‘All forms of hepatitis can be treated and prevented.’ Discuss this statement.
11.6 Sustainable Development Goal 3: Good health and wellbeing: key feature — non-communicable diseases

Another feature of SDG 3 is to reduce the incidence of non-communicable diseases (NCDs) that occur due to lifestyle or environmental factors. Four non-communicable diseases — cardiovascular disease, cancer, diabetes and chronic respiratory disease account for two thirds of deaths globally. Cardiovascular disease is the most common non-communicable disease (affecting 17.5 million people), followed by cancers (8.2 million people), respiratory diseases (4 million) and diabetes (1.5 million). Together these diseases account for 82 per cent of the 38 million deaths from non-communicable diseases each year.

Traditionally, non-communicable diseases were a problem only for high-income countries. However, 80 per cent of the burden of these diseases now affects low- and middle-income countries where people become ill more quickly, suffer more serious illness, and die earlier than those in high-income countries. More than 5 million deaths from non-communicable diseases are the result of direct tobacco use, while more than 600 000 are the result of passive smoking. Other common risk factors include unhealthy diets, physical inactivity and the harmful use of alcohol. As you saw in topic 8, tobacco, alcohol and processed foods have become more widely available in low- and middle-income countries due to global marketing. This has led to a rapid increase in non-communicable diseases.

Changes in our lifestyle have contributed to the increased incidence of non-communicable diseases. Levels of physical activity have declined while the consumption of energy dense foods has increased. This has led to a rise in both adult and childhood obesity, a risk factor for non-communicable diseases (see figure 11.36).

Non-communicable diseases are costly to healthcare systems. Some countries spend up to 15 per cent of their total health budget on the treatment of diabetes and its complications alone. In low- and middle-income countries, the rapid rise in non-communicable diseases has the potential to reverse many of the economic gains achieved by the reduction in infectious diseases.
Many non-communicable diseases can be prevented, and for those already suffering ill health, early disease detection and affordable treatments are available. Inexpensive medicines can reduce the risk of heart attacks and stroke. In countries where the rates of tobacco smoking and alcohol consumption have been reduced, death rates from diseases such as cancer, heart disease, diabetes and stroke have been reduced. Of greater challenge is the need to reduce levels of obesity, where no country has yet been successful.

11.6.1 Reducing premature mortality from non-communicable diseases

Globally, the risk of dying from any one of the four main NCDs between ages 30 and 70 decreased from 22 per cent in 2000 to 18 per cent in 2016, but if the target for reducing mortality from non-communicable diseases is to be achieved a great deal of effort is needed (see figure 11.37).
The World Health Organization recommends that countries:
- implement taxes on alcohol and tobacco products
- implement the Framework Convention on Tobacco Control to substantially reduce deaths due to smoking
- legislate for food labels to include easy to understand information
- encourage schools and workplaces to find ways to encourage regular physical activity
- place taxes on sugar-sweetened drinks, remove them from schools and restrict their marketing to reduce children’s exposure to unhealthy food and drinks.

Low-income countries have less capacity to prevent and control non-communicable diseases. The prevalence of hypertension (high blood pressure) in the African region is the highest worldwide, affecting an estimated 46 per cent of adults. High-income countries are nearly four times more likely to have services to treat non-communicable diseases covered by health insurance than low-income countries. Countries with inadequate health insurance coverage are unlikely to provide universal access to essential healthcare for early diagnosis, treatment, management or cure.
Implementation of the WHO Framework Convention on Tobacco Control in all countries would help reduce deaths due to smoking. In 2016, more than 1.1 billion people aged 15 years or older smoked tobacco, 34 per cent of all males and 6 per cent of all females in this age group. Nearly 80 per cent of the world’s smokers live in low- and middle-income countries, yet there are no services to help people quit smoking in one quarter of low-income countries. In 2016 some improvements occurred, with more countries passing laws requiring plain packaging for cigarettes or health warnings appearing on tobacco product packaging and improving the national monitoring of tobacco use.

Other measures that need to be taken to reduce deaths from non-communicable diseases include:

- raising the priority for the prevention and control of these diseases in all countries, particularly low- and middle-income countries where the focus has largely been on addressing infectious diseases
- reducing risk factors for NCDs and creating health-promoting environments
- strengthening health systems to address the prevention and control of NCDs and to provide universal health coverage
- investing in research and development for the prevention and control of NCDs and to monitor trends (see figure 11.37).

11.6.2 Mental health and wellbeing

When people experience good mental health and wellbeing, they are able to realise their potential, cope with the normal stresses of life, work productively and contribute to their communities. Unfortunately, there are many people who do not enjoy good mental health and wellbeing. Poor mental health and wellbeing is associated with rapid social change, stressful work conditions, gender discrimination, social exclusion, an unhealthy lifestyle, risks of violence, physical ill-health and human rights violations.
Mental disorders, such as depression, are among the 20 leading causes of disability worldwide, with an estimated 350 million people affected. Depression is long lasting and causes enormous suffering, reducing the ability of a person to function at work, at school and in the family. At its worst, depression can lead to suicide. Globally, over 800 000 people die due to suicide every year, with suicide being the second leading cause of death in 15- to 29-year-olds.

People who have gone through traumatic life events (unemployment, bereavement, psychological trauma) are at greater risk of depression. Mental disorders contribute to poverty and homelessness. People with mental disorders are often stigmatised, suffer discrimination and are denied their basic human rights. Mental disorders often affect, and are affected by, other diseases such as cancer, cardiovascular disease and HIV/AIDS. As a result, those who suffer from mental disorders often experience higher rates of morbidity and mortality and lower life expectancy.

Mental disorders such as depression can be treated effectively with appropriate medication and psychological support. An environment that respects and supports people’s rights and provides strong social support is important for good mental health and wellbeing and can help prevent some mental disorders. Preventing depression is also possible when positive thinking programs are integrated into school-based curriculum; support programs are put in place for parents of children with behavioural problems to reduce the level of depression affecting adults; and exercise programs for the elderly are put in place.

The burden of depression and other mental health and wellbeing conditions is on the rise globally and while depression can be treated with antidepressants, fewer than half of those affected worldwide have access to these treatments (in many countries, it is fewer than 10 per cent). Mental disorders such as depression also need to be accurately diagnosed. The availability of specialised and general mental health workers in low- and middle-income countries is extremely low, which means that most mental disorders go undiagnosed and untreated. Almost half the world’s population lives in countries where, on average, there is one psychiatrist to serve approximately 200 000 people.

Promoting mental health and wellbeing

To promote mental health and wellbeing and achieve the targets of SDG 3 there needs to be:

- more effective leadership and governance for mental health and wellbeing. It needs to be a high priority of governments of all countries, but particularly low- and middle-income countries. This includes putting in place anti-discrimination laws and social protection for those who suffer from mental disorders
- the development and implementation of a range of strategies to promote good mental health and wellbeing and prevent mental disorders
- more data on the number of people who experience mental health and wellbeing issues
• more investment in providing a range of mental health services that are accessible to those who need them and provide treatment for those affected
• increased funding for the training of a health workforce with expertise in mental health and wellbeing (figure 11.41).

**FIGURE 11.41** Promoting mental health and wellbeing requires countries, especially low and middle-income countries, to implement a range of measures.

**11.6.3 Reducing the burden of disease associated with road traffic accidents**

Around 1.25 million people die each year from road traffic accidents — around 3500 people lose their lives each day. A further 20–50 million people suffer non-fatal injuries, with many suffering long-term disability as a result. Road traffic injuries are the ninth leading cause of death globally, and the leading cause of mortality among people aged 15–29 years. Almost three-quarters of all road deaths are males. Ninety per cent of these deaths occur in low- and middle-income countries, with Africa being overrepresented.

Poor quality roads, unsafe vehicles and driver behaviour are responsible for most of the road traffic accidents worldwide, with driver behaviour being a significant factor. Speed, driving while under the influence of alcohol and other risk-taking behaviours put people at risk of injury, disability or death.
Reducing the burden of disease from road traffic accidents

SDG 3 aims to halve the number of global deaths and injuries from road traffic accidents by 2020 (rather than 2030). This is an ambitious goal as the number of vehicles on the road increases each year. To achieve this, a coordinated approach is needed, involving the transport sector, police, health and education sectors. Good road infrastructure is important along with ensuring that vehicles on the road are safe and in good working condition. Education, healthy public policy and law enforcement are needed to modify driver behaviour and, in the event of a road accident, emergency services and quality healthcare are needed to ensure those who are injured can get immediate and longer-term treatment. In many low- and middle-income countries, there is a lack of resources and political interest to invest in health promotion and law enforcement and limited healthcare services means many victims of road accidents are not provided with the necessary emergency services and treatment they need.

11.6.4 Reducing the burden of disease associated with drug and alcohol misuse

Alcohol

Substance misuse is a significant public health issue worldwide, particularly alcohol. Alcohol is responsible for 3.3 million deaths each year. It increases a person’s risk of developing over 200 diseases, including cirrhosis of the liver and several forms of cancer. Harmful alcohol consumption can also lead to death, injury and disability from violence, drowning and accidents.

The worldwide level of alcohol consumption in 2016 was 6.4 litres of pure alcohol per person aged 15 years or older, a level that remained stable since 2010. Europe has the highest consumption per person and increasing rates of alcohol consumption are occurring in South-East Asia and countries in the Western Pacific region. Each year, alcohol accounts for approximately 7.6 per cent of deaths for males and 4 per cent for females. Of concern is the increasing rate of consumption of alcohol by females. Alcohol is a drug of dependence and many people need specialised medical assistance to help them change their behaviour. However, only one in six people worldwide have access to healthcare services capable of supporting them with alcohol issues.
Illicit drugs

It has been estimated that 150–250 million people, or between 3.5 and 5.7 per cent of people aged 15–64, worldwide have used illicit drugs. Illicit drugs are responsible for more than 450 000 deaths each year. Between 15 and 27 million people are considered to have drug-use disorders. The most common illicit drug being used is cannabis, followed by amphetamines, cocaine and opioids.

Illicit drugs affect economic and social development. They contribute to crime, instability, insecurity and the spread of HIV. Injecting drugs carries a high risk of contracting blood-borne viruses such as HIV, hepatitis C and hepatitis B. Injecting drug use accounts for an estimated 30 per cent of new HIV infections outside sub-Saharan Africa.

Illicit drug use is a major public health concern and results in considerable healthcare costs. In some countries the use of illicit drugs has remained stable, while in other countries, including many low- and middle-income countries, the rates of illicit drug use have been increasing. Illicit drug use is also becoming more concentrated among youth, particularly male youth living in urban areas. Children and youth who suffer from neglect, abuse, household dysfunction, exposure to violence and instability are at greater risk of substance abuse.

Reducing the burden of disease from alcohol and illicit drugs

It has been estimated that the cost of treating all drug-dependent people worldwide would be $US200–250 billion. Therefore, greater funding is required to strengthen prevention and treatment services and reduce the burden of disease associated with drug and alcohol misuse. Drug and alcohol dependent people require treatment, which is only accessible to around one in six (4.5 million) people worldwide. In Africa, this is much less at 1 in 18.

Governments also need to implement strong policies in relation to drug and alcohol use, and work with police, and the health and education sectors to ensure enforcement of legislation, the provision of resources for the prevention and treatment of alcohol and drug disorders and access more accurate data. International cooperation is also needed to address the illegal movement of drugs and alcohol between countries.

11.6.5 Reducing the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

Every year, almost 12.6 million people die from diseases associated with environmental hazards, such as air, water or soil pollution. This represents one in four deaths worldwide. In addition, 22 per cent of the global disease burden (in DALYs) is attributable to environmental risks that can be prevented.

Low- and middle-income countries experience the largest environment-related disease burden with a total of 7.3 million deaths. Young children under five and adults aged 50–75 are at greatest risk. As more and more people move to cities, pollution from heavy traffic, poor housing and limited access to water and sanitation services bring about significant health and wellbeing risks. Environmental risk factors contribute to more than 100 diseases and injuries, two-thirds of which are due to indoor and external air pollution.

Air pollution

In 2016, 91 per cent of the world’s population did not breathe clean air, and more than half of urban population were exposed to external air pollution levels at least 2.5 times above the safety standard set by
WHO. Indoor and external air pollution resulted in around 7 million deaths, mainly from heart and lung diseases such as stroke, heart disease and respiratory infections and cancer (see figure 11.45).

**FIGURE 11.45** Air pollution is responsible for around 7 million deaths, in particular stroke, heart disease and diseases of the lungs, including lung cancer.

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**Indoor air pollution**

Around 3 billion people, mainly in low- and middle-income countries, cook and heat their homes using solid fuels, such as wood, charcoal, coal and dung, in open fires and poorly functioning stoves. These fuels produce small soot particles that penetrate deep into the lungs. Where there is limited ventilation, indoor smoke can contain extremely high levels of damaging fine particles. Women and children are at greatest risk as they are usually responsible for most of the cooking. Exposure to indoor air pollution almost doubles the risk for childhood pneumonia and acute lower respiratory infections. In adults, indoor air pollution is responsible for almost one-quarter of all premature deaths from stroke, 15 per cent of all deaths due to ischaemic heart disease, more than one-third of deaths from chronic obstructive pulmonary disease and 17 per cent of lung cancer deaths. The small particles also inflame the airways and lungs and impair immune functioning.
External air pollution
External air pollution is caused by energy production and traffic fumes, which release deadly air pollutants, such as black carbon and greenhouse gases. External air pollution contributes to increased morbidity and mortality. As cities become larger, the quality of air in many of them is becoming a global concern.

Reducing air pollution relies on the use of clean technologies and fuels for cooking, heating and lighting and for transport, as well as improved urban design and energy-efficient housing.

Water pollution
Contamination of drinking water and soil, mainly through poor sanitation, is responsible for an estimated 871,000 deaths, half of which occur in Africa. Unsafe water, sanitation and hygiene is responsible for many deaths from diarrhoeal diseases, as well as contributing to deaths from malnutrition, intestinal worm infections and schistosomiasis. As global access to clean water and sanitation increases, deaths resulting from these diseases are declining.

Reducing deaths and illness from environmental pollution
Reducing the level of environmental pollution is a challenge for all countries. Its success relies on decreasing the world’s reliance on fossil fuels and increasing access to clean fuels and efficient technologies. Reducing vehicle emissions by investing in rapid transit systems that can move large numbers of people in cities will reduce reliance on cars and decrease air pollution. Tobacco smoke-free legislation is also effective in reducing exposure to second-hand tobacco smoke.

Governments need to provide incentives for the use of clean energy and ensure that environmental considerations are included in decisions made by the transport, waste management and industry sectors as well as implementing rigorous monitoring of air pollution levels. Increasing access to safe water and adequate sanitation and promoting hand washing would further reduce deaths from diarrhoeal diseases.

**11.6 EXERCISE 1 TEST YOUR KNOWLEDGE**
1. What is meant by non-communicable diseases?
2. What are the four major risk factors that account for most of the burden of disease associated with non-communicable diseases worldwide?
3. Outline three ways that premature mortality from non-communicable diseases could be reduced globally.
4. Why do those suffering from mental disorders often experience higher rates of morbidity and mortality?
5. How can mental health and wellbeing be improved?
6. What factors are responsible for road traffic accidents?
7. Which type of environmental contamination is responsible for the largest burden of disease worldwide?
8. What diseases can be attributed to environmental contamination?

**11.6 EXERCISE 2 APPLY YOUR KNOWLEDGE**
1. Refer to figure 11.36 and identify two regions where the prevalence of overweight in children and in adults has increased the most between 2005 and 2016.
2. Using the information in figure 11.36, explain why these trends are a significant issue for low- and middle-income countries.
3. Reducing road traffic accidents requires a coordinated approach. Discuss.
4. Explain how reducing drug and alcohol misuse could positively affect three non-communicable diseases that are part of SDG 3.
11.7 The relationships between Sustainable Development Goal 3 and SDG 1

**KEY CONCEPT** Understanding the relationships between SDG 3 and SDG 1: No poverty

SDG 3: Good health and wellbeing can be explored as a single goal but, as you saw previously in this topic, the SDGs are interconnected and indivisible. It is therefore important to consider how the achievement of SDG 3 is both dependent upon and underpins other SDGs. Without good health and wellbeing, achieving many of the SDGs will be difficult. In a similar way, the achievement of SDG 3 is dependent upon the achievement of other SDGs. The social model of health recognises that health and wellbeing is determined by a range of economic, sociocultural and environmental conditions and, as such, good health and wellbeing is connected to issues such as poverty, good nutrition, gender equality, education, access to safe water and sanitation, and climate change. The social model of health also emphasises the importance of intersectoral collaboration. Political decisions and policies in the non-health sectors such as water and sanitation, food and agriculture, education, urban planning, transport and social protection are all connected to the achievement of Goal 3: Good health and wellbeing.

**EXAM TIP**
When showing the relationship between actions taken to achieve SDG 3 and actions taken to achieve other SDGs, it is important that you are familiar with the other SDGs so you can show how they are interdependent.

For example:

| Ending preventable deaths of newborns and children under 5 | SDG6: Safe water and sanitation |

The following provides an example of this:

Actions taken to end preventable deaths of newborns and children under five will not be successful unless actions are taken to address SDG 6: Safe water and sanitation. One of the major causes of deaths in newborn and children under five is dehydration due to diarrhoea caused by drinking contaminated water. Therefore, achieving the targets for SDG 3 is dependent upon actions taken to achieve the targets included in SDG 6.

The next few sections will focus on the relationship between SDG 3: Good health and wellbeing and SDG 1, 2, 4, 5, 6 and 13 (figure 11.47).

**NO POVERTY: END POVERTY IN ALL ITS FORMS EVERYWHERE**

Goal 1 seeks to remove poverty and inequality within and among nations. The aim is to end poverty in all its forms by 2030 and includes:

- eradicating extreme poverty currently measured as people living on less than US$1.90 a day
- reducing by half the proportion of men, women and children living in poverty
- implementing social protection systems
- ensuring equal rights and access to essential resources, services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
- building the resilience of those in vulnerable situations and reducing exposure to environmental disasters that result in poverty.
FIGURE 11.47 The achievement of SDG 3 is interconnected with the achievement of other Sustainable Development Goals.

SDG 1: No poverty
SDG 13: Climate action
SDG 6: Clean water and sanitation
SDG 5: Gender equality
SDG 4: Quality education
SDG 2: Zero hunger
SDG 3: Good health and wellbeing

FIGURE 11.48 SDG 1: No poverty and SDG 3 are interconnected.
11.7.1 The meaning of SDG 1

SDG 1 aims to end poverty in all its forms by 2030. The World Bank defines *extreme poverty* as living on less than US$1.90 a day. Poverty is a major cause of ill health and ill health is a major cause of poverty. When individuals and families are poor, they can’t afford to purchase food, clean water, clothing, shelter and healthcare. They also struggle to afford to educate themselves and their children, are less able to find and remain in a job, and to access services that would help them escape poverty. Those who are poor are also more vulnerable to air and water pollution and other hazards such as landslides, drought and flooding, all of which carry physical and mental health and wellbeing risks.

Without the necessary resources, people are unable to access medical care and protect their children through vaccination. Poverty, therefore, is the main factor contributing to low levels of childhood immunisation, low levels of literacy and high death rates from infectious diseases such as tuberculosis, measles, whooping cough (pertussis), cholera, malaria and tetanus. Children born into poverty are almost twice as likely to die before the age of five compared to children born to wealthier families.

**Effects on health and wellbeing and human development**

Poverty can be caused by more than a lack of income and resources. It can arise due to discrimination and social exclusion. In many countries, women, youth, the elderly, migrants and those with a disability are often poor because of discrimination. Women are more likely than men to live in poverty due to less access to paid work, fewer educational opportunities, a lack of rights in relation to property ownership and inheritance, and a lack of access to natural resources, new technologies and finance. This has an impact on mental and spiritual health and wellbeing and affects human development by reducing people’s standard of living as well as leaving them politically and economically vulnerable. Women often lack opportunities to participate in making decisions that affect their lives and those of their community. This also reduces spiritual health and wellbeing.

Globally, the number of people living in extreme poverty has been halved since 1990, but there are still over 800 million people struggling to afford their most basic human needs (figure 11.50). Poverty not only affects those living in low- and middle-income countries, but also people in high-income countries. There are currently 30 million children living in poverty in high-income countries. The health and wellbeing and human development of these people is directly affected by poverty.

11.7.2 Links between SDG 1 and SDG 3

The governments of poor countries often do not invest resources to provide public health and wellbeing services, such as safe water and sanitation, health promotion programs, universal healthcare, education and social security benefits, all of which affect people’s ability to enjoy good health and wellbeing. The target of providing universal health coverage as part of SDG 3 helps to end poverty by ensuring all people have access to essential medicines, vaccines and healthcare services at an affordable price.
Natural disasters and outbreaks of disease can result in people, communities and countries being plunged into poverty. Ending poverty and achieving good health and wellbeing relies upon countries having strategies in place to help reduce such risks, minimise the impact of events and ensure people do not experience poverty because of an event. Social protection measures are important to ensure that, regardless of economic situation, all people will have access to high quality healthcare at no cost, will be able to care for their children and provide food, shelter and education, and in the event of unemployment, illness, pregnancy, disability or old age, will have income security.

Good health and wellbeing is a major contributor to human development, economic growth and poverty reduction. Many of the economic, sociocultural and environmental actions that need to be taken to achieve both goals require collaboration across different sectors, such as welfare, finance, legal, health, water and sanitation, and industry. For example, implementing social protection measures has been successful in reducing the levels of poverty in many countries such as Brazil and Argentina.

11.7 Activities
1. Access the Neglected tropical diseases weblink and worksheet in the Resources tab, then complete the worksheet that demonstrates the interrelationships between good health and wellbeing and poverty.

11.7 EXERCISE 1 TEST YOUR KNOWLEDGE
1. Define ‘extreme poverty’.
2. Apart from income, what are two other causes of poverty and who is most at risk?
3. What are social protection measures and why are they important?
4. How does poverty affect health and wellbeing and human development?
5. Why would a focus of Goal 1 include strengthening community resilience and reducing exposure to environmental disasters?

11.7 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Why are children born into poverty almost twice as likely to die before the age of five compared to those born into wealthier families?
2. Outline four examples that show how SDG 1 and SDG 3 are related and require collaboration across sectors to achieve both goals.

11.8 The relationships between SDG 3 and SDG 2

- **KEY CONCEPT** Understanding the relationships between SDG 3 and SDG 2: Zero hunger
FIGURE 11.52 SDG 2: Zero hunger and SDG 3 are interconnected.

ZERO HUNGER: END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION, AND PROMOTE SUSTAINABLE AGRICULTURE

Goal 2 aims to end all forms of hunger and malnutrition, making sure all people — especially children and the more vulnerable — have access to nutritious food all year round by promoting sustainable agriculture. By 2030 the aim of this goal is to:

- end hunger and ensure access for all people, in particular the poor and people in vulnerable situations, such as infants, to safe, nutritious and sufficient food
- end all forms of malnutrition
- double agricultural productivity and incomes of small-scale food producers, and ensure equal access to land and resources
- ensure sustainable food production systems and resilient agricultural practices that increase productivity and production, maintain ecosystems, and adapt to climate change and extreme weather, are implemented
- maintain the genetic diversity of seeds, plants and animals and ensure access for all
- increase investment in agriculture infrastructure, research and technology
- address trade restrictions that disadvantage farmers, particularly in low- and middle-income countries
- adopt measures to ensure the proper functioning of global food commodity markets and ensure access to market information.
FIGURE 11.53 Around 160 million children have stunted growth due to lack of food. Pregnant and lactating women and the elderly are also at risk.

11.8.1 The meaning of SDG 2

SDG 2 aims to end all forms of hunger and malnutrition by ensuring that everyone has access to nutritious food. This is referred to as food security. Hunger is defined as the continuing lack of food needed for an active and healthy life. Having access to food is essential for achieving good health and wellbeing and for improving human development. Food scarcity and hunger results in malnutrition and ill health. Being malnourished can lead to an inadequate intake of micronutrients such as iron, vitamin A, iodine and zinc.

Those most at risk of the effects of malnutrition are children, particularly up until five years of age, pregnant and lactating women, and the elderly. Globally, there are over 150 million children whose growth is stunted due to being undernourished (figure 11.54).

Impact of hunger on health and wellbeing and human development

Hunger and malnutrition is the biggest contributor to child mortality, causing 45 per cent of the 6.3 million preventable deaths in children under five. This is approximately 2.8 million children. Hunger weakens the immune system and children become too weak to fight off disease. Children suffering from hunger have increased frequency and severity of diseases such as pneumonia, measles, malaria and diarrhoea, and are at greater risk of dying from these conditions. Hunger is an underlying cause in 61 per cent of deaths from diarrhoea, 57 per cent from malaria, 52 per cent from pneumonia and 45 per cent from measles. Malnutrition in infants can be prevented by mothers exclusively breastfeeding their babies for the first six months.

Micronutrients, especially iron, vitamin A, and iodine are particularly important for good health and wellbeing. According to the World Health Organization, deficiencies in iron, and vitamin A, rank among the top ten leading causes of death and disease in low-income countries. A deficiency of iron during pregnancy can lead to maternal death and impairs children’s physical and cognitive development. Iron-deficiency anaemia contributes to 20 per cent of all maternal deaths. Serious iodine deficiency during pregnancy can result in stillbirth, spontaneous abortion, and congenital abnormalities such as cretinism, a form of mental impairment. Iodine deficiency, especially during pregnancy, affects 780 million people worldwide. Vitamin A deficiency can lead to blindness, poor immune function and reduced cell function needed for normal growth to occur. Pregnant women and children with vitamin A deficiency have a higher rate of morbidity and mortality (see figure 11.56).

Globally, one in nine people (815 million) are undernourished and do not have enough food to lead a healthy, active life. As hunger causes poor health and wellbeing, stunted growth, low levels of energy, and reductions in mental functioning, it can lead to poverty by reducing people’s ability to work and learn. Extreme hunger and malnutrition are major barriers to human development. Most of the world’s hungry people live in low- and middle-income countries, where 12.9 per cent of the population is undernourished (see figure 11.56). Southern Asia faces the greatest hunger burden, with approximately 281 million undernourished people. In sub-Saharan Africa, undernourishment is estimated to affect 23 per cent of the population.

Rates of undernourishment increased in 2016 from 777 million in 2015 to 815 million (figure 11.57).

As you have seen, hunger and malnutrition has a significant impact on physical health and wellbeing. When people are malnourished and suffer ill health, human development is impaired. Without food, people are unable to live a long and healthy life and pursue their interests. They will be unable to achieve a decent standard of living and lack the basic human right of having adequate food. Children who are hungry and malnourished will not be able to attend school, and will not have the opportunity to develop the skills and knowledge needed to get decent work and to participate in the social and political lives of their communities.
FIGURE 11.56 World Hunger Map


FIGURE 11.57 The rates of world hunger increased in 2016 compared to 2015 with conflict, drought and disasters linked to climate change being the key reasons.

11.8.2 Links between SDG 2 and SDG 3

Actions designed to achieve zero hunger will also help achieve SDG 3. Maternal and child health and wellbeing will be improved with access to nutritious food, contributing to reductions in under-five and maternal mortality rates. With improved nutrition, children will be at reduced risk of contracting and dying from communicable diseases such as malaria and hepatitis, and vaccine-preventable diseases such as measles and tuberculosis. Well-nourished mothers are more likely to give birth to healthier babies and to experience good health and wellbeing during pregnancy and childbirth. A well-nourished population is a healthier one, which may help reduce the demand for health services and corresponding costs to the healthcare system.

Achieving good health and wellbeing will also contribute to the achievement of zero hunger. Adults who enjoy good health and wellbeing are able to work and produce their own food for the family or to work and earn an income. Earning an income means that families can purchase healthy food to eat which helps reduce the level of hunger.

CASE STUDY

Edible Insects — An overlooked solution to malnutrition

According to Ms. Murugu, a nutritionist and public health consultant, incorporating edible insects among other innovations that are emerging is the solution that Africa needs to fight the malnutrition scourge.

“Edible insects including crickets, black soldier flies, termites and grasshoppers contain high protein levels and are environmentally friendly”, said Ms. Dorothy Murugu.

“For instance, grasshoppers contain 70 percent of protein content per 100 grams which is three times more than what we acquire from eating fish”, Ms. Murugu added.

On this basis, Ms. Murugu has been at the forefront of mobilising smallholder farmers in both the arid and semi-arid areas to rear edible insects which require little amounts of water and are likewise vital in breaking down animal feeds.

According to Prof. David Nabarro, Institute of Global Health Innovation, Imperial College London and 2018 World Food Prize Laureate, the quest for fighting malnutrition will also be solved by focusing on the need to be well nourished, ensure that food systems are compatible with climate change to absorb the floating carbon in the air, help improve the livelihoods of the millions of people and lastly put women at the center of the food systems as they form the greatest share of the population and most of them are farmers.

Meanwhile, the issue of nutrition cannot be complete without highlighting the role of technology. “Mobile phones are accessible to everyone, let us make use of them to reach everyone and enlighten them on the need to have a healthy diet”, said Dr. Namanga Ngongi, Board Chairman, African Fertiliser and Agribusiness Partnership (AFAP).

Source: Adapted from: https://agrf.org/edible-insects-an-overlooked-solution-to-malnutrition/ 6 Sep, 2018

Case study review

1. Which insects are considered to be edible?
2. How will eating edible insects help achieve good health and wellbeing?
3. Why is it considered important to put women at the centre of the food system if malnutrition is to be addressed?
4. According to Dr Namanga Ngongi what role can technology play in reducing the levels of malnutrition?

11.8 Activities

1. Access the Undernutrition weblink and worksheet in the Resources tab, then complete the worksheet.
2. Access the End malnutrition weblink and worksheet in Resources tab, then complete the worksheet.
11.8 EXERCISE 1 TEST YOUR KNOWLEDGE
1. What is hunger?
2. What does food security mean?
3. Which micronutrients are of concern when people are undernourished?
4. How does hunger and malnutrition affect human development?

11.8 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. How are poverty and hunger interrelated?
2. Outline the relationship between hunger, immunity and disease.
3. Justify why collaborative action between SDG 2 and SDG 3 is necessary to promote health and wellbeing and human development.

On

Resources

Digital documents
- Undernutrition worksheet (doc-23554)
- End malnutrition worksheet (doc-22776)

Weblinks
- Undernutrition
- End malnutrition

11.9 The relationships between SDG 3 and SDG 4

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 4: Quality education

QUALITY EDUCATION: ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

Goal 4 addresses the need for girls and boys to have equal access to high quality education at all levels, from pre-primary through to tertiary and to develop the vocational skills needed for employment. By 2030 the aim is to:

- ensure all children complete free, equitable and quality primary and secondary education
- ensure all children have access to quality early childhood development, care and pre-primary education
- ensure all adults have equal access to affordable and quality technical, vocational and tertiary education
- increase the number of youth and adults who have relevant skills for employment
- eliminate all disparities in education and vocational training, including people with disabilities, indigenous people and vulnerable children
- ensure all youth and adults have adequate literacy and numeracy skills
- ensure all learners are taught curriculum that promotes sustainable development
- build and upgrade education facilities
- expand the number of scholarships available to low- and middle-income countries for essential skills training
- increase the number of qualified teachers.
11.9.1 The meaning of SDG 4

SDG 4 addresses the importance of girls and boys having equal access to high quality education at all levels, from pre-primary (early childhood) through to tertiary, and to develop the vocational skills needed for employment. The emphasis is on the completion of 12 years of publicly funded, high-quality primary and secondary education, of which at least 9 years are compulsory. This goal also focuses on building a qualified teacher workforce and the delivery of a relevant curriculum to ensure the educational experience is productive and helps build the necessary knowledge and skills.
**Education and girls**

Girls are less likely to enrol in or complete primary and secondary education. Factors such as drought, food shortages, armed conflict, poverty, child labour and HIV/AIDS contribute to low school enrolment and high drop-out rates for both boys and girls; however, they tend to have a greater impact on girls. Lack of access to water and sanitation means girls must spend a significant proportion of their day fetching water. This means they are not able to attend school. The lack of sanitation facilities also has an impact on girls’ enrolment at school. Families are less likely to send their female children to school if separate and private toileting facilities are not provided for girls. For families on limited incomes, male children are often provided with educational opportunities before their female siblings.

**Progress in achieving quality education**

There has been progress in achieving universal primary education. At the global level, the participation rate in early childhood and primary education was 70 per cent in 2016, up from 63 per cent in 2010, however, there is a lot of variation across countries and regions. The lowest rates are in sub-Saharan Africa (41 per cent) and Northern Africa and Western Asia (52 per cent).

Youth literacy rates were estimated to be 93 per cent for young men and 82 per cent for young women in 2016. However, there remained an estimated 103 million illiterate youth and 124 million children and youth not enrolled in school. In addition, 757 million adults, two-thirds of whom were women, could not read or write. Children from the poorest households are still four times less likely to be enrolled in school than those from the wealthiest households. Differences between rural and urban areas also remain high.

Whilst more students are attending school, 617 million or 58 per cent of children and adolescents of primary and lower-secondary level are not meeting minimum standards in reading and mathematics.

In 2016, an estimated 85 per cent of primary school teachers worldwide were trained; the proportion was only 71 per cent for southern Asia and 61 per cent for sub-Saharan Africa (figure 11.62).

A challenge for low-income countries is providing schools that have basic infrastructure. In 2016, only 34 per cent of primary schools in low-income countries had electricity and less than 40 per cent were equipped with basic handwashing facilities.

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**FIGURE 11.61** It is important that youth (those aged 15–24) be provided with the skills necessary to enable them to gain employment. However, there were 103 million illiterate youth in 2015.

**FIGURE 11.62** Improving literacy and numeracy and developing vocational skills is dependent upon having qualified and skilled teachers.

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11.9.2 Links between SDG 4 and SDG 3

Actions to achieve SDG 4 will also help achieve SDG 3. Quality education is the foundation for improving people’s lives and achieving good health and wellbeing. On the other hand, good health and wellbeing is essential to achieve high levels of educational attainment for all men, women and children and for increasing opportunities for employment and income. When people experience poor levels of health and wellbeing, opportunities to attend school are reduced. This reduces opportunities for employment and to receive an income. An income provides the capacity to purchase nutritious food, shelter, clean water, healthcare and education, all of which contribute to good health and wellbeing.

An educated and skilled workforce brings about greater economic growth. Economic growth provides more resources for governments to invest in universal healthcare, essential medicines and social protection measures. People will be able to access preventative and curative health services, which will help reduce morbidity and mortality from communicable and non-communicable diseases. Educating women and girls also results in falling fertility rates and stable population growth. A mother’s income has 20 times more impact on child survival than a father’s income. Educated mothers have fewer and healthier children, they are 50 per cent more likely to immunise their children than uneducated mothers, and their children have a 40 per cent higher survival rate. They are also twice as likely to send their own children to school as mothers without an education.

Quality education is important for promoting human development and, as you saw in topic 9, education is one of the factors used to determine the Human Development Index.

Impact of education on health and wellbeing and human development

Education provides opportunities for employment which means families can purchase nutritious food, water, clothing and shelter as well as being able to afford healthcare when needed. Educated girls also marry later, are less likely to experience sexual violence, and are more likely to be able to protect themselves from HIV/AIDS and other diseases. All of which contributes to improved physical health and wellbeing. Improved physical health and wellbeing brings opportunities to develop relationships with others which improves social health and wellbeing. People are more likely to be happier, feel more empowered and confident which promotes mental health and wellbeing. Education and employment can provide a sense of purpose and belonging which promotes spiritual health and wellbeing.

11.9 Activities

Access the Quality education weblink and worksheet in Resources tab, then complete the worksheet.

11.9 Exercise 1 Test Your Knowledge

1. What is the focus of SDG 4?
2. Why are girls less likely to enrol in and complete primary and secondary education?
3. Why are trained and qualified teachers important for the achievement of quality education?
4. How does education impact human development?
5. Why would children from poorer households be four times more likely not to be in school than those from wealthier households?
6. What progress has been made in achieving SDG 4? Use data to support your answer.
7. What percentage of children and adolescents are not meeting minimum standards in reading and mathematics and why is this important?
11.9 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Explain why children in rural areas are less likely to be in school than those in urban areas.
2. Explain how actions taken to achieve SDG 4 will also contribute to the achievement of SDG 3.

11.10 The relationships between SDG 3 and SDG 5

KEY CONCEPT Understanding the relationships between SDG 3 and SDG 5: Gender equality

FIGURE 11.64 SDG 5: Gender equality and SDG 3 are interconnected.
GENDER EQUALITY: ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

This goal seeks to end discrimination and violence against women and girls by addressing the barriers that exist to gender equality. Gender equality is not only a social issue but also an economic one. By 2030 the aim is to:

- end all forms of discrimination against all women and girls everywhere
- end all forms of violence against women and girls, including human trafficking and sexual exploitation
- eliminate harmful practices, such as child, early and forced marriage and female genital mutilation
- recognise and value unpaid domestic work
- ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life
- ensure universal access to sexual and reproductive health
- ensure women have equal rights to economic resources, access to ownership and control over land and other forms of property, financial services, inheritance and natural resources
- improve the use of ICT to support equality and empower women
- adopt policies and legislation that support gender equality and empowerment of all women.

11.10.1 The meaning of SDG 5: gender equality

SDG 5 aims to end discrimination and violence against women and girls by addressing the barriers that exist to gender equality. Gender equality is where women and men have the same level of power and control over all aspects of their lives. Gender equality is a basic human right yet, despite comprising half of the world’s population, women and girls do not experience gender equality.

Women face discrimination in all areas of political, economic and social life. In many low- and middle-income countries women and girls are denied access to basic education and healthcare and are victims of violence and discrimination. One in three women worldwide has been subject to physical or sexual violence. Women are underrepresented in political and economic decision-making processes and lack access to work beyond the agricultural sector, where they tend to undertake almost 80 per cent of the unpaid work. Unpaid work includes housework such as preparing meals, fetching firewood, collecting water and caring for children, the sick and elderly in the home and community. Therefore, women have less time than men for other activities, including paid work and education. Women spend approximately three times as many hours in unpaid domestic work as men.

Women earn 10 to 30 per cent less than men for the same work and women and girls are 16 per cent less likely to have access to information communication technologies, such as mobile phones and computers. Mobile phones help women feel safer and more connected, save time and enable access to key services such mobile finances and health information. They offer a way of delivering services and have the potential to increase access to education and employment opportunities.
TOPIC 11 Sustainable Development Goals and the World Health Organization
In some countries, the law discriminates against women. Women are not permitted to vote, own property, take out loans from banks, or take ownership of possessions arising from an inheritance. In other words, if a woman’s husband dies, she does not have the legal right to take ownership of any land he owned. In some countries, women and girls are the property of their husband or father. A man has the right to marry off his daughters at a young age or sell them into prostitution. With no legal right to ownership of property or access to finance, women can find themselves victims of human trafficking and sexual exploitation. In 2017, an estimated 21 per cent of women between 20–24 years of age reported they were married or in a partnership before they were 18 years of age. Whilst the rates of child marriage have declined, there are around 650 million girls and women who were married in childhood (figure 11.66).

Goal 5 also aims to end violent and harmful practices, such as female genital mutilation, which is the practice of partially or totally removing girl’s external genital organs for non-medical reasons. Genital mutilation has serious effects on girls’ physical, emotional and mental health and wellbeing. It can increase the risk of contracting HIV and cause complications during pregnancy and childbirth, leading to the death of the mother and baby. In 2017, one in three girls aged 15 to 19 years had been subjected to female genital mutilation in 30 countries where this practice is most common.

11.10.2 Links between SDG 5 and SDG 3

Actions taken to achieve gender equality empowers women and girls. This is important for economic growth, ending poverty and promoting good health and wellbeing. Small loans to women in Bangladesh have been shown to increase family income twice as much as similar loans to men. Water and sanitation systems controlled by women have been shown to be more sustainable and effective than those controlled by men. This contributes to good health and wellbeing for all members of the community and for all ages.

Action taken to end violence against women and girls promotes good physical, mental and spiritual health and wellbeing. Violence results in injuries and, at its worst, death for women and children. Living in fear reduces mental, spiritual and social health and wellbeing. Ending violence will also help end the sexual assault of women and children, which will promote good physical, spiritual, social and mental health and wellbeing.

Achieving gender equality means girls can access education and women can gain employment. Educating women and girls is the single most effective measure to raise overall economic productivity, lower infant
and maternal mortality, educate the next generation, improve nutrition, and promote health and wellbeing. Gender equality provides opportunities for women to participate in their society, to vote and become leaders in the community. This promotes social and spiritual health and wellbeing and human development. SDG 5 is clearly interconnected with the achievement of other SDGs, particularly SDG 3.

**FIGURE 11.67** Empowering women and girls is important for economic growth and ending poverty.

11.10 Activities
Access the **Gender equality** weblink and worksheet in the Resources tab in your, then complete the worksheet.

### 11.10 EXERCISE 1 TEST YOUR KNOWLEDGE
1. What is meant by gender equality?
2. What is the aim of SDG 5?
3. In what areas do women face discrimination?
4. Why are women often victims of trafficking and sexual exploitation?
5. Why do women have less time than men for paid work and education?
6. Why is access to technology such as mobile phones important for achieving gender equality?

### 11.10 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Women spend approximately three times as many hours in unpaid domestic work as men. Explain why this is a problem.
2. Why is it important for women to have leadership roles in government?
3. Why is it important to reduce the rates of child marriage?
4. Explain the relationship between girls’ education and fertility rates.
5. Justify why collaborative action between SDG 5 and SDG 3 is necessary to promote health and wellbeing and human development.

### 11.11 The relationships between SDG 3 and SDG 6

**KEY CONCEPT** Understanding the relationships between SDG 3 and SDG 6: Clean water and sanitation

**FIGURE 11.68** SDG 6: Clean water and sanitation and SDG 3 are interconnected.
CLEAN WATER AND SANITATION: ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

This goal is about ensuring that all people are able to enjoy clean water and adequate sanitation. By 2030 the aim is to:

- achieve universal and equitable access to safe and affordable drinking water
- enable access to adequate and equitable sanitation and hygiene for all
- improve water quality by reducing pollution, eliminating dumping and minimising the release of hazardous chemicals and materials
- increase the efficient use of water and ensure sustainable access to clean water
- implement integrated water resources management at all levels, including across borders
- protect and restore water-related ecosystems
- expand international cooperation and capacity to support low- and middle-income countries to achieve their targets
- support the participation of local communities in water and sanitation management.

11.11.1 The meaning of SDG 6: clean water and sanitation

SDG 6 is about ensuring that all people can enjoy clean water and adequate sanitation. Clean water and sanitation is essential for the health and wellbeing of individuals and communities. It reduces pollution and the risk of communicable and non-communicable diseases including diarrhoeal and vector-borne diseases, improves housing quality and environmental conditions by reducing water and soil contamination.

Each person requires 20–50 litres of water for drinking, cooking and hygiene each day. Sanitation is the safe disposal of human wastes, as well as the maintenance of hygienic conditions through garbage collection and the disposal of wastewater. Having access to clean water and sanitation is a basic human right, yet 663 million people, most of them living in low- and middle-income countries, do not have access to clean water and 2.4 billion do not have access to sanitation facilities such as toilets. In 2015, 892 million people were practising open defecation. Over 800 000 people die each year due to inadequate water, sanitation and hygiene. There has however, been significant improvements made since 1990 with 1.9 billion people gaining access to safe drinking water across this time (see figure 11.69).

Water transmits disease when it is contaminated by bacteria, viruses, parasites or other micro-organisms. These contaminants enter drinking water through animals and humans excreting into a catchment area, contaminated water seeping into leaky or damaged pipes in a distribution system, and from unhygienic handling of stored household water. Contamination from industrial and agricultural waste, such as pesticides, arsenic and other chemicals, also causes water to become unsafe. It is estimated that every day 2 million tons of waste including human excreta and agricultural wastes is dumped into lakes and rivers and almost 70 per cent of the water taken from rivers, lakes and aquifers is used for irrigation. Ten per cent of the world’s population is thought to consume food irrigated by wastewater.
Effects on health and wellbeing and human development

Without safe water, people cannot bathe, or clean their clothes or homes properly. Diarrhoea is the most widely known disease linked to contaminated water, with almost 1000 children dying every day from diarrhoea caused by contaminated water and poor sanitation. Many others suffer from a range of neglected tropical diseases, such as schistosomiasis and other worm infestations, as well as cholera, dysentery, hepatitis A, typhoid and trachoma, all of which are caused by unsafe water and sanitation.

Water scarcity also affects one in three people globally. It can be caused by drought or conflict or the lack of adequate infrastructure, which means women and children must walk long distances to collect water. When water is scarce, people use unsafe sources of drinking water and may decide hand washing is not a priority, which adds to the likelihood of diarrhoea and other diseases. Lack of access to clean water and sanitation is also a major contributor to malnutrition and poverty.

Ensuring everyone has access to safe water and sanitation by 2030 means countries need to invest in adequate infrastructure, provide sanitation facilities and encourage hygiene practices. Infrastructure on its own will not solve the problem. People need to be educated so they understand the links between clean water, sanitation and health and wellbeing. This is more likely to be successful with participation from local communities to ensure culturally appropriate communication tools are used and school-based programs are implemented.

11.11.2 Links between SDG 6 and SDG 3

Actions taken by the water and sanitation sector to achieve SDG 6 underpin the ability to achieve SDG 3. Without clean water and sanitation, reductions in maternal and child mortality, communicable diseases and diseases caused by soil and water pollution and contamination will not be achieved.

Ensuring people have access to high quality healthcare services is also affected by achieving SDG 6. In low- and middle-income countries, 38 per cent of healthcare facilities lack any water source, 19 per cent do not have improved sanitation and 35 per cent lack water and soap for hand washing (figure 11.71).
Improved water and sanitation along with better management of water resources can increase economic growth and contribute to poverty reduction. Every $1 spent on sanitation brings a $5.50 return from keeping people healthy and productive. The potential global economic gains from investing in sanitation and water are estimated to be $260 billion per year. These economic gains provide greater capacity for countries to invest resources into providing universal healthcare, sexual and reproductive health services, and access to essential and affordable medicines and vaccines.

Good health and wellbeing can also contribute to the achievement of SDG 6. Where people enjoy good health and wellbeing, they are more able to work and contribute to the economic growth of their country by contributing to the taxation system. This provides increased funding for governments to invest in water and sanitation infrastructure for all people, not just those living in urban areas.

11.11 Activities
Access the Clean water and sanitation weblink and worksheet in the Resources tab, then complete the worksheet.

11.11 EXERCISE 1 TEST YOUR KNOWLEDGE
1. How much water does each person need each day? What is this water used for?
2. What is meant by the term ‘sanitation’?
3. What are the ways in which water can become contaminated?
4. What diseases are associated with a lack of access to safe water and sanitation?
5. Why is water scarcity a problem?
6. What is needed to ensure everyone has access to safe water and sanitation by 2030?

11.11 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Why is access to safe water and sanitation a basic human right?
2. Explain how safe water and sanitation contributes to the elimination of malnutrition and poverty.
3. Justify why collaborative action between programs addressing SDG 6 and SDG 3 is necessary to promote health and wellbeing and human development.

11.12 The relationships between SDG 3 and SDG 13
CLIMATE ACTION: TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Goal 13 is about taking urgent action to combat climate change and its impacts. By 2030 the aim is to:

- strengthen the resilience and capacity of all countries to adapt to climate-related hazards and natural disasters
- integrate climate change measures into national policies, strategies and planning
- improve education, awareness-raising and the capacity of people and organisations to take actions that reduce or prevent environmental degradation
- implement the commitment by high-income countries to frameworks developed by the United Nations to take action to reduce climate change and to provide funds to support low-and middle-income countries to implement strategies to reduce climate change
- promote ways of raising capacity for effective climate change-related planning and management in low-income countries and small island developing states, including focusing on women, youth and local and marginalised communities.
11.12.1 The meaning of SDG 13

SDG 13 is concerned with the impact of climate change and the need for all countries to take urgent action to reduce its impact. Climate change is caused by human activities. The over-reliance on fossil fuels and the resulting greenhouse gases have contributed to global warming and rising sea levels. This has brought about an increase in the frequency of weather-related natural disasters. Severe weather and rising sea levels are affecting people, their homes and their health and wellbeing regardless of where they live. Two thousand and seventeen was one of the three warmest years on record. The five-year average global temperature from 2013 to 2017 was also the highest on record. The world continues to experience rising sea levels, extreme weather conditions and increasing concentrations of greenhouse gases. Between 1998 and 2017, climate-related disasters killed 1.3 million people and left a further 4.4 billion injured, homeless, displaced or in need of emergency assistance. While the majority of fatalities were due to events such as earthquakes and tsunamis, 91 per cent of all disasters were caused by floods, storms, droughts, heatwaves and other extreme weather events.

Effects on health and wellbeing and human development

Climate change is a threat to health and wellbeing and human development. It affects the sociocultural and environmental factors that impact health and wellbeing, including clean air, safe drinking water, and adequate food and secure shelter. With rising sea levels, those living in small island states and other coastal regions and those living in cities built on the coast are at risk of losing their homes and livelihoods. More than half of the world’s population lives within 60 km of the coast.

Countries with weak health infrastructure are most at risk of the effects of climate change and have less ability to cope with its effects. Children and the elderly, especially those living in low- and middle-income countries, are among the most vulnerable to the health and wellbeing risks that will occur. It has been estimated that, between 2030 and 2050, climate change will cause approximately 250,000 additional deaths each year from malnutrition, malaria, diarrhoea and heat stress. Climate change is expected to bring about an increase in:

- infectious diseases due to increased humidity and heat from droughts, flood and heat waves. This increase in heat and humidity will provide ideal breeding grounds for vector-borne diseases such as malaria, dengue fever and other neglected tropical diseases.
- allergies and asthma due to an increase in air pollution and pollen seasons.
- deaths from cardiovascular and respiratory disease, particularly among elderly people. This is due to extreme high air temperatures which raises the levels of ozone and pollutants in the air.
- hunger and malnutrition as food production is affected by increased drought in some areas and flooding in others. Drought significantly limits food production while flooding can contaminate sources of fresh water and increase the risk of diarrhoeal diseases.
- reduced mental, social, spiritual and emotional health and wellbeing due to displacement as a result of the loss of homes and livelihoods.
A lack of action on climate change has the potential to undo the progress made in reducing poverty, increasing access to safe water and food security. SDG 13 recognises that climate change can be addressed but requires global action. All countries must commit to transforming existing energy, industry, transport, food, agriculture and forestry systems to reduce greenhouse gas emissions and global warming. This will take time and countries also need to develop their capacity to anticipate extreme weather events through early warning systems. Countries need to become more resilient to the effects of climate change and put in place strategies to reduce the effects of extreme weather events when they do occur, such as the protection of water and sanitation systems.

In 2014 at the UN Climate Summit in New York, governments, businesses and others in the private sector made a commitment to take action to address climate change. At this summit, it was recognised that low- and middle-income countries need financial and technical support for the development and implementation of new initiatives. In response, a Green Climate Fund was created designed to generate funds to support international action.

11.12.2 Links between SDG 13 and SDG 3

Many policies and individual actions have the potential to reduce greenhouse gas emissions and improve health and wellbeing. Cleaner energy systems, promoting energy efficient public transport and alternatives, such as cycling or walking, rather than private vehicles, could reduce carbon emissions and air pollution, all of which would help reduce current morbidity and mortality rates due to communicable diseases and a range of non-communicable diseases.

The achievement of SDG 3 is dependent upon action being taken to address climate change. Clean water and sanitation underpin the achievement of reducing child deaths from diseases such as diarrhoea. Ending the epidemics of infectious diseases cannot be achieved if climate change produces conditions that increase the risk of these diseases. Similarly, reducing premature mortality from non-communicable diseases is compromised when climate change produces conditions that increase the risk of these diseases. Reducing deaths and illnesses from hazardous chemicals, air, water and soil pollution will not be achieved if the effects of climate change are not addressed.

Actions to address climate change will also protect and promote health and wellbeing and achieve SDG 3. It will bring about a planet that is not only more environmentally intact, but also has cleaner air, safer water, more food, more effective and fairer health and social protection systems and healthier people — what is good for the planet is also good for people’s health and wellbeing.

11.12 Activities

Access the Climate change weblinks and worksheet in the Resources, then complete the worksheet.
11.12 EXERCISE 1 TEST YOUR KNOWLEDGE
1. What has contributed to global warming and rising sea levels?
2. Why are rising sea levels of concern?
3. What diseases are expected to increase due to climate change?
4. What action can be taken to reduce carbon emissions and household air pollution?

11.12 EXERCISE 2 APPLY YOUR KNOWLEDGE
1. Why would the establishment of a Green Climate Fund be important for acting on climate change?
2. Refer to figure 11.74. How might the home solar system in Africa assist in promoting health and wellbeing and human development?
3. Explain how the achievement of SDG 3 is interdependent with the achievement of SDG 13.

11.13 The UN's Sustainable Development Goals and the World Health Organization (WHO)

11.13.1 The work of the World Health Organization
As the authority on international health, WHO has six main functions, which are set out in figure 11.76.
FIGURE 11.75 The United Nations was established in 1948; it works to create a world in which all people achieve the highest possible standard of health and wellbeing.

FIGURE 11.76 The main functions of the World Health Organization

- Provide leadership and create partnerships to promote health and wellbeing
- Conduct research and provide health and wellbeing information
- Monitor health and wellbeing and assess health and wellbeing trends
- Set norms and standards and promote and monitor their implementation
- Develop policies to assist countries to take action to promote health and wellbeing
- Provide technical support and help build sustainable health systems

Work of the WHO
### TABLE 11.1 Six main functions of WHO

<table>
<thead>
<tr>
<th>Function</th>
<th>Explanation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide leadership and create partnerships to promote health and wellbeing</td>
<td>WHO works with member states and other agencies to develop international policies and regulations to prevent and manage disease outbreaks and coordinate relief efforts in times of disaster.</td>
<td>• Partnerships have helped produce effective vaccines against meningitis, Ebola and the first malaria vaccine.</td>
</tr>
<tr>
<td>Conduct research and provide health and wellbeing information</td>
<td>WHO works with others to ensure the most up-to-date research is available to help inform decisions that promote health and wellbeing; prevent and control diseases, improve health systems; and help achieve universal access to healthcare. WHO provides expertise in research and development to improve the way in which diseases can be prevented, diagnosed, managed and treated.</td>
<td>• Their work has led to guidelines and advice on preventing and treating conditions such as asthma, hepatitis and Zika.</td>
</tr>
</tbody>
</table>
| Set norms and standards, and promote and monitor their implementation     | WHO works with other agencies and governments to standardise the way research is carried out, the use of common indicators for the collection of data and the health and wellbeing terminology that is used. This makes it more effective and efficient to share information, monitor the impact of disease and evaluate the effectiveness of programs and initiatives. | • International Classification of Diseases, which enables all countries to use a common standard for reporting diseases.  
• WHO Essential Medicine List that provides a guide for countries on the main medicines that a health system needs.  
• WHOs work has led to global standards for air and water quality and safe and effective medicines. An emerging challenge is the protection of the effectiveness of antibiotics as a result of drug resistance. |
| Develop policies to help countries take action to promote health and wellbeing | Policies help governments and the global community implement action that is known to be effective in bringing about improvements in health and wellbeing. WHO helps countries adapt these policies to meet their local context and helps governments implement them. | • Global Framework Convention on Tobacco Control  
• The Stop TB Strategy  
• Healthy Eating and Physical Activity Guidelines  
• Guidelines on the intake of sugars to reduce the risk of non-communicable diseases in adults and children. |
TABLE 11.1 Six main functions of WHO (Continued)

<table>
<thead>
<tr>
<th>Function</th>
<th>Explanation</th>
<th>Example</th>
</tr>
</thead>
</table>
| Provide technical support and help build      | WHO provides advice and support to countries to implement changes in areas such as the provision of universal healthcare, health financing and a trained workforce. They help countries strengthen their capacity for early warning, risk reduction and the management of health and wellbeing risks.                                                                 | • Assisting countries with health finance through developing a national health finance strategy  
• Providing policy briefs on the importance of free healthcare                                                                                                                                                              |
| build sustainable health systems               |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                               |
| Monitor health and wellbeing and assess        | WHO has developed a Global Health Observatory which stores and shares health-related data. It helps countries identify who is getting ill, from which diseases and how and where they are getting ill so resources can be targeted to where they are needed most.                                                 | • Each year, WHO studies influenza trends to determine what should be included in the following season’s influenza vaccine.                                                                                                   |
| health and wellbeing trends                    |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                               |

In 2018, through the Thirteenth General Programme of Work, 2019–2023, WHO established three strategic priorities. Each of these priorities is aligned to the achievement of Sustainable Development Goal 3: Good health and wellbeing and are relevant to low, middle and high-income countries. It provides a vision for a world in which all people attain the highest possible standard of health and wellbeing and summarises the WHO’s mission to promote health, keep the world safe and serve the vulnerable.

Figure 11.77: The World Health Organization’s strategic priorities and goals


Each of the three strategic priorities are accompanied by ambitious goals to be achieved by 2023. (see figure 11.77) These goals are referred to as the ‘triple billion’ goals.

The strategic priorities and goals are:
1. Achieving universal health coverage — 1 billion more people benefitting from universal health coverage
2. Addressing health emergencies — 1 billion more people better protected from health emergencies
3. Promoting healthier populations — 1 billion people enjoying better health and wellbeing.

These strategic priorities are interconnected and together provide a way to achieve the mission of the WHO.
11.13.2 The World Health Organization’s priorities

A. Achieving universal health coverage — 1 billion more people benefitting from universal health coverage

Universal health coverage refers to every country having a strong and resilient people-centred health system based on primary care, health promotion and disease prevention. There are many countries around the world that do not provide affordable health services, and people are either unable to access the healthcare they need or face poverty because they have to pay large amounts of money to receive medical assistance. In addition to economic barriers, achieving universal healthcare is also affected by geographical barriers where services are not available in areas where people live, and cultural barriers where the services provided do not have the cultural sensitivity for effective delivery or use.

Universal health coverage is therefore focused around providing access to essential health care services, including medicines and vaccines at a cost that is affordable for all.
Universal health coverage is important in reducing poverty, achieving equity in health and wellbeing outcomes and promoting a stable and secure society.

WHO aims to progress this goal by addressing the following seven main areas (figure 11.80):

1. **Service access and quality** — work with countries to provide all people, regardless of where they live, with access to quality essential healthcare services that meet the main health and wellbeing needs of the community.

2. **Health workforce** — Ensure there are sufficient trained health workers available to provide health care services to everyone who needs them.

3. **Access to medicines, vaccines and health products** — work with countries to provide safe and effective essential medicines and vaccines. Essential medicines are those that meet the main healthcare needs of a population and assist them to overcome disease and illness more quickly.

4. **Governance and finance** — WHO will support countries to strengthen the capacity of governments to develop and implement health policy, organise and implement an effective health system, regulate services, provide the necessary funding, develop health budgets and track expenditure.

5. **Health information systems** — WHO will work with countries to improve health information systems to enable the monitoring of health risks, track morbidity and mortality rates and their risk factors and assess health system performance.

6. **Advocacy** — WHO will provide leadership by increasing the global awareness of and benefits of universal health coverage. They will advocate for investment in all aspects of the health system and actively promote the benefits of this investment.

7. **Country support** — WHO will work in partnership with countries and support them at all levels to implement primary healthcare systems that meet their health priorities.

**FIGURE 11.80** To achieve the strategic priority of universal health coverage the WHO will work with countries and provide support in seven main areas.
B. Addressing health emergencies — 1 billion more people better protected from health emergencies

This strategic priority is directly aligned to the SDG 3 implementation target of strengthening the capacity for early warning, risk reduction and management of health and wellbeing risks.

Early detection, risk assessment, information sharing and a quick response to emergencies are important to avoid illness, injury, death and economic loss on a large scale. Work that will achieve this goal means all countries will be better prepared for health emergencies by building resilient health systems. In many countries, health systems collapse during times of emergencies, conflict and crises which limits the ability to both respond to and recover from such situations.

This priority includes two components (figure 11.81):

1. **Building and sustaining resilient national, regional and global capacities necessary to keep the world safe from epidemics and other health emergencies.**

All countries are at risk of disease outbreaks, many of which can spread quickly and become an epidemic. These diseases include influenza and cholera but, more recently, new diseases are emerging, such as Ebola and Zika virus, and present challenges for the global community. WHO has developed the International Health Regulations (2005) that recommend actions for countries to implement to reduce the spread of diseases that are capable of crossing borders and threatening people worldwide. These measures include airport control, quarantine and ensuring resources are readily available to treat disease outbreaks. WHO will work with countries to ensure the International Health Regulations are implemented and identify and coordinate the research, development and innovation needed to better detect, prevent and respond to new and emerging diseases and other sources of risk.

2. **Ensuring all people affected by health emergencies have quick access to essential life-saving health services including health promotion and disease prevention.**

WHO will work with countries to ensure that essential life-saving health services reach the most vulnerable people, particularly those living in fragile and conflict-affected countries. Health services include:

- health promotion and disease prevention,
- mental health and psychosocial support,
- nutrition services including support for exclusive breastfeeding.

WHO will also work to ensure national health emergency programmes in all countries are supported by a well-resourced and efficient WHO Health Emergencies Programme.
C. Promoting healthier populations — 1 billion more people enjoying better health and wellbeing

This strategic priority focuses on the achievement of the health and wellbeing targets in SDG 3. It aims to decrease maternal, child and newborn mortality rates, reduce diseases such as HIV, tuberculosis, malaria and neglected tropical diseases, and promote health and wellbeing across all lifespan stages. Targeted areas include family planning, early childhood and youth health and wellbeing.

It interrelates with the other two priorities to focus work in five platforms (figure 11.84).

1. **Improving human capital across the lifespan**

   WHO aims to improve human capital through interventions that focus on early childhood, child and adolescent health and development and on family planning, pregnancy and childbirth as these are critical stages where long term improvements in health and wellbeing can be achieved. Investment in these areas have the potential to reduce the incidence of mental health disorders and non-communicable diseases later in life. It is directly aligned to the SDG 3 implementation target of access to sexual and reproductive healthcare services and SDG 5 target on universal access to sexual and reproductive health and reproductive rights.

2. **Accelerating action on preventing noncommunicable diseases and promoting mental health**

   Much of the morbidity and premature mortality caused by noncommunicable diseases, could be prevented through interventions to reduce four main risk factors—tobacco use, harmful use of alcohol, unhealthy diets and physical inactivity. Prevention efforts also need to be combined with equitable access to effective treatment for cardiovascular diseases, cancer, diabetes, chronic respiratory diseases and mental health conditions. Mental health disorders are a major cause of the global burden of disease; however, the majority of people concerned have no access to treatment and care. Increased efforts are also needed to tackle road traffic injuries and violence. WHO will work with countries and support them to implement preventive strategies to address noncommunicable diseases.

3. **Accelerating elimination and eradication of high impact communicable diseases**

   Achieving the 2030 target of ending the epidemic of AIDS, TB, malaria and neglected tropical diseases, and combating hepatitis, water borne diseases and other communicable diseases cannot be achieved without significantly accelerating prevention, control and elimination efforts by introducing cost-effective and high-impact interventions. These diseases continue to be major public health challenges in many countries and WHO will increase their efforts to support the implementation of actions designed to eliminate these diseases.

4. **Tackling antimicrobial resistance**

   Antimicrobial resistance occurs when microorganisms such as bacteria, fungi, viruses, and parasites change when they are exposed to drugs such as antibiotics that are designed to prevent or treat diseases. Microorganisms that develop antimicrobial resistance are sometimes referred to as ‘superbugs’. Medicines that have been used previously to treat diseases become ineffective and infections persist in the body,
increasing the risk of spread to others. Antimicrobial resistance occurs naturally over time, usually through genetic changes. However, the misuse and overuse of medication is increasing this process. Antibiotics are often being overused and misused. An example of misuse is when they are taken by people with viral infections like colds and flu. Antimicrobial resistance threatens the effective prevention and treatment of a wide range of infections. Without effective antibiotics, the success of major surgery and cancer chemotherapy would be compromised. New resistance microorganisms are emerging and spreading globally, threatening our ability to treat common infectious diseases, resulting in prolonged illness, disability, and death. WHO will work with countries to increase awareness and understanding of the correct use of antimicrobial medicines and promote research and development into ways of addressing antimicrobial resistance.

5. **Addressing health effects of climate change in small island developing States and other vulnerable States**

These nations are vulnerable and they face increasing climate and pollution-related risks, with women, children and those who are the poorest being particularly at risk. Air pollution is a major risk factor for non-communicable diseases and greater resilience is needed to prevent the spread of vector-borne, water-borne, food-borne and work-related diseases. WHO will work to prevent pollution-related disease and support small island developing states to build health systems that are resilient to extreme weather and climate-sensitive diseases.

**FIGURE 11.84** WHO will contribute to people enjoying better health and wellbeing through five platforms.
CASE STUDY
Five of the scariest antibiotic-resistant bacteria in the past five years

Nearly one million people die every year from bacterial infections that cannot be treated with common antibiotics. This is frightening because right now we don’t have any alternatives to these antibiotics.

Antibiotic resistance occurs when bacteria change in a way that prevents the antibiotic from working. Changes in bacteria, known as resistance mechanisms, come in different forms and can be shared between different bacteria, spreading the problem. Antibiotic resistance risks returning us to an age where even simple cuts and scrapes can become deadly. For a glimpse of what could be commonplace in our future, here are five of the scariest antibiotic resistant bacteria from the last five years.

1. **Extensively drug-resistant Salmonella typhi**

   This highly contagious bacterium causes typhoid fever, a life-threatening infection that affects about 21 million people around the world every year. About 1% of those affected, or 223,000 people, will die. In November 2016, a strain of Salmonella typhi emerged in Pakistan. It was resistant to five antibiotics, leaving only one oral antibiotic (azithromycin) able to treat it. Since then there have been 858 reported cases of this infection, resulting in four deaths in just one Pakistani province.

   Worryingly, this strain of *Salmonella typhi* had changed from being multidrug-resistant (resistant to at least three classes of antibiotic) to extensively drug-resistant (resistant to all but two classes of antibiotic) in a single step. It achieved this by acquiring a piece of DNA, called a plasmid, which already contained all the new resistance genes it needed.

   Even more concerning is that this strain is now only one step away from being untreatable with all available antibiotics by finding another plasmid with the resistance genes for the last two classes of antibiotic that can kill it.

2. **Extensively drug-resistant Mycobacterium tuberculosis**

   *Mycobacterium tuberculosis* is the world’s leading infectious killer, causing more than 1.7 million deaths every year. One of the reasons this bacteria is so deadly is its ability to hide inside our cells. This means that to treat tuberculosis infection, people are required to take four different antibiotics continuously for six months.

   It’s estimated up to 13% of all new tuberculosis cases are multidrug-resistant, with Europe, including Russia, seeing the highest number of these cases. This is alarming, as multidrug-resistant infections require treatment courses that are much longer (generally 18 to 24 months) and use antibiotics that are expensive and can be bad for the kidneys and other organs.

   It’s now been found that 6% of these cases are actually extensively drug-resistant (resistant to all but two classes of antibiotic). With a treatment success rate of only 30%, the global spread of extensively drug-resistant tuberculosis to more than 123 countries is extremely concerning.

3. **Pandrug-resistant Klebsiella pneumoniae**

   *Klebsiella pneumoniae* is a common bacterium found in the skin, intestines and soil. It causes a range of potentially deadly infections in people with compromised immune systems. As this bacterium is particularly prevalent in hospitals, it’s one of the most critical drug-resistant threats to public health. In 2013 there were 8,000 reports of multidrug-resistant *Klebsiella pneumoniae* in the United States alone, with a death rate of 50% for people with bloodstream infections. In 2016 a strain of *Klebsiella pneumoniae* was identified in the United States that was resistant to all 26 commonly available antibiotics (known as pandrug-resistant). The patient infected by this bacteria died due to a lack of alternative treatments. This is not an isolated case; other bacteria are also becoming pandrug-resistant.
4. Pandrug-resistant *Pseudomonas aeruginosa*

Like *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* is a commonly found bacterium that causes infections in people with compromised immune systems. Like *Klebsiella pneumoniae*, it’s particularly prevalent in hospitals. In the United States, there are an estimated 51,000 health care-associated *Pseudomonas aeruginosa* infections each year, with around 400 causing death. In the past five years, 29 cases of pandrug-resistant *Pseudomonas aeruginosa* infection have been reported in hospitals in England.

*Pseudomonas aeruginosa* infection is also the leading cause of death for people with cystic fibrosis. In 2013, more than 42% of cystic fibrosis patients with chronic *Pseudomonas aeruginosa* infection were treated with colistin, the “last line of defence” antibiotic. This is because most of these infections were resistant to every other antibiotic available.

5. Extensively drug-resistant *Neisseria gonorrhoeae*

There are an estimated 78 million global cases of *Neisseria gonorrhoeae*, which causes gonorrhoea, a sexually transmitted infection affecting men and women. Although usually not deadly, serious and permanent health problems including infertility can result if the disease goes untreated.

Around one-third of all *Neisseria gonorrhoeae* infections are resistant to at least one antibiotic. More worryingly, a new extensively drug-resistant “super gonorrhoeae”, resistant to all but one antibiotic, has been discovered. Two of the first reported cases of this superbug were in Australia. This is cause for concern, as extensively drug-resistant *Neisseria gonorrhoeae* can spread quickly through a population if people have multiple partners. In rare cases, untreated gonorrhoea can enter the bloodstream, causing septic shock and death.

**Could future outbreaks be worse?**

Yes. Bacteria have the ability to pass antibiotic resistance genes to other bacteria and can develop the resistance themselves. So, it’s likely a bacteria resistant to all but one antibiotic will develop resistance to that final one over time.

The good news is we can reduce the likelihood of this happening if we use antibiotics appropriately and invest in the research and development of new antibiotics, vaccines and diagnostic tools.


**Case study review**

1. How many people die each year from bacterial infections that cannot be treated with antibiotics?
2. How does antibiotic resistance occur?
3. For each of the five types of antibiotic resistant bacteria, explain why it is a concern in relation to health and wellbeing.
4. How can the likelihood of bacteria becoming resistant to all forms of antibiotics be reduced?

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11.13 Activities

1. Access the **Universal health coverage** weblinks and worksheets in the Resources tab, then complete the worksheets.
2. Select one of the following examples of the work that has been undertaken by the WHO:
   - Framework Convention for Tobacco Control
   - Global Strategy on Diet, Physical Activity and Health
• Recommendations on the intake of free sugars to reduce the risk of non-communicable diseases in adults and children.
  
Research the example selected then answer the following questions:
  a. Briefly outline your chosen example.
  b. Identify the WHO strategic priority evident in the example.
  c. Identify two components of WHO’s work evident in the example.
  d. How does your example promote health and wellbeing and human development?

**11.13 EXERCISE 1 TEST YOUR KNOWLEDGE**

1. When was the WHO established?
2. What is WHO’s mission?
3. What are the three principles that underpin WHO’s work?
4. Identify and explain three main functions of WHO.
5. Briefly outline WHO’s three strategic priorities.
6. Copy the table below. Beside each of the examples given, list the name of the relevant WHO strategic priority.

<table>
<thead>
<tr>
<th>Example</th>
<th>Relevant WHO strategic priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure people can access high-quality essential medicines when they need them at an affordable cost.</td>
<td></td>
</tr>
<tr>
<td>Put in place recommended actions to reduce the spread of a new disease.</td>
<td></td>
</tr>
<tr>
<td>Ensure all people have access to health services during a health emergency.</td>
<td></td>
</tr>
<tr>
<td>When people are sick ensure they can access medical treatment at an affordable cost.</td>
<td></td>
</tr>
<tr>
<td>Address risk factors such as tobacco and alcohol misuse.</td>
<td></td>
</tr>
<tr>
<td>Work to eliminate diseases such as polio and tuberculosis.</td>
<td></td>
</tr>
<tr>
<td>Investing in sexual and reproductive health services.</td>
<td></td>
</tr>
</tbody>
</table>

**11.13 EXERCISE 2 APPLY YOUR KNOWLEDGE**

1. Explain the purpose of the International Health Regulations (2005). Use a relevant example to illustrate your answer.
2. Using the WHO strategic priorities as the basis for your response, explain how the WHO may work to reduce a disease such as tuberculosis.

**Resources**

- **Digital documents**
  - Universal health coverage: Maya worksheet (doc-22778)
  - Universal health coverage: Right. Smart. Overdue. Worksheet (doc-22779)

- **Weblinks**
  - Universal health coverage: Maya
  - Universal health coverage: Right. Smart. Overdue.
11.14 Topic 11 review

11.14.1 Key skills

**KEY SKILL** Describe the objectives of the UN's Sustainable Development Goals and justify their importance

To address this skill, you need to understand why the United Nations developed the Sustainable Development Goals, what they are, when they were developed, the period they are relevant for and their objectives. This skill also requires you to be able to justify why they are important by explaining the reasons they were introduced.

An example of how you might address this skill is:

The Sustainable Development Goals (SDGs), also known as the global goals, were developed by the United Nations and came into action in 2016. They direct global action until 2030. They focus on five broad areas of importance, which are people, planet, prosperity, peace and partnership. They provide a set of goals and targets that are integrated and interdependent and are relevant for all countries, not just low- and middle-income countries. They promote partnerships and recognise that improvements cannot be achieved in isolation or by individual countries themselves.\(^1\)

The objectives of the SDGs are to end extreme poverty, fight inequality and injustice and address climate change. The SDGs are interconnected and their achievement requires collaboration across all sectors.\(^2\)

They were introduced for three main reasons:
- There was a need for a new set of goals to guide global action when the Millennium Development Goals expired in 2015.
- Progress that had been made in a wide range of areas was not shared equally and many people were being left behind. These tended to be the poorest and those who are disadvantaged due to sex, age, disability, ethnicity and geographical location.
- New global challenges had emerged that needed to be addressed.\(^1\)

**Practise the key skill**

Read the following information:

‘The 17 Sustainable Development Goals are our shared vision of humanity and a social contract between the world’s leaders and the people’, said UN Secretary-General Ban Ki-moon.

‘They are a to-do list for people and planet, and a blueprint for success.’ The SDGs, unanimously adopted by the UN’s 193 Member States at an historic summit in September 2015, address the needs of people in both developed and developing countries, emphasising that no one should be left behind.

1. What are the objectives of the Sustainable Development Goals?
2. Explain why they were introduced.
3. Provide two reasons to justify why they are important.

**KEY SKILL** Describe key features of SDG 3 and analyse its relationships with other SDGs in collaborative approaches to improving health and wellbeing, and human development globally

You must be able to accurately name each of the SDGs rather than just list them by number.

There are three components to this skill:

a. You must know SDG 3 in detail and be able to describe each of its key features. It might be useful to develop a table that lists each of the features and includes a description of each.

b. The second part of the skill requires you to be able to analyse the relationships between SDG 3 and the other selected SDGs in this topic. Different sectors work to achieve different SDGs. However, their work is related to and interconnects with SDG 3 because health and wellbeing and human development is an outcome of all SDGs. This is referred to as collaboration. You need to be able to analyse how the work being done to achieve other SDGs also helps to improve health and wellbeing and human development.

The following example can be used to illustrate this.

**FIGURE 11.87** Reduction in malaria mortality rate, by WHO region, 2010–2015

The information above shows the reductions in malaria mortality between 2010 and 2015. Reducing deaths from malaria is part of SDG 3.

i. Describe the key features of SDG 3.

ii. Select one other SDG and explain how collaboration in the achievement of the SDG selected would help further reduce malaria mortality by 2030.

iii. Explain how reducing malaria will help improve health and wellbeing and human development.
The key features of SDG 3: Good health and wellbeing4 is to continue the work already done to reduce maternal and child deaths end the epidemics of diseases such as HIV, TB, malaria, neglected tropical diseases, and other communicable diseases such as hepatitis and water-borne diseases. Other new and emerging health and wellbeing issues are also included in this SDG, such as reducing the increasing mortality from non-communicable diseases such as cardiovascular disease, diabetes, cancer and chronic respiratory diseases, promoting mental health and wellbeing and reducing deaths and injuries from road traffic accidents and from air, water and soil pollution. To achieve these targets, it will be necessary to achieve universal health coverage so all people have access to preventative and curative medical services at an affordable cost. This includes essential medicines and vaccines. Reducing the harmful use of tobacco, alcohol and other drugs is included in this goal along with the need to provide funds for a well-trained health workforce. Also included is building the capacity of each country to minimise the risk of and manage any potential health risks that develop.5

Achieving the targets around reductions in malaria mortality by 2030 is dependent upon action being taken to address climate change.6 This is addressed in SDG 13: Climate action. The over-reliance on fossil fuels and the resulting greenhouse gases have contributed to global warming. If this is not addressed, the increase in temperatures will create the conditions that are ideal for mosquitoes that carry the malaria virus to breed.7 Action to develop clean energy sources and reducing vehicle emissions is necessary to prevent these environmental conditions working against other potential gains being made within the health and wellbeing sector alone.6

This collaborative approach to reducing malaria mortality will improve health and wellbeing and human development. Malaria is a life-threatening disease and young children and pregnant women are at greater risk of contracting it. Malaria causes fever, headache, diarrhoea and vomiting and, if left untreated, can disrupt blood supply to internal organs causing death. It therefore has a significant impact on physical health and wellbeing. When affected by malaria, people are unable to work and children are unable to attend school. Repeated attacks of malaria means children’s education is interrupted and they will not develop the knowledge and skills required to gain employment and earn an income. Parents who have children suffering from malaria are often unable to work as they need to care for their sick children. This impacts on human development as their standard of living and the capacity to take part in their communities is reduced as well as their ability to have control over the decisions that affect their lives. This also affects mental health and wellbeing. It is therefore important to reduce the incidence of malaria if health and wellbeing and human development is to be promoted.8
Practise the key skill
Read the following information:

Abida is training to be a nurse in Jalalabad, Afghanistan — a country which has one of the highest maternal and child mortality rates in the world. “One of my neighbours gave birth,” Abida recalls. “After delivery, she didn’t stop bleeding. She died on the way to town”. UNDP is supporting Afghanistan to train a new generation of female healthcare workers, like Abida. Along with 200 classmates, she will graduate from nursing school to bring much needed health care to women in the country’s most remote and disadvantaged areas.


4. Identify the SDGs being addressed in this program.
5. Explain how this program would help achieve SDG 3.
6. Explain how this program would contribute to health and wellbeing and human development globally.

There are three components to this skill.
a. The first is to be able to explain each of the three World Health Organization (WHO) strategic priorities.
b. The second is to be able to explain the work of the WHO.
c. The third is to be able to apply the priorities in a range of different scenarios or situations. This could require you to recognise how they are reflected in an example provided or to apply the priorities to suggest actions that could be taken to address a health-related issue.

Use the following example of the work of the WHO to understand this skill. It is important to:
• read the information carefully
• look for examples that show evidence of the work of the WHO. This includes:
  • providing leadership and partnerships to promote health and wellbeing
  • conducting research and providing health and wellbeing information
  • setting norms and standards and providing expertise in all matters relating to health and wellbeing
  • developing policies to help countries act to address issues related to health and wellbeing
  • providing technical support
  • monitoring global health and wellbeing trends.
• list the three WHO strategic priorities and look for evidence in the example that demonstrates one or more of the priorities in action. The three strategic priorities are:
  • Achieving universal health coverage
  • Addressing health emergencies
  • Promoting healthier populations.

US $12.9 billion for WHO Global Fund to fight AIDS, Tuberculosis and Malaria

Over US$12.9 billion has been pledged for the next three years to support the Global Fund to Fight AIDS, Tuberculosis and Malaria. The Global Fund will increase its investments in building resilient and sustainable systems for health and wellbeing to ensure that it achieves maximum impact for disease-specific interventions. This is important in the move towards universal health coverage.
Epidemics of infectious diseases kill more than 4 million people every year. While significant gains were made during the Millennium Development Goals era, progress has been uneven. In many countries and regions, the epidemics are actually getting worse. In affected countries, the focus should now be on scaling up interventions, expanding multi-sectoral partnerships, addressing biological threats, such as drug resistance, and identifying increased resources to fund programs.

The US$12.9 billion will prevent 300 million infections and save 8 million lives. However, to accelerate progress, much more is needed. There needs to be political and financial commitment, and increased regional and cross-border collaboration and infectious disease programmes should be increasingly integrated with efforts to strengthen health systems.

As countries reduce the burden of infectious diseases, their economies will be stronger, their workforce healthier, and they will be able to focus more resources on other challenges, such as preventing and managing health emergencies, addressing the growing burden of non-communicable diseases, and overcoming the impact of climate change.

The WHO is working very closely with the Global Fund and other partners to provide technical support, conduct research and monitor health and wellbeing trends to help countries accelerate progress, prevent new infections and save lives.

Practise the key skill
Read the following information about Dengue:

Dengue is a mosquito-borne disease that causes flu-like symptoms. Up to 20 per cent of those suffering from severe dengue can die as a result of the disease. It has continued to be a growing threat for decades.

A high number of cases occur in the rainy seasons of countries such as Bangladesh and India. Now, its season in these countries is lengthening significantly (in 2018, Bangladesh saw the highest number of deaths in almost two decades), and the disease is spreading to less tropical and more temperate countries such as Nepal, that have not traditionally seen the disease. An estimated 40 per cent of the world is at risk of dengue fever, and there are around 390 million infections a year. WHO’s Dengue control strategy aims to reduce deaths by 50 per cent by 2020.


7. Explain two ways that WHO might work to assist countries to reduce deaths from dengue and prevent the spread of the disease.
8. Use two of the WHO strategic priorities and discuss how they could be used to reduce the spread of dengue and reduce deaths by 50 per cent.

11.14.2 Topic summary
Objectives and rationale for the Sustainable Development Goals and key features of SDG 3
- The Sustainable Development Goals (SDGs), sometimes referred to as the global goals, lead action from 2016–2030 in five broad areas of importance, which include people, planet, prosperity, peace and partnership.
There were three main reasons (or rationale) for the introduction of the SDGs. There was a need for a new set of goals to guide global action when the Millennium Development Goals expired in 2015; there was uneven progress across regions and countries; and new global challenges had emerged that needed to be addressed.

The objectives of the SDGs are to end extreme poverty, fight inequality and injustice and address climate change.

The SDGs are interconnected and their achievement requires collaboration across all sectors.

**Sustainable Development Goal 3: Good health and wellbeing: key features**

- SDG 3: Good health and wellbeing contributes to the achievement of many of the SDGs, which in turn help promote the achievement of good health and wellbeing.
- SDG 3 seeks to reduce maternal and child mortality rates, end epidemics of communicable diseases, reduce premature mortality from communicable diseases, reduce substance misuse, particularly from alcohol and tobacco smoking, reduce deaths from air, water and soil pollution, reduce traffic accidents and promote mental health and wellbeing.
- SDG 3 includes providing universal health coverage and access to essential medicines.
- Universal health coverage has two main elements, which include expanding health services and reducing the costs of healthcare.

**Sustainable Development Goal 3: Good health and wellbeing: key feature — maternal and child health**

- Improvements in maternal mortality have been mainly due to better access to prenatal care to monitor the health and wellbeing of the mother and baby and the presence of skilled birth attendants during delivery.
- Access to reproductive health services helps families control the number of children they have and the timing and spacing of births.
- SDG 3 aims to prevent deaths in newborns and those under five. Half of all newborn deaths occur in the first 24 hours of being born and 75 per cent occur in the first week.

**Sustainable Development Goal 3: Good health and wellbeing: key feature — communicable diseases**

- Communicable diseases such as HIV/AIDS, tuberculosis, malaria, hepatitis, water-borne diseases and other tropical diseases contribute significantly to the global burden of disease.
- AIDS damages and weakens the body’s immune system, leaving it unable to fight infections.
- HIV/AIDS is much more common in low-income countries, and there is currently no cure and no vaccine. The use of antiretroviral medication (ART) is successful in delaying and, in some cases, preventing the HIV virus from progressing to AIDS.
- Ending the AIDS epidemic requires access to healthcare, education, the removal of discrimination and stigma, and the development of a vaccine.
- Malaria is a life-threatening disease transmitted through the bite of an infected mosquito and can be prevented by using insecticide-treated bed nets, spraying insecticides in homes and using antimalarial medicines.
- Tuberculosis is a disease affecting the lungs and can be spread through coughing and sneezing. It can be treated with medication and prevented through vaccination.
- Neglected tropical diseases include 18 different diseases that mainly occur in tropical environments and very poor countries where people lack access to safe water and sanitation and access to healthcare.
- Morbidity and mortality from neglected tropical diseases can be reduced by providing drugs that can prevent and treat the diseases, providing vector control, providing veterinary public health measures when the diseases are caused by animals, and improving water and sanitation.
- Hepatitis is a caused by a virus that leads to inflammation of the liver. Hepatitis B and C are spread through contact with infected body fluids. Hepatitis A and E result from ingesting contaminated water and food.
Sustainable Development Goal 3: Good health and wellbeing: key feature — non-communicable diseases

- Non-communicable diseases, such as cardiovascular disease, cancer, diabetes and chronic respiratory disease, affect people in low, middle- and high-income countries.
- Risk factors for non-communicable diseases include tobacco use, insufficient physical activity, harmful consumption of alcohol and poor diet.
- Good mental health and wellbeing is important in enabling people to achieve their potential and contribute to the community.
- SDG 3 aims to reduce morbidity and mortality rates due to road traffic accidents by 2020, which requires a coordinated approach across many sectors, such as health and wellbeing, education, transport and police.
- Harmful consumption of drugs, particularly alcohol, is a health issue worldwide.
- Cannabis is the most common illicit drug used, followed by amphetamines, cocaine and opioids.
- Environmental hazards such as air, water and soil pollution is responsible for one in four deaths worldwide.
- Air pollution accounts for the greatest burden of disease from pollution and is caused using fuels such as wood, charcoal, coal and dung for indoor cooking.
- Outdoor air pollution is caused by vehicle emissions and greenhouse gases.

The relationships between Sustainable Development Goal 3 and SDG 1

- SDG 1: No poverty. When people are poor, they are unable to afford food, clothing, shelter, safe water, healthcare and education, and lack opportunities to participate in decisions that affect their lives and their communities.
- When a country is poor there is not enough money to provide public health services such as safe water and sanitation, healthcare, education and social security benefits.
- Poverty contributes to low levels of childhood vaccination, low levels of literacy and high death rates from infectious diseases, such as tuberculosis, measles, whooping cough, cholera, malaria and tetanus.
- Poverty can occur due to discrimination and social exclusion. People most at risk are women, youth, the elderly, migrants and those with a disability.
- Actions that need to be taken to end poverty and achieve SDG 1 are directly linked to the actions that are needed to achieve good health and wellbeing.

The relationships between SDG 3 and SDG 2

- SDG 2: Zero hunger. Hunger and malnutrition are the biggest contributors to child mortality, causing 45 per cent of preventable deaths in children under five.
- Deficiencies of micronutrients, especially iron, Vitamin A, zinc and iodine are responsible for many deaths and disability, particularly in women and children.
- Actions that need to be taken to achieve SDG 2: Zero hunger are linked to the achievement of SDG 3.

The relationships between SDG 3 and SDG 4

- SDG 4: Quality education. This aims to ensure that females and males have equal access to quality pre-primary, primary, secondary and tertiary education and develop the vocational skills needed for employment.
- Factors affecting girls getting an education include drought, lack of access to safe water and sanitation, food shortages, conflict, poverty, child labour and HIV/AIDS.
- Actions taken to achieve quality education are linked to the achievement of SDG 3. An educated and skilled workforce means higher economic growth and more funding for the provision of universal health coverage. Child and maternal health and wellbeing will improve because educated girls have fewer children and are more likely to send their children to school.
The relationships between SDG 3 and SDG 5
- SDG 5: Gender equality is about ending discrimination and violence against women and girls by addressing the barriers that exist to gender equality.
- Gender equality is when women and men have the same level of power and control over all aspects of their lives. Many women face discrimination in all aspects of life.
- Women are underrepresented in political and economic decision-making processes and are often discriminated against by the laws that exist.
- Educating and empowering women increases their chances of getting a job, staying healthy and participating in society.
- Actions taken to achieve gender equality are linked to the achievement of SDG 3. When women are given the same opportunities as men, they are more empowered and can participate in decision making, which promotes health and wellbeing.

The relationships between SDG 3 and SDG 6
- SDG 6: Clean water and sanitation. Water transmits disease when it is contaminated by bacteria, viruses, parasites or other micro-organisms or through contamination from industrial and agricultural waste.
- Diarrhoea is the most widely known disease linked to contaminated water, but other diseases caused by contaminated water include parasitic worm infestations, cholera, dysentery, hepatitis A, typhoid and trachoma.
- More than 80 per cent of wastewater due to human activities is discharged into rivers or oceans.
- 10 per cent of the population is thought to consume food that is irrigated by wastewater, which puts their health and wellbeing at risk.
- Actions taken to achieve clean water and sanitation underpin the ability to achieve SDG 3. Without clean water and sanitation SDG 3 is difficult to achieve.

The relationships between SDG 3 and SDG 13
- SDG 13: Climate action. This addresses the impact of climate change and the need to take urgent action to reduce the impact.
- The over-reliance on fossil fuels and greenhouse gases has contributed to global warming and increasing sea levels.
- Climate change is expected to bring about an increase in infectious diseases, allergies and asthma, deaths from cardiovascular diseases and respiratory diseases, and hunger and malnutrition.
- The global community must work together to develop cleaner energy systems, promote energy-efficient public transport and reduce carbon emissions.
- SDG 13 and SDG 3 are closely connected. Achieving good health and wellbeing will not be possible unless action is taken to address climate change and its corresponding impacts on health and wellbeing.

The UN’s Sustainable Development Goals and the World Health Organization (WHO)
- The work of the WHO involves six components.
  - Provide leadership and create partnerships to promote health and wellbeing
  - Conduct research and provide health and wellbeing information
  - Set norms and standards and promote and monitor their implementation
  - Develop policies to assist countries to take action to promote health and wellbeing
  - Provide technical support and help build sustainable health systems
  - Monitor health and wellbeing and assess health and wellbeing trends
- To provide direction and focus to their work, WHO has developed three strategic priorities.
  - Universal health coverage
  - Health emergencies
  - Healthier populations
11.14.3 Exam preparation

Question 1

Figure 11.88 shows the gap in the completion of primary education between girls and boys for high-income, middle-income and low-income countries.

a. Which type of country has the highest gender gap in primary school completion? (1 mark)
b. Explain two reasons for this. (2 marks)
c. Name one SDG that this information is related to. (1 mark)
d. Explain how reducing the gender gap in primary school completion could assist in achieving SDG 3. (3 marks)
e. Explain how reducing the gender gap in primary school completion could improve human development. (2 marks)

![Figure 11.88 Primary completion rate by sex (percentage relevant age group)](image)


Question 2

Use figure 11.89 to answer the following questions:

a. Explain three key features that are part of SDG 3. (3 marks)
b. Select two examples of diseases from the figure that are included in the WHO strategic priorities. Outline actions the WHO might take to reduce the global burden of disease. (4 marks)
c. Select an example of a disease with a large environmental contribution and explain how action to address SDG 13 will help achieve improvements in health and wellbeing. (3 marks)
FIGURE 11.89 Diseases with the largest environmental contribution

<table>
<thead>
<tr>
<th>Disease</th>
<th>Environmental Fraction</th>
<th>Non-environmental Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>Ischaemic heart disease</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>57%</td>
<td>43%</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Cancers</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>COPD</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Road traffic accidents</td>
<td>39%</td>
<td>61%</td>
</tr>
<tr>
<td>Neonatal conditions</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>Malaria</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>Drowning</td>
<td>73%</td>
<td>27%</td>
</tr>
<tr>
<td>Back and neck pain</td>
<td>27%</td>
<td>73%</td>
</tr>
<tr>
<td>Fire, heat, hot substances</td>
<td>76%</td>
<td>24%</td>
</tr>
<tr>
<td>Falls</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Asthma</td>
<td>44%</td>
<td>56%</td>
</tr>
<tr>
<td>Unipolar depressive disorders</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>Self-harm</td>
<td>23%</td>
<td>77%</td>
</tr>
<tr>
<td>Poisonings</td>
<td>7%</td>
<td>93%</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>18%</td>
<td>82%</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>Intestinal nematode infections</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Alcohol use disorders</td>
<td>16%</td>
<td>84%</td>
</tr>
<tr>
<td>Interpersonal violence</td>
<td>16%</td>
<td>84%</td>
</tr>
<tr>
<td>Hearing loss</td>
<td>22%</td>
<td>78%</td>
</tr>
</tbody>
</table>