

our focus is on lifestyles, the social model of health, public health/health promotion, or any combination of these.

We also know that knowledge is not linear and cannot be contained within silos. Models of health recognise a variety of causal pathways to good health, poor health or disease in a population. Although models of health overlap, most health professionals' practice draws predominantly from one or two of those models.

## What is public health?

Public health is defined as those organised measures that are taken to protect health among populations, to prevent disease, promote health and prolong life among the population as a whole.

Public health is a value-driven system based on social justice and equity, and also on the 'Health for All' movement started by the World Health Organization (WHO). However, it is also driven by high-level evidence about what works. Crucially, there are powerful economic drivers for public health. For example, populations that enjoy good health contribute to a more productive economy because there is a healthy workforce. Health economics has shown that we minimise the impact of illness and the costs of treatment by maintaining good health among the population.

### **determinant**

A foundational or underlying cause of a problem or health issue. Determinants include the social, political, economic and cultural conditions in which people live. They are understood as the factors that determine or decide the likelihood of an outcome occurring.

Public health is a system for the prevention of illness, disease and poor health. Health protection, health promotion and prevention are the three key pillars for a strong public health system and provide a framework for practice. Going more deeply, the principles for improving the public's health are based on the **determinants** of health and illness in the population, health equity, social justice, ethics and cross-sector collaboration as well as community consultation.

To meet these demands for high-quality public health to protect people from the hazards all around them, we require a multidisciplinary workforce, educated and trained to the highest standards of public health. People, at least in Australia, expect that governments will protect their health from obvious threats or hazards. We call this work 'health protection', and most governments undertake it, more or less. We expect governments to place a high value on public health as one of their fundamental roles, but not every government has invested in public health to the level needed. This rapidly became obvious as COVID-19 spread around the globe, as Case study 1.1 illustrates.

## CASE STUDY 1.1

### THE UNFOLDING OF A PANDEMIC DISASTER

On 31 December 2019, a pneumonia of unknown cause detected in Wuhan, China was first reported to the WHO Country Office in China.

On 20 January 2020, the WHO made its first situation report on COVID-19, and ten days later it declared COVID-19 an international emergency. The WHO had published a report in 2017 on how to implement biosecurity measures in a pandemic and countries were urged to implement those measures immediately. Some countries were quick to respond; others were much slower.

On 27 February 2020, Australia declared that COVID-19 would become a global pandemic and extended its travel ban on visitors from China, as a surge of new cases around the world fuelled fears containment measures had already failed. On 18 March 2020, in response to emerging COVID-19 outbreaks in Australia, the Governor-General declared a human biosecurity emergency. The declaration gave the Minister for Health expansive powers to issue directions and set in train the requirements necessary to combat the outbreak. This was the first time these powers under the *Biosecurity Act 2015* (Cth) had been used (Maclean & Ephick 2020).

Australia was relatively fast to react to COVID-19. By 20 March 2020, it had closed its borders to international travel and enforced strict quarantine regulations for people arriving in Australia or exposed within Australia. There were some breaches, including through a cruise ship and hotel quarantine programs, which gave rise to early spread of the virus. Testing criteria in the first few weeks of the pandemic were quite tight due to the shortage of kits and capacity for testing, but as capacity increased, testing regimes were broadened.

The first confirmed cases of COVID-19 outside China were around 20 January 2020. The first deaths in the USA and South Korea occurred in late February. By April, there were 800 deaths a day in the USA. By mid-May, Australia had recorded 98 deaths in total and fewer than 7,000 infections. Australia and South Korea had begun following very different paths to the USA, with very different outcomes.

Australia, New Zealand, South Korea, Singapore and a few other countries embarked on containment of the virus. They implemented widespread testing, tracking of cases, quarantining and hygiene measures, including the wearing of masks. While there were spikes of new cases in every country over 2020, these countries managed to contain the spread.

The US response was very different, primarily because the resistance to public health measures was politicised and people refused to even believe that the virus was real, let alone practise the hygiene measures that other countries mandated. As a result, throughout 2020, cases and death rates continually grew across the USA. By early April, about 2,000 Americans were dying each day, with the USA having the highest death toll of any country. By August, its death toll was over 150,000 and by the time the first vaccine was given on 14 December 2020, more than 300,000 Americans had died. This was out of a global death toll to that point of more than 1.7 million people, though this is only an estimate: the actual toll is likely to be much higher. At the time of writing, over 600,000 Americans have lost their lives.

### Pause for reflection

There are excellent up-to-date statistics on COVID-19 at [www.worldometers.info/coronavirus](http://www.worldometers.info/coronavirus). You can review the reported cases by country, including total deaths, deaths per one million people and total tests per one million people.

Read Case study 1.1 and review the current COVID-19 statistics for the countries mentioned in the case study. What do these countries' statistics say about their public health systems and the leadership provided by their governments?

## Public health theories and models

The pandemic demonstrates the difference between biomedical and public health theories and models. Biomedical approaches, or the medical model, involve expert health professionals diagnosing and treating people one at a time. COVID-19 caused a range of severe problems, requiring highly trained staff working in multidisciplinary teams, advanced hospital design and expensive medical devices and drugs. The medical model is essential for trying to cure individuals, or at least ensuring they have the most dignified death possible. But in pandemics and daily life alike, the medical model cannot stop the flow of new patients. Public health saved millions of lives during the pandemic because public health takes a whole-of-population perspective. During the pandemic, public health professionals worked to find the origins and architecture