# Topic 1: Health protection

## Health protection

Health protection is one of the three Ps of public health. In broad terms, health protection refers to the avoidance, or reduction of potential harm from, exposures to hazards through organised efforts, including direct action with individuals or communities, regulation, legislation, and other measures. Health protection can include ensuring food is safe and of good quality, water and air are clean, and the general environment and settings do not harm health. This can include preventing transmission of communicable diseases, minimising disease outbreaks and other types of incidents which threaten the health of the population. Health protection is often in the news. Immunisation, foodborne infections, healthcare associated infections, communicable diseases, influenza outbreaks, and more recently COVID-19 have been in the headlines.

Public health has its roots in actions to protect people from risks and harms, in particular, those environmental health risks. Some of these foundations of public health came from the circumstances that confronted European communities in the 1800s such as poor sanitation, poor air quality, lack of public infrastructure and overcrowding. While these environmental issues impacted significantly on health status, we know from our understanding of social determinants that the health of these populations would have been affected by other factors, such as working conditions and poverty. As a broad discipline, public health focuses on many different aspects of population health and a focus on the environment is paramount in health protection strategies.

### Health protection [1:11 mins]

Watch this video on what is health protection.



Health Protection

## The domains of health protection

In your reading for this topic, Ghebrehewet, Stewart & Rufus (2016, pp.4) explain three major domains of public health practice within the health protection core service area. These domains are:

Click on the below headings to reveal further information.

> **Communicable disease control**

> **Emergency preparedness, resilience and response (EPRR)**

> **Environmental public health**

## The importance of health protection in public health

Enduring health protection issues, such as inadequate or failed sanitation, contamination of food or water supplies, and air pollution continue to re-emerge, and new threats are evolving from our changing environments and patterns of human activity (Oxford Handbook 2013, p. 219). Historically, public health practice focused on preventing people becoming ill and developing diseases by protecting them from a range of hazards in the environment. Currently, there is more focus on ensuring that environments are protected and conserved, as we have developed more understanding of connections between human health and sustainability of environmental systems.

There has been a growth in ecological sustainable development over the past 20 years. Future policy and practice in relation to environmental health will focus on addressing the population health outcomes of human-environmental interactions through:

- environmental security for human biology (preserving the physical conditions for life)
- environmental security for human populations (protecting communities and populations from local and global environmental risks to health)
- physical security for workplace and human settlements (managing place-based economic, social and environmental risks)
- long-term security for global self-supporting systems (re-establishing human/environment sustainability) (Brown 2001, in Smith & Fawkes 2014, p. 309).

As well as helping people to avoid harms that come directly from environmental risks, health protection interventions can also indirectly but profoundly benefit populations over the medium to longer term. Immunisation, for example, has been associated with enabling progress on 14 of the 17 United Nations' Sustainable Development Goals.

## Do you know all 17 Sustainable Development Goals? [1:25 mins]

To learn more about the Sustainable Development Goals, watch this short video from the United Nations.



Many risks to health require health protection measures:

- Air and water quality
- Food safety
- Housing
- Land use
- Economic development as a driver of priorities impacting environments
- Waste management — including medical and human waste
- Industrial settings, occupational health and safety
- Vector control — mosquitoes, rodents
- Exposure to hazardous materials — e.g. asbestos
- Exposures in the natural environment — e.g. sun (we will focus on this a little more shortly)

In order to deal with some of these risks we can use a mix of health protection approaches. For example, in relation to food safety, EPRR can allow governments to put in place legislation and policies in a range of areas that are important including food handling, food temperature, food storage and food preparation. This is an EPPR strategy that allows for the protection and management of our food supply. This can be supported with the adoption of health promotion strategies such as health education to encourage hand washing and safe storage of food in the home (we will explore more on health promotion as a core service in public health under Topic 3 this week). In public health policy and practice we typically need to establish priorities when we need to contend with multiple environmental health problems. In order to assess potential environmental health threats, and then protect people against them, it is useful to adopt a consistent framework for assessing and managing a health risk. Some of the factors practitioners need to consider include:

- the urgency of the threat
- the number of people affected, and their experience of the impacts
- whether the exposure is increasing
- the consequences of 'doing nothing'
- the vulnerability and identifiability of population subgroups
- the amenability of issues to investigation
- the availability of interventions or remedies (Guest et al. 2013 p. 220).

Epidemiological approaches can be used as a health protection strategy. Cancer clusters are a good example and are often considered to be related to environmental risks such as exposure to asbestos or radiation.

The importance of sustainable development in ameliorating risks to human health has been known for some time with the adoption of the Rio Declaration on Environment and Development in 1992 at the Earth Summit. This declaration contains 27 principles that underpin sustainable development for the future. In relation to health protection, principle 15 (called the precautionary principle) states:

> *In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*
> (UNESCO 1992)

When we consider health protection it would be reasonable to use the following as a guide to action.

Click on the below headings to reveal further information.

> **Reducing the hazard at its source**

> **Protection at the community level**

> **Protection at the individual level**

The risks to public health from environmental hazards are continually emerging, ranging from small-scale or local challenges to widespread exposures affecting whole populations (for example, a blue-green algal bloom in a local reservoir or poor air quality due to pollution). Part of the work of public health practitioners is to identify environmental hazards at the grassroots level. This work is often carried out by local governments to ensure the safety of food and water and forms part of the foundation of public health protection (Guest et al. 2013, p. 219). Part of the role of public health is to understand how to predict, prevent, monitor and respond to threats to public health. This includes enforcement (often through environment agencies and local government bodies). This remains an important tool, but we also need to focus on prevention which requires a broad range of strategies, including advocacy, intersectoral collaboration and community development models in addition to the development of policy, standards and guidelines.

## Who is involved in health protection?

As we can see from our discussion on the role of health protection, a wide range of people and organisations are involved. These stretch beyond the public health system and reach into areas such as those that contribute to sanitation services — the humble garbage man, through to those that work in local, state and national governments setting the regulatory standards for systems to operate within. We can see through examining the domains and role of health protection, that public health approaches impact profoundly on our everyday lives in both visible and less visible ways. The following table provides some examples of organisations and job titles that provide health protection functions for communicable disease control, emergency preparedness, resilience and response, and environmental public health. This is by no means an exhaustive or comprehensive list and often the roles contribute to multiple functions in public health, for instance a public health policy officer may contribute to both communicable disease control in health protection and other areas in primary prevention. Review this list and consider other roles that can be added. You may wish to consider starting your own document with the organisations and roles that are available in public health. You can add to this list as you progress through your studies — this may help you when you start looking for jobs in the sector. Not all of these jobs would be available to someone solely on the strength of their Masters of Public Health qualification; some may require additional qualifications.

Organisations and job titles

| | Communicable disease control | Emergency preparedness, resilience and response (EPRR) | Environmental public health |
|---|---|---|---|
| **Examples of organisations, government departments or institutions involved at the local, state, national and international level** | • Local municipal government authorities<br>• Community health services<br>• State government Department of Health and Human Services<br>• Federal government Department of Health<br>• United Nations programs | • Workplaces and industry<br>• Local municipal government authorities<br>• Country Fire Authority<br>• State government Police, Fire and State Emergency Services<br>• Federal government Department of Infrastructure, Transport, Regional Development and Communications<br>• International Red Cross | • Local municipal government authorities<br>• State government Environmental Protection Agency<br>• Department of Agriculture, Water and the Environment<br>• Department of Defence<br>• Bill and Melinda Gates Foundation |
| **Example job titles** | • Immunisation Nurse<br>• Food Safety Inspector<br>• Needle and Syringe Exchange Program Manager<br>• Public Health Officer<br>• Disease Surveillance Officer<br>• Epidemiologist<br>• Public Health Policy Analyst<br>• Chief Health Officer<br>• HIV/AIDS Program Officer | • Road Safety Officer<br>• Crossing Supervisor<br>• Bushfire Response Team<br>• Emergency Communications Planner<br>• Road Safety Officer<br>• Emergency Response Project Managers | • Environmental Public Health Officer<br>• Environmental Protection Agency — Project Manager<br>• Environmental Public Health Policy Analyst<br>• Environmental Health Officer<br>• Climate Change Advocacy Officer |

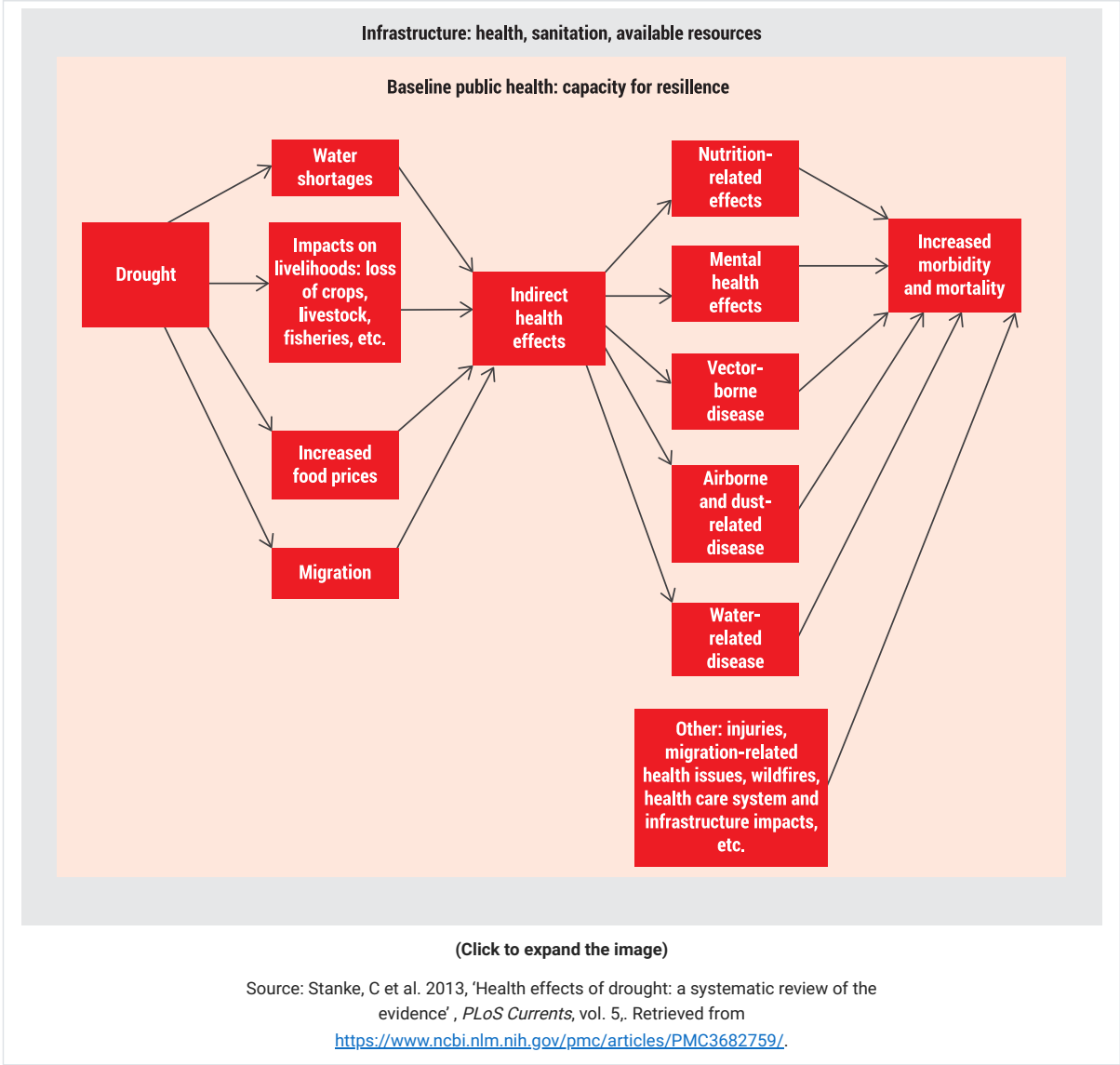## Case study: Health protection and drought

Globally, there has been increased pressure on all governments to consider the long-term health perspective and address environmental issues (including reducing greenhouse gas emissions) as well as respond to the immediate impacts of problems related to the environment. Recent climate change projections estimate that droughts will become more intense in the twenty-first century in some parts of the world. Currently, in Australia the effects of drought are evident in a wide range of regions, communities and populations. Stanke and colleagues (2013) noted the following major categories of public health impacts of drought:

1. Effects on nutrition — malnutrition
2. Waterborne diseases
3. Airborne and dust-related disease
4. Vector-borne disease

**5.** Mental health

**6.** Other (injury, cancer, nomads and migration, heatwaves and wildfires, damage to health services and infrastructure).

In this systematic review Stanke and colleagues (2013) provide a visual summary as shown in the the following figure.



**(Click to expand the image)**

Source: Stanke, C et al. 2013, 'Health effects of drought: a systematic review of the evidence' , *PLoS Currents*, vol. 5,. Retrieved from
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3682759/.

As you can see, there are many health-related impacts that require action to protect the community (from poor water quality to poor mental health due to drought). Like action on climate change itself, action on these other threats to human health require the careful development of a mandate, and political engagement via multiple pathways, to ultimately succeed (Guest et al. 2013).

Let's take the definition of health protection (reducing harm through direct action, legislation, regulation and other measures) and how this approach could be applied to drought and its associated health impacts. The following table shows a list of actions that can be taken within each domain of health protection to address drought.

Drought response measures

| Health protection domain | Public health impact of drought | Public health actions, interventions, strategies, programs and/or projects |
|---|---|---|
| **Communicable disease control** | Airborne and dust-related disease | Monitoring and management of air quality |
| | | Limiting movement of populations and people |
| | | Legislative and regulatory action to address climate change |

| Health protection domain | Public health impact of drought | Public health actions, interventions, strategies, programs and/or projects |
| --- | --- | --- |
| **Emergency preparedness, resilience and response (EPRR)** | Mental health | Mental health first aid for those impacted by drought |
| | | Preparedness and planning for drought |
| | | Mental health helplines for farmers impacted by drought |
| **Environmental public health** | Waterborne disease | Monitoring of water quality |
| | | Provision of safe drinking water and infrastructure |
| | | Legislative regulation of water supplies and to address climate change |

### Recommended reflection

Brainstorm further actions that can be taken under each domain of health protection and add these to the following Padlet

**Guidelines**

- Spend about 15 minutes on this activity.

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## 2023 PHE5PUH T2 Week 2, Topic 1: Health protection domain actions

Reflect: Brainstorm further actions that can be taken under each domain of health protection: Communicable disease control, Emergency preparedness, resilience and response (EPRR), Environmental public health

⋮

Communicable disease

Soraya Burrows
(she/they) 15d

Communicable disease control

Vector borne disease; increased mosquito population (stagnate pools); monitoring and management of mosquito population, population control via repellents and eradication, education for individual behavioural change to avoid being stung, removal of stagnant water, PPE/nets made available,

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## Required reading

The following readings will expand on and reinforce your understanding about health protection.

- Chapter 1: 'What is health protection?', in Ghebrehewet, S 2016, _Health protection: Principles and practice_, Oxford University Press, New York, pp 3-8.
- Chapter 2: 'Who is involved in health protection?', in Ghebrehewet, S 2016, _Health protection: Principles and practice_, Oxford University Press, New York, pp. 9-13.

After completing the readings for Week 2, Topic 1: Health protection, reflect on the roles and responsibilities of local, state and national government in communicable disease control, emergency preparedness, resilience and response, and environmental public health.

## Activity: Research

Now extend your knowledge of health protection by undertaking the following tasks.

**Task 1: Class Padlet**

Locate and share a public health intervention, program or strategy and illustrate how it aligns with the core public health service 'health protection' and the domains of health protection.

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### 2023 PHE5PUH T2 Week 2, Topic 1: Research

Locate and share a public health intervention, program or strategy and illustrate how it aligns with the core public health service 'health protection' and the domains of health protection.

Australian bat lyssavirus

Soraya Burrows (she/they) 15d
Australian bat lyssavirus

This is a rare but fatal infection that can be spread from infected bats to humans and other animals, through bites, scratches or the bat's saliva coming in contact with ones eyes, nose, mouth or any existing wound.

Symptoms can appear within days of exposure or the disease can be latent with symptoms appearing several

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**Task 2: Reflection**

_Employers have a duty of care to provide safe work and a safe workplace._

In your padlet, critically reflect on what this statement means to you. Provide examples of when and how this has been achieved. Also provide an example of when this has not been achieved.

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## 2023 PHE5PUH T2 Week 2, Topic 1: Reflection

Critically reflect on what this statement means to you. Provide examples of when and how this has been achieved. Also provide an example of when this has not been achieved.

⋮

Safe workplace – an

Soraya Burrows
(she/they) 15d

Safe workplace – an environment for work that meets OHS standards, ensuring physical, mental and emotional safety whilst employees carry out work. Safe work – different work activities carry different risks and differing levels of risk. The decline of unions/decreased bargaining ability and the rise of precarious work (subcontractor/gigs) makes for increasingly unsafe work places and practices, where

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