Preparing Australia

Designing an Australian Centre for Disease Control (CDC)

December 2022

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About Evohealth

The delivery of healthcare is complex.

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Public health in the spotlight

For many Australians, the COVID-19 pandemic has been their defining experience of public health in action. As we retreated to our homes to protect ourselves and each other from the rapidly spreading novel coronavirus, terms like 'social distancing', 'flattening the curve' and 'PCR test' entered mainstream vernacular. We watched with apprehension as borders closed, school and work transitioned to the home, trading stopped for non-essential businesses, and the country was plunged into a nationwide lockdown. Suddenly, something that had once been contained to the movies became our new reality (**1**).

The public health measures from the earliest days of the pandemic were, for most people, an unprecedented and daunting experience. However, for Australia's highly skilled public health workforce, these measures reflected the rapid mobilisation of a centuries-old infectious disease containment strategy:

These are techniques that have been applied in Australia since the early 1900s, albeit on a smaller scale, to manage communicable disease outbreaks ranging from smallpox and polio through to measles and pertussis (whooping cough) (**2**).

> We need to apply lessons from the COVID-19 pandemic to managing infectious diseases, now and into the future

COVID-19 has been a cogent reminder of the potential for communicable disease outbreaks to be severe, unpredictable, and highly transmissible, with devastating consequences for patients, families, and the healthcare system. As Australia makes its transition to 'living with COVID', it is now time to prepare for future outbreaks (**3**).

The Australian government is delivering on an election promise to prepare Australia. In November 2022, they released a consultation paper, 'Role and Functions of an Australian Centre for Disease Control (CDC).' We examined this paper alongside the history of public health management in Australia, and provide two additional design principles for consideration.

The past, present and future of communicable diseases

The nature and severity of communicable diseases in Australia varies greatly, from relatively mild, short-lived and treatable infections such as, a cold or stomach bug to serious and potentially fatal diseases such as tuberculosis, meningococcal and HIV/AIDS.

Over the last 100 years, Australia has made immense progress in reducing the incidence, prevalence and burden of communicable diseases. Improved population-level access to clean water, sanitation, medicines, vaccinations and disease surveillance programs have fuelled reductions in, and even eradication of, serious diseases such as polio, tetanus and smallpox **(4)**. It is testament to our strong public health record that communicable diseases contribute to less than two per cent of deaths nationally (**3**).

What are communicable diseases?

Communicable diseases are those that can spread from one person or animal to another via pathogens such as viruses, bacteria, fungi, or parasites. Transmission can occur from:

- Direct contact with an infected person (e.g., influenza, HIV and chlamydia
- Contact with contaminated food, water, or items (e.g., typhoid, salmonella and cholera)
- Bites from insect or animal vectors (e.g., malaria, dengue fever and Ross River virus
- Airborne transmission (e.g., tuberculosis, measles and COVID-19)

The work of public health is far from finished

We are right to be proud of the gains that Australia has made in communicable disease management – but we cannot be complacent. The work of public health is far from done. Communicable disease still account for approximately 447,000 hospitalisations and 6,300 deaths in Australia each year (more than half due to lower respiratory infections) – and the disease burden is set to rise with the enduring impact of COVID-19 (**3**).

Our public health experts work quietly behind the scenes to monitor, assess and act to address threats to public health. While COVID-19 has undoubtedly been the most visible example, there are other examples of disease outbreaks that have been contained or minimised because of swift investigative and response work of public health (Figure 1).

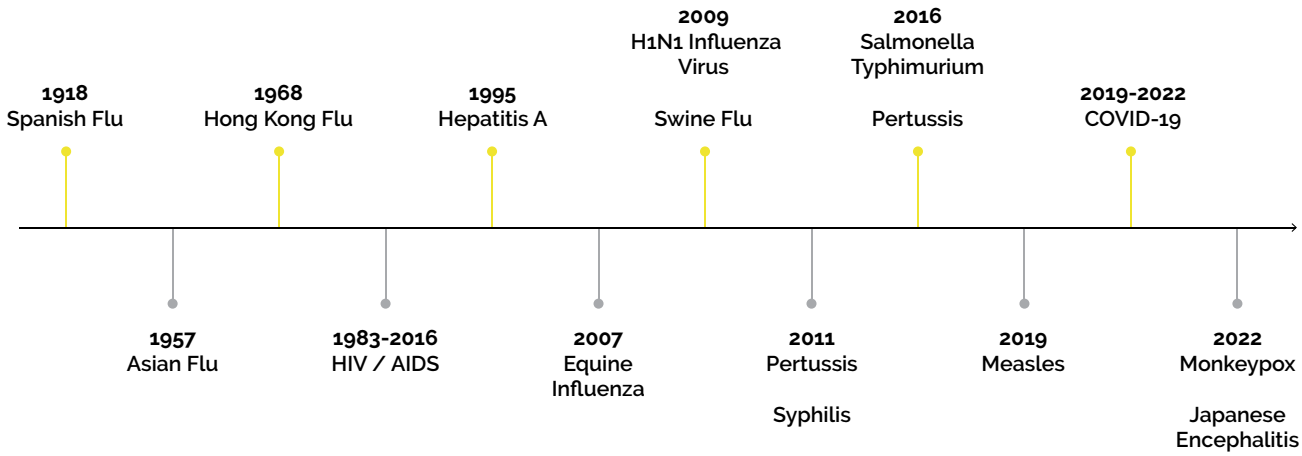


Figure 1. Before the COVID-19 pandemic, Australia had experienced numerous communicable disease outbreaks that were managed and contained.

> Public health works best when it's invisible.

Pushed to the limit

Throughout the COVID-19 pandemic, Australia's health system has been tested and pushed to its limit. In doing so, it has given rich insight into the key areas that will need to be enhanced to prepare for future outbreaks for any communicable disease (5).

Priority investment areas for future disease outbreaks

To respond successfully to any future disease outbreaks, Australia must continue to strengthen and invest in three key capabilities:

1. A strong and scalable public health capability

With more infectious disease outbreaks on the horizon, the centuries-old principles of 'Find, Test, Trace and Isolate' will be more important than ever – both to contain existing health threats and to prevent emerging outbreaks from reaching epidemic or pandemic proportions. The early detection of potential outbreaks and rapid, consistent analysis of epidemiological data (at both national and localised levels) is vital in defining and enacting public health responses at pace. This will be particularly important for responding to multiple diseases simultaneously and at scale, such as the dual burden of COVID-19 and influenza in future winter flu seasons (6).

COVID-19 demonstrated that serious consequences could arise from testing and contact tracing capabilities becoming overwhelmed. The pandemic has underscored the importance of long-term investment in disease preparedness that enables frontline clinicians, public health experts, scientists and policymakers to rapidly surge, scale and mobilise (**7**).

2. A national framework for cross-jurisdictional collaboration

Our federated healthcare system was tested by COVID-19. Communicable diseases do not respect State or Territory borders. While the Australian Government played an important role in setting the national strategic direction, State and Territory Governments ultimately had legislative responsibility for managing outbreaks within their jurisdictions. This resulted in a fragmented pandemic response with different case reporting, testing requirements and restrictions across States and Territories (**5**).

Going forward, the health system will increasingly need to prepare for a future in which outbreaks cannot be contained nor solely managed within jurisdictional boundaries (**4**). Similarly, there will likely be a growing need for cross-agency collaboration and decision making to manage the intersection between public health matters and biosecurity, national security, the economy (e.g., impacts to businesses) and education system (e.g., school closures).

3. Strengthened community engagement

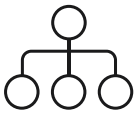
There will be a growing need to engage the community in public health solutions. Public health solutions are only effective when they are genuinely embraced and embedded by and within the community. Engaging the community in public health management is crucial to reduce inequalities, improve social justice, and share responsibility towards public health.

This is critical in a multicultural society such as Australia. Appropriately co-designed community engagement tools and messaging for our culturally and linguistically diverse (CALD) fellow citizens will save lives and help to stop the spread of communicable diseases during an outbreak.

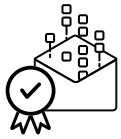
Our First Nation's people also need particular focus during times such as that of the COVID-19 pandemic. Focusing on engaging communities in metropolitan, regional and remote areas of Australia will facilitate active embracement of public health measure.

Observing the global lessons from the COVID-19 pandemic

The significant role that public health plays in the safety of all citizens at global, regional, and country levels, as highlighted by the COVID-19 pandemic, has led to many countries seeking to review immediate and future public health needs. Priorities under review include:



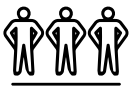
Governance: restructuring of Government health departments and regional surveillance programs to facilitate collaboration and communication between offices/agencies.



Standardisation of data collection and analytics: to promote data quality and best practice and facilitate timely access to consolidated data.

Embracing innovative data collection methods and techniques: to improve timely access to and communication of public health threats.

Accountability: clear articulation of responsibilities and accountabilities (including Key Performance Indicators) with reduction in red tape to delivering timely advice.



Workforce: increasing capacity and capability to meet future needs across the healthcare system, particularly in frontline roles and primary care.

Many countries are reviewing these priorities within their Centres for Disease Control (CDC) or equivalent organisations. Australia is the only member country of the Organization of Economic Cooperation and Development (OECD) that does not have a national organisation that facilitates and coordinates a response to communicable disease control and prevention. We are in the fortunate position, however, of being able to structure and establish a CDC that closely observes the lessons learned and key priorities of well-established organisations.

Australia is the only OECD nation that does not have a CDC

What progress is being made towards an Australian CDC?

In the 2022-23 Federal Budget, the Australian Government committed $3.2 million for preparatory work to establish an Australian CDC (**8**). This process has begun with the release of the consultation paper (**3**).

Who is supporting the case for a national CDC?

Across the health sector, there are numerous influential health and medical associations that support the establishment of an Australian CDC. This includes, but is not limited to:

- Australasian College of Infection Prevention and Control
- Australasian Society for Infection Diseases
- Australian Healthcare and Hospitals Association
- Australian Medical Association
- Australian Nursing and Midwifery Federation + Australian Nursing and Midwifery Federation
- Australian Society for Antimicrobials
- Public Health Association of Australia

Australian health sector support for a national CDC (**9**-**13**)

What might a national CDC look like?

An Australian CDC, ideally led by one of the country's foremost medical experts, would prepare us for the next pandemic. This organisation including skilled public health physicians, research scientists, data scientists, epidemiologists, and public health experts, could be tasked with national scientific leadership in managing communicable diseases.

As a technical function, the Australian CDC would be independent from Government. Undertaking disease surveillance, reporting and analysis on behalf of (or in partnership with) State & Territory Governments, would provide an evidence-based and politically independent voice for best practice in communicable disease management. It could also play a much-needed role in health promotion and prevention activities targeted at non-communicable (chronic) diseases.

Shaping a model for Australia

The Public Health Association of Australia are seeking to bring the design of an Australian CDC to life through their collaborative series **CDC Corner**. However, the election commitment made in 2022 was that a CDC will:

- "Ensure ongoing pandemic preparedness;
- Lead the Federal response to future infectious disease outbreaks; and
- Work to prevent non-communicable (chronic) as well as communicable (infectious) diseases." (**8**)

The model for a CDC would need to build on the National Framework for Communicable Disease Control (2014), which aims to facilitate collaboration and coordination of public health functions across all levels of Government (**4**).

Australia is managing public health and promotion well, albeit in silos. The Australian CDC would bring together the various elements of health protection and promotion into one organisation: an organisation that is led by the Federal Government and seamlessly integrates with State and Territory health systems and services. Figure 2 provides a visual description of what the Australian CDC might look like. This model is driven by virtual central governance to facilitate a distributed workforce, it brings together the core functions of public health and promotion (inner circle) and is enabled by several factors that will drive partnership and collaboration (outer circle) to optimise human, animal, and environmental health.

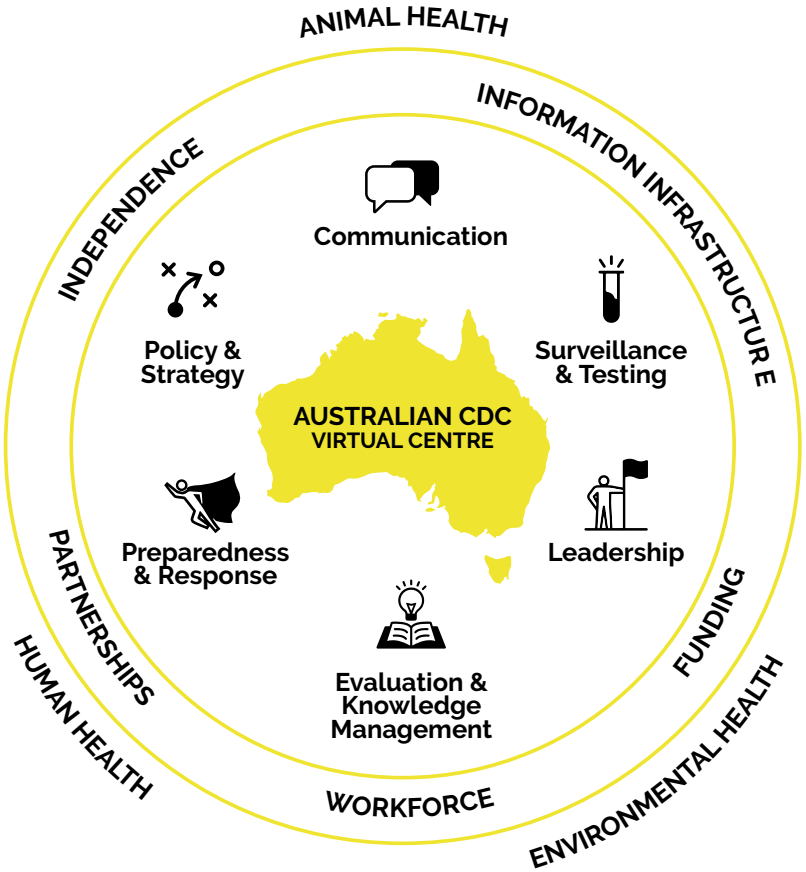


Figure 2. A concept for an Australian CDC.

Towards a nationally unified approach to disease outbreaks

An Australian CDC would reduce fragmentation and strengthen governance for managing current and emerging communicable diseases. Communicable disease management currently falls within the remit of many organisations including the Federal Department of Health, State and Territory health departments and key advisory groups including the Australian Health Protection Principal Committee (AHPPC) and Communicable Diseases Network Australia (CDNA) (**8**, **14**).

One of the complicating factors in Australia's pandemic response, particularly early on, was the lack of coordination, leadership, authority, autonomy, and influence afforded to the most senior public health experts across the country. While we have well established organisations and committees equipped to handle such events, they had little power or influence to drive decision making at the speed which the COVID-19 outbreak demanded. It was unclear who was responsible for what, who was advising who and this created a sort of false start to our pandemic response that could have easily been avoided (**8**, **14**).

Table 1 Organisational overview of CDC models.

Of course, a CDC would not be a silver bullet. There would be significant complexities associated with establishing an agency to take on functions of both State & Territory and Federal Governments. Legislative change would be required, as would careful management of funding arrangements and operational changes to bring together different personnel and functions from multiple agencies and levels of government. However, in taking a long-term view of communicable disease threats, these challenges should not prevent us from asking difficult questions and exploring innovative solutions to improve our readiness for future outbreaks.

What are the benefits of a CDC?

Proponents of an Australian CDC have further emphasised the suite of benefits that would be gained from a standing focus on communicable disease management and outbreak preparedness, including:

Planning	Services	Response	Funding	Consistency
Improved planning and coordination for future disease outbreaks.	Improved delivery of public health services leading to reduced social and economic impacts of disease outbreaks.	Increased capacity for a quick and coordinated response to public health emergency.	A smoother funding and resourcing cycle leading to more efficient use of funds and potential cost saving for Government.	Consistency of delivery of public health services including monitoring and surveillance, prevention and outbreak management.
Knowledge	**Leadership**	**Policy**	**Workforce**	**Review**
Local and international knowledge sharing to increase the evidence base and strengthen public health services in Australia.	Established leadership and appropriate governance of public health management.	Development and implementation of public health policy aligned with Australia's public health priorities and the needs of the community.	A coordinated public health workforce and a defined career path for public health professionals.	Improved After Action Review and embedding lessons learned from previous disease outbreaks.

International models of CDC

Australia needs a CDC, an independent agency that would take a lead role in surveillance, screening and management of infectious diseases (13).

The United States Centers for Disease Control and Prevention is arguably the best-known example of a CDC, with a remit as a science-based and data-driven service organisation that protects the public's health (15). However, there are numerous other models of CDCs globally that could serve as a model for Australia - many of which are decentralised and would better cater to our federated healthcare system (1). These are considered below.

Table 1 organisational overview of CDC models.

Organisation	Scope	Organisational summary	Would it work in Australia?
United States Centers for Disease Control and Prevention	**BROAD** • infectious diseases • food-borne diseases • environmental health • injury prevention • health promotion	Federal portfolio. Governance is provided by a Director, Deputy Director, Chief Medical Officer and Director of Intergovernmental and Strategic Affairs (16). Five offices sit under the portfolio: 1. National institute for occupational safety and health 2. Public health service and implementation science 3. Public health science and surveillance 4. Non-infectious diseases 5. Infectious diseases	✓ Broad remit ✓ Federal governance ✗ Limited structured integration with States and Territories
European Centre for Disease Prevention and Control	**NARROW** • infectious diseases	Represents all European Union (EU) member states with partners in the European Economic Area and several non-EU countries (17). It works closely with the European Commission and the World Health Organisation Regional Office for Europe. The Director's office includes the following sections (18): 1. Corporate affairs – planning, official communications, and secretariat 2. Executive office – supports organisational implementation of strategies 3. European and international cooperation – strategic relationships with partners and agencies of the EU 4. Communication – Internal and external communications	✓ Formal integration and data exchange with members

Organisation	Scope	Organisational summary	Would it work in Australia?
United Kingdom Health Security Agency	**NARROW** • infectious diseases • chemical, biological, and nuclear incidents	In 2021, Public Health England was replaced by (**1**) the UK Health Security Agency (UKHSA) and (**2**) the Office for Health Improvement and Disparities (OHID). The Secretary of State for Health and Social Care governs the UKHSA and reports to Parliament (**19**). It has been designated as a central government organisation. OHID is also governed by the Department of Health and Social Care (**20**). This Office focuses on preventing ill health, decreasing premature mortality, and addressing health disparities.	✗ Narrow remit ✗ Multi-agency structure ✓ Ministerial oversight ✓ Federal governance
Public Health Agency of Canada (PHAC)	**BROAD** • prevention of disease and injury • public health threat response • health promotion (both physical and mental) • providing health information	A Federal agency under the Health Portfolio. There are ten branches which sit under the Agency including: 1. Infectious Diseases Prevention Programs (public health surveillance) 2. Health Security and Regional Operations (emergency preparedness and response) 3. Health Promotion and Chronic Disease Prevention Governance is provided by ministers for health and mental health, a chief public health officer and senior representatives from the Agency. The PHAC provides leadership and governance at a federal level (**21**). There are 13 provinces, each of which manages several regional health authorities which are responsible for delivering public health services at a local level. There are multiple surveillance programs based on either causative pathogen, disease, or health service utilisation. Established in 2005, there are six National Collaborating Centres (NCCs) for Public Health to provide advice through research translation to the public health agencies on: 1. Indigenous health 2. Determinants of health 3. Health public policy 4. Environmental health 5. Infectious diseases and 6. Methods and tools NCCs sit under and serve the Agency.	✓ Broad remit ✓ Ministerial oversight ✓ Federal governance ✓ Formal integration with State and Territory health systems and public health services ✓ Formal integration and data exchange with provinces

Preparing Australia

Following the 2022-23 Budget, the Australian Government has committed to preparing Australia through the next pandemic through the establishment of a CDC. It is now time to focus on developing the best model based on the learnings of the pandemic both here and globally.

An Australian CDC would provide leadership, consistency, and structure to essential health functions, as well as clarity around roles and responsibilities across various agencies and State, Territory, and Federal authorities. This organisation would elevate a public health service that has been missing in recent years. It would, as all good public health services do, work in the background to ensure the safety and protection of the Australian community and be well prepared to scale up and swiftly respond to any public health emergency.

The consultation paper proposes seven CDC Design Principles. These principles allow for the development of a national source of truth, as well as access to data to enable effective decision making. However, the proposed design falls short of providing a mandate to coordinate a public health response. In fact, the paper suggests that a CDC "…would not replace or undermine the existing responsibilities or public health in the states or territories." (**22**)

Before the lessons of the pandemic are scrubbed from the collective national memory, we must accept that the fragmented and variable response across jurisdictions led to chaos and confusion. As proposed, the Australian CDC would do little to address these core issues. To that end, we provide two additional principles to the seven proposed, Australia's CDC must:

1. Be independent of Government and enabled under legislation.
2. Hold emergency powers enshrined in legislation, that can be activated during extraordinary circumstances, such as a global pandemic.

Australia is ready for a CDC. A CDC that takes the lessons of the pandemic, leverages the experience of other countries, and prepares for a better future when the unthinkable happens again.

We have spent the best part of the last three years isolated from family and friends. Appropriate preparedness for future outbreaks is essential to ensure that the social and mental wellbeing impact of any future event is minimised. An Australian CDC, with appropriate expertise and mandated power, is how we can ensure that Australians stay safe and connected for many years to come.

Evohealth is a specialist healthcare advisory firm, focused on delivering better health for patients. We partner with Government, private sector, not-for-profits and representative bodies to support delivery of innovative care, based on evidence. Our specialist team is made up of clinicians, health economists, health policy experts, researchers, evaluators and facilitators – all with tertiary qualifications in health and experience working in the health sector.

Abbreviations

Organisation	Remit
AHPPC	Australian Health Protection Principal Committee
CALD	Culturally and linguistically diverse
CDC	Centre for disease control
CDNA	Communicable Diseases Network Australia
EU	European Union
HIV	Human Immunodefiency Virus
NCCs	National Collaborating Centres
OECD	Organization of Economic Cooperation and Development
OHID	Office for Health Improvement and Disparities
PHAC	Public Health Agency of Canada
UK	United Kingdom
UKHSA	United Kingdom Health Security Agency

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