## Commonwealth COVID Inquiry- D Parris Submission

I was excited to see Australia announce the creation of a Centre for Disease Control, this seems like the next logical step in the wake of COVID-19. I'm also glad that Australia has commissioned this Inquiry, including to inform the priorities of the new CDC.

In this submission I argue that prioritising pandemic prevention is key to strengthening our resilience and preparedness as we move towards a world where pandemics, and particularly bad pandemics, are particularly likely.

It is often said that "prevention is better than a cure." Pike et al in "The Origin and Prevention of Pandemics" show that the [redacted]

As such, understanding the origins of pandemics is central to effective prevention. While historical data points to zoonoses as the primary cause, recent studies, such as Gopal et al.'s "Securing Civilisation Against Catastrophic Pandemics," highlight the evolving landscape, where lab leaks and engineered pathogens pose substantial threats. In particular, the emergence of "dual-use" risks from artificial intelligence (AI) and biotechnology is a contemporary challenge that demands attention. Recent hearings in the US Senate Judiciary Subcommittee underscore the rapid pace of AI development and its potential to empower malicious actors in bioweapons production.

President Biden's executive order in response to these risks sets a precedent for proactive governance. It mandates the development of frameworks for screening synthetic DNA and imposes requirements on AI labs to mitigate "dual-use risks." I think Australia should consider adopting a similar approach.

Expanding the scope of preventative health measures to address AI-related risks aligns with historical public health innovations. The parallels with issues like clean water and infectious diseases addressed by heros like Florence Nightingale, underscore the importance of tackling the challenges of our time, such as AI and synthetic biology.

Mitigating risks in intensive animal agriculture is another crucial facet of pandemic prevention. To reduce the risk of pandemics from our food system Australia should investigate the suitability of such interventions:

- Implementing straightforward and economical measures, such as proper fencing, vaccination, or zoning, which could substantially decrease the risk of viruses from wild animals spreading to livestock and, subsequently, to humans. This is discussed in detail by Gortazar et al (2015) The wild side of disease control at the wildlife-livestock-human interface: a review. Front. Vet. Sci. 1:27. doi: 10.3389/fvets.2014.00027
- Improving inadequately designed ventilation systems in intensive farming which may release substances, including pathogens, into the environment, heightening their transmission from livestock to both wild and domestic animals. This is discussed in detail by Jones, et al (2013).

Zoonosis emergence linked to agricultural intensification and environmental change. Proceedings of the National Academy of Sciences, 110(21), 8399-8404. https://doi.org/10.1073/pnas.1208059110

- Increasing the awareness of zoonotic spillover in producers and vets working with livestock. An assessment of Irish farmers found that more than half thought it was impossible to get an infection from sick poultry and over 90% thought it was impossible to get an infection from a healthy-looking animal. Producers and vets are at the front line of zoonotic spillover in the same way that healthcare providers are at the front line of infectious disease. As the "eyes on the ground", their awareness of zoonotic risks, and the actions they take. You can read the original research in Mahon et al , (2017). An assessment of Irish farmers' knowledge of the risk of spread of infection from animals to humans and their transmission prevention practices. Epidemiology & Infection, 145(12), 2424-2435. doi:10.1017/S0950268817001418
- As in the COVID-19 pandemic, Australia could consider pioneering rapid antigen tests or other rapid diagnostics to allow producers to check their livestock routinely and monitor themselves for such illnesses. Agriculture Victoria has recently developed rapid tests for the grape industry. While this is a good step, it's another example of Australia's "biosecurity approaches" having practical measures to help the agricultural industry, but not having practical measures to prevent pandemics or otherwise take a true one health approach.
- Other peer-reviewed literature also mentions interventions that fall into 5 categories: stop clearing and degradation of tropical and subtropical forests, improve health and economic security of communities living in emerging infectious disease hotspots, enhance biosecurity in animal husbandry, shut down or strictly regulate wildlife markets and trade, and expand pathogen surveillance at interfaces between humans, domestic animals, and wildlife. The inquiry can read about these in more detail at Vora, et al (2023). Interventions to Reduce Risk for Pathogen Spillover and Early Disease Spread to Prevent Outbreaks, Epidemics, and Pandemics. Emerging infectious diseases, 29(3), 1–9. https://doi.org/10.3201/eid2903.221079

In conclusion, pandemics are a pressing global concern, and their prevention should be a top priority for the CDC. I think we should have a strong and preemptive approach, addressing both traditional risks like zoonoses and emerging threats such as AI-related risks. The inquiry's recommendations should reflect an understanding of the multifaceted nature of pandemic risks to ensure Australia's preparedness for the future.

**Citations**


Emerging human infectious diseases and the links to global food production
New portable genetic test for phylloxera | Media releases | Media centre | About | Agriculture Victoria
Recent Senate Hearing Discussing AI X-Risk | Medium
AI suggested 40,000 new possible chemical weapons in just six hours - The Verge
Dual use of artificial-intelligence-powered drug discovery | Nature Machine Intelligence
The Origin and Prevention of Pandemics - PMC (nih.gov)