COVID-19 Response Inquiry Submission

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Thank you for the opportunity to make a submission and share my views and experiences about the Government's COVID-19 response. My key message is the overriding importance of efforts to prevent future pandemics. Perhaps more than any other kind of catastrophic risk, it's within our power to prevent novel pathogens from emerging and to quickly identify, contain and eliminate them if they do. Given the enormity of human and economic costs of pandemics – and that pandemics much worse than COVID-19 are possible – prevention should be our primary goal.

I think preventing pathogens from emerging and controlling them if they do should be top priorities for the new Australian Centre for Disease Control. Bernstein et al make the economic case for this in their paper "The costs and benefits of primary prevention of zoonotic pandemics". They show that, even on pessimistic assumptions and without considering the potential impact of promising emerging technologies, significant investment in pandemic prevention is overwhelmingly justified.

My submission focuses on a small number of key issues related to Terms of Reference 2 and 5 but my overall view is that pandemic prevention should be a key priority of the CDC and that our institutions and leaders should not simply concede that pandemics are inevitable.

Indoor air quality could make a big difference

The vast majority of Australians can access clean, safe, and pathogen-free drinking water. Further to Terms of Reference 2, I want to see Australians have comparable access to clean, safe and pathogen-free air. This would be helpful for the ongoing COVID pandemic and for any future pandemic – while also providing co-benefits for individual health and the national economy.

Cholera, a water-borne bacterial disease, caused more than 127,000 deaths in Great Britain in the mid-1800s. Radical improvements in sanitising drinking water as a public health measure have effectively ended waterborne disease in industrialised countries.

The reduction of airborne diseases through clean indoor air is yet to receive the same systematic attention, despite the health and economic burden this class of disease places on Australia. Every winter, seasonal influenza-like illness (ILI) burdens the Australian healthcare system as Australians present with symptoms such as fever, cough, sore throat, and fatigue. In 2022, there were 9,440 reported COVID-19 and 308 influenza-associated deaths. It is my hope that improving indoor air quality (IAQ) can reduce the transmission of airborne pathogens, thus reducing the occurrence of ILI and its associated death toll. Reduced infection rates will also result in an increase in the productivity of Australia's workforce through reducing the number of days that Australians take sick-leave to care for themselves and their loved ones. This will also reduce the burden on Australia's healthcare system, specifically on GPs and hospitals who would otherwise have to treat patients with ILI.

Despite the obvious benefits, I worry that clean indoor air suffers from a "tragedy of the commons" as it is a public good that requires widespread adoption to yield substantial benefits. Just like clean drinking water, coordinated action is required. As such, I believe this Inquiry is well placed to recommend that Australian governments do more to encourage and accelerate the improvement of indoor air quality. Higher-risk indoor environments – such as education facilities, aged care facilities, healthcare facilities and hospitals, food service, public assembly spaces, shopping centres, offices and places of worship – can be incentivised and supported to improve their indoor air quality through building standards, rebates, tax deductions, or other financial mechanisms. This would allow Australians to enjoy the benefits of these facilities and services with a significantly lower risk of exposing themselves to pathogens.

Unlike disease-specific vaccinations, delivering safe air is pathogen agnostic and can reduce the speed at which future novel pathogens infect communities. Kleinwaks et al's report "Air Safety to Combat Global Catastrophic Biorisk" provides modelling for a scenario involving another pandemic of R0 = 3, similar to the first wave of the COVID-19 pandemic in a city of 2 million people. Without any behaviour changes or IAQ improvements, there would be 365,000 infections after 3 weeks. With indoor air quality interventions reducing respiratory disease infections by just 30% to an R0 of 2.1, after 3 weeks there would only be 9,797 infections. This modelling shows that even modest reductions can flatten curves and buy time for medical countermeasures and healthcare systems. As such, IAQ interventions could shorten lockdowns, lower the likelihood of quarantine leaks and perhaps be able to contain and eliminate a novel pathogen before a pandemic begins. IAQ interventions also don't require behaviour change – like mask wearing – which can be challenging to achieve.

I think the inquiry should recommend that Australia pursue policies to make indoor air as free from pathogens as drinking water. With simple practices like ventilation, existing filtration technologies, and emerging pathogen inactivation technologies, like far-UVC, this goal is within reach.

In a worse pandemic, next-generation PPE may be essential to keep critical infrastructure functioning

In the context of Terms of Reference 5, support for industry, including in the context of labour shortages, I recommend that the Inquiry consider the paper by Gopal et al from the Geneva Centre for Security Policy titled "Securing Civilisation Against Catastrophic Pandemics".

The paper begins by unpacking ways that pandemic risk is increasing – in particular the possibility of engineered pandemics. The paper also makes a useful distinction between "stealth" and "wildfire" pandemics, which has deep implications for our policy response.

Importantly, the paper goes on to explain that in a pandemic worse than COVID-19, workers who operate critical infrastructure may die or refuse to attend the workplace. If that happens, a modern interconnected society would rapidly collapse. The second-order consequences from a

lack of electricity causing cascading failures in other critical sectors would far exceed the immediate consequences of the virus.

When the Inquiry thinks about support for industry, the primary goal of that support should be keeping the lights on during a future, worse, pandemic. If critical infrastructure fails, other questions like financial support or community support rapidly become irrelevant or impossible.

Among the various recommendations, Gopal et al argue that "pandemic-proof personal protective equipment" (P4E) is essential to dealing with the risk of failing critical infrastructure. The argument for P4E is that essential workers (such as those critical to providing food, water, power and law enforcement) need the confidence that they can continue to work without endangering themselves and their loved ones. The paper provides requirements for what this kind of equipment would need to look like. The paper also includes discussions about definitions of essential workers, ways of preparing the workforce and supply chain, and a discussion of social and technological approaches to slowing the spread of future pandemics.

I recommend that the inquiry read Securing Civilisation Against Catastrophic Pandemics and treat it as a foundation for other recommendations. That is, our first priority has to be actions that take these worst-case scenarios off the table. Action against other elements of the terms of reference are only possible and impactful if we can be confident that we're in a position to prevent a social collapse.

Closing

The notable public health challenges of history have been solved by innovative people bringing new ideas and perspectives to the challenge of health. As the scope of public health has grown, so has its ability to improve longevity and quality of life.

The terms of reference of this inquiry are fundamentally about doing better in the future. Given how terrible future pandemics could be – the best thing the Inquiry could do for the future is to prioritise pandemic prevention, including the novel ways pandemics could occur in the future. While that will require uncomfortable thinking about unexpected topics and emerging technologies, these are the issues that could have the biggest impact towards securing a healthier future.

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References

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