

Covid-19 Inquiry

I appreciate this opportunity to raise my views and experiences about the Government's COVID-19 response. I, like many other Australians, were heavily affected by the recent pandemic. Overall, the uncertainty of the future was a huge concern for me and I hope no such experience will need to be had again for myself and generations to come.

Whilst all measures of reducing the impact of pandemics are important, I think the key is to focus on prevention first. The inquiry should focus on prevention so we reduce the chances of a future pandemic outbreak to occur in the first place. More than any other global catastrophic risk, we are able to prevent novel pathogens from emerging and to identify and eliminate them if they do. Given the huge human and economic costs of pandemics – and that pandemics worse than COVID-19 are possible – prevention should be our top priority.

The paper “The costs and benefits of primary prevention of zoonotic pandemics” (Bertstein 2022) makes the economic case for a focus on pandemic prevention. The paper shows that – even on pessimistic assumptions and without considering the potential impact of emerging technologies – significant investment in pandemic prevention is overwhelmingly justified.

In light of that analysis, the new Australian Centre for Disease Control should focus on efforts to prevent novel pathogens from emerging and being able to control them if they do.

My submission goes primarily to ‘preventive health measures’ in terms of reference 3.

Argument 1: We need to reduce the risks of engineered pandemics and its acceleration by advanced AI

Nature can produce pathogens that are extremely infectious like measles, with an estimated R0 of 15-20. Nature can also produce pathogens that are extremely fatal like rabies, which has an almost 100% death rate. However, nature is not known to produce pathogens that have both high transmissibility and high mortality.

Humans, driven by various motivations, could be on the verge of creating pathogens with both these features – risking pandemics much worse than COVID-19. The convergence of open science leading to the publication of dangerous knowledge, democratisation of synthetic biology, and AI-assisted research might mean that a small group of nefarious actors could cause catastrophic harm.

The Unabomber, [REDACTED] and the [REDACTED] cult both engaged in terrorism motivated by bringing the end of civilisation. If active in the year 2023, it is conceivable that COVID-19 would have inspired them to seek to engineer a pandemic pathogen. An [REDACTED] member had a virology PhD and obtained the pathogen *B. anthracis* which produces the toxin anthrax in an attempt to make it more lethal. Similarly, the Unabomber was a

mathematics prodigy and professor, who had the capacity to leverage emerging technologies to further his goals.

Preventing the next pandemic requires making sure that highly skilled bad actors never have the capability to engineer a novel pathogen. However, a variety of trends are making this a realistic possibility. Open science norms – while typically essential to modern science – sometimes allow the publication of dangerous material. While the scientists who published the genomic sequences of the smallpox virus perhaps didn't foresee a future where the synthesised DNA was readily available, that information cannot be “unpublished”. I recommend that the inquiry read “Information Hazards in Biotechnology” (2018) by ████████ et al for a deeper understanding of this risk and more examples, including Mousepox and Botulinum toxin H.

Similarly, AI models are on the cusp of being able to provide substantial assistance to people doing research and filling tacit knowledge gaps. Again, if action is not taken and models with these capabilities become widely available, we may not be able to “unpublish” them.

Overall, I think the Inquiry should task the new CDC with responsibility for tracking the risk that a bad actor could create a pathogen with pandemic potential, and ensuring that safeguards remain one step ahead of that risk.

Argument 2: We should reconsider laboratory safety

██████████ et al in “Securing Civilisation Against Catastrophic Pandemics” use a range of tools to estimate the likelihood of different future pandemic scenarios. In their estimates of ‘worst case’ pandemics, they conclude that dangerous pathogens leaking from labs are currently the most likely cause. This isn't surprising, given that the original SARS virus escaped from labs on at least 3 occasions in the early 2000s and the 1977 flu pandemic was caused by a lab leak. This issue addresses many of the Inquiry's terms of reference, including the role of the Commonwealth as a regulator in this space.

One of the factors ████████ et al consider in estimating the likelihood of a pandemic emerging from a lab leak is the annual accidental infection rates of laboratories. Using data from a report by the Center for Arms Control and Nonproliferation, labs registered with the Federal Select Agent Program have accidental infections at a rate of 0.246% per laboratory per year and NIH-funded BSL-3 and BSL-4 laboratories have accidental infections at a rate of 1.6% per laboratory per year. While both of these figures seem alarmingly high ████████ et al argue that the fact that the more tightly regulated Select Agent laboratories exhibited a 6.5-fold lower accidental infection rate strongly suggests that tighter regulations and more regular inspections improve safety. In Australia, we seemingly have remarkably lax regulations of our equivalent labs. The regulator last updated the guidelines for PC4 facilities in 2007, and the annual reports show that it has only conducted a single inspection of one PC4 facility in the last 3 reporting years.

One of the key lessons of COVID is that public confidence in expert advice is essential. On that basis, I would ask that the Inquiry recommend Australia have an independent review of its PC3 and PC4 facilities. The review should consider the overall risk to public health from research facilities, the suitability of current Australian regulations, the extent of compliance with existing regulations and the suitability of current oversight regimes. In light of any findings, the review should also consider whether efforts are necessary to build public trust and/or ensure that Australia has international capacity building to ensure Australians aren't at risk from poorly run labs overseas.

Citations:

L. Klotz, "The Risk of Lab-created Potential Pandemic Influenza", Center for Arms Control and Nonproliferation, 2019. See Securing Civilisation Against Catastrophic Pandemics pg 32

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.

Thank you for taking the time to read this submission.

