Dear Panel,

Thank you for the opportunity to make a submission and raise my views and experiences about the Government's COVID-19 response. I feel strongly that the Australian government should do what it can to reduce the chances of another pandemic from happening in the coming years. I am the Head of the Effective Altruism Community in Sydney and I have had many members of our community express concerns about government currently not doing enough to make sure we never have to go into lockdown again. It was an extremely difficult time for many and disproportionatly affected those already worse off. The hidden costs were enormous. Before my time with Effective Altruism I worked in the corporate sector for ten years, most recently at PepsiCo Australia in Commercial Strategy. I also have an honours degree in Economics and Philosophy.

I hope that the inquiry focuses on pandemic prevention. 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.

The Inquiry's terms of reference include preventative health measures. The best preventative health measure is likely to be preventing pandemics from occurring. To do this most effectively, we need to have a good understanding of how pandemics might begin.

Historically, zoonoses have been the leading cause of pandemics. This is a significant risk that government policy should address. Looking forward, Gopal et al in "Securing Civilisation Against Catastrophic Pandemics" use a range of tools to estimate the likelihood of different future pandemic scenarios. Their estimates show that dangerous pathogens leaking from labs have likely surpassed zoonoses as the key risk. Even more worryingly, they argue that maliciously engineered pandemics could become the overriding risk unless action is taken.

The reason engineered pandemics have become a critical public health concern is rapid progress in biotechnology and the rise of "dual-use" AI products.

"Dual-use risks" refers to the risks generated by AIs intended to perform useful tasks if used by malicious actors. Specifically, biotechnology applications using artificial intelligence have capabilities that could amplify the ability of terrorists to harm Australians.

The US is taking dual-use risks seriously. On 25 July 2023, the US Senate Judiciary Subcommittee on Privacy, Technology and the Law took evidence about the potential risks of AI from [redacted] (CEO of Anthropic), [redacted] (Turing Award winner and the second-most cited AI researcher in the world), and [redacted] Professor of Computer Science at Berkeley).

Committee Chair, Senator [redacted] began the hearing by highlighting these "dual-use" risks:

The future is not science fiction or fantasy — it's not even the future, it's here and now. And a number of you [redacted] *have put the timeline at 2 years before we see some of the most severe biological dangers. It may be shorter because the pace of development is not only stunningly fast, it is also accelerating at a stunning pace.*

The hearings painted a concerning picture where frontier models will soon have the ability to combine with advances in biotechnology to supercharge the ability of malicious actors to do harm. [redacted] CEO of Anthropic, agreed with these concerns and called on Government to take action:

[redacted]

In response to these hearings, on 30 October 2023, President Biden made an executive order that does two main things. First, it put a timeline on US agencies to develop a framework to ensure the proper screening of synthetic DNA. With or without the additional risks of AI, synthetic DNA is likely the essential input that any malicious or negligent actor would need to engineer a pandemic. Second, it put a range of requirements on AI labs designed to ensure future AI models don't have these "dual-use risks" that could contribute to a future pandemic.

While I appreciate that this issue may feel outside the scope of a preventative public health measure – the same was said of clean drinking water, the work of Florence Nightingale or many other advances in public health that came from leaders realising that a vast range of social and technological factors feed into public health. Indeed, the history of innovation in public health is a history of tackling cutting-edge problems that others neglected. AI and synthetic biology are today's versions of those historic problems.

Public commentary has focused on the possible origins of COVID-19, including whether it was a "lab leak". Regardless of the specifics of COVID-19 specifically, I've been shocked to learn about the high rate of safety incidents at labs handling dangerous pathogens. A publication from [redacted] found that from 1975-2016 there were 71 reported high-risk human-caused pathogen exposure events – as well as evidence of underreporting. An anonymous survey on biosecurity and accidents in Belgium reported almost 100 laboratory-acquired infections in a 5 year study period. A lab leak also likely began the 1977 flu pandemic.

Given pandemics can cost millions of lives and trillions of dollars, it seems clear that safety standards (or adherence to standards) fall far short of what is appropriate. While I'm firmly in favour of science, and think that science is a force for good in fighting pandemics, it has to be done responsibly.

As an outsider, there is little transparency about how physical containment facilities in Australia are regulated. The Office of the Gene Technology Regulator seems to focus mostly on GMOs and provides little information about its functions regarding physical containment facilities.

To the extent that information is available, OGTR's 2022-23 annual report is proud that it certified a record 132 physical containment facilities last year, meaning that there are now 1,874 "high-level" facilities

operating in Australia. It also reports that it only conducted 49 inspections in the same period, including no inspections of the highest-level PC4 facilities.

Reviewing older reports, no PC4 facilities were inspected in 2021-22 either, and only 1 inspection occurred in 2020-21. Despite only conducting 49 inspections in 2022-23, 26 certified physical containment facilities were found to be non-compliant. In this context, the report noted that OGTR takes a "cooperative approach" to compliance and that no culpability was found in any of these cases.

In addition to seeming shortcomings in oversight, the guidelines themselves are troubling. The rules for PC4 facilities were last updated in 2007 and reference standards like AS1324.1 on air filters and AS/NZS 2243.3 on lab safety, which don't appear to have been updated since 2001 and 2002 respectively. AS1324.1 specifically has been criticised by the HVAC industry for being based on inaccurate research from the 1950s and has now been superseded by ISO 16890.

While this is a grim picture on multiple fronts, it's not necessarily a criticism of OGTR. OGTR only has 51 employees and has wide-ranging regulatory functions apart from these topics.

Overall, this snapshot paints a grim picture of the state of regulation in Australia, and one that I think falls far short of public expectations about how seriously these issues would be taken. Before reading into this, I would have guessed that PC4 facilities comply with cutting-edge global standards that account for emerging technology, and would each be inspected several times per year.

I think that this Inquiry should recommend a thorough review of biosafety – including the suitability of requirements, degree of adherence, and adequacy of oversight – for all research that involves human or animal pathogens. The review should include a risk assessment that takes into account the potentially catastrophic global consequences of errors, and ensures that our approach to mitigation is proportionate to that risk.

Since ancient times, the scope of public health has been increasing. Contemporaries would have thought that lenses in microscopes, the design of sewers, citrus on ships or a hundred other things had little to do with public health. However, expanding the scope of public health to include emerging issues and new technologies has directly led to substantially better outcomes.

This inquiry is a chance to put new and emerging topics at the forefront of how we think about pandemics. Whether it's harnessing the benefits of metagenomic sequencing or addressing the risks of AI – I think it's essential that this Inquiry look to the risks and opportunities of the future.

Kind regards,
Manisha