Dear Panel Members,

I appreciate the opportunity to share my insights with you. As someone who has dedicated my professional life to saving and improving lives, the widespread harm caused by pandemics, such as COVID-19, deeply concerns me. This inquiry presents a crucial chance to enhance our readiness for future health crises, and my submission is therefore primarily related to “preventive health measures” in terms of reference 3.

The immense human and economic toll of pandemics like COVID-19 underscores the need for robust prevention strategies. We must prioritise measures that preempt the emergence of novel pathogens and ensure swift, effective responses when they do appear. The research, such as the findings in "The costs and benefits of primary prevention of zoonotic pandemics" by Bertstein (2022), compellingly argues for substantial investment in pandemic prevention. This investment remains not only a moral imperative but an economically prudent decision, even in the most conservative estimates.

In light of this, I urge the new Australian Centre for Disease Control to focus its efforts on preventing the emergence of novel pathogens, in particular ensuring to account for the possible risks from engineered pandemics and lab leaks.

Engineered Pandemics

As we delve into pandemic preparedness, it's imperative to confront the potential of engineered pandemics, a risk significantly heightened by advancements in AI. This issue is squarely in line with the Inquiry's aim to anticipate future pandemics, underscoring the need for serious consideration of this emerging threat.

Renowned experts, including MIT's Professor Kevin Esvelt, have projected that by 2025, the technologies for creating and spreading dangerous pathogens might become widely accessible. The Geneva Security report "Delay, Detect, Defend: Preparing for a future in which thousands can release new pandemics" (see Figure 1) thoroughly examines this.

Professor Brian Schmidt AC from the Australian National University has voiced serious concerns about the "democratisation" of biotechnology. He points out the looming capability of using commonly available technology to not just modify existing diseases but to engineer new ones. This scenario, he believes, represents an unprecedented danger.

Following these comments, the market for synthetic DNA, along with specialty reagents and AI tools, has seen rapid expansion, making it simpler for the general public to utilise this technology. The thought of a large number of individuals, regardless of their intentions, having the capacity to cause a pandemic is deeply troubling and unquestionably unacceptable.

In response to this risk, President Biden issued an executive order on 30 October 2023, mandating the development of a framework for effective screening of risky DNA sequences, establishing access controls, and setting up stringent oversight mechanisms. Currently, in the US, about 20% of DNA orders are not screened, underscoring the urgency of this matter.

Australia already has a regulatory framework for the importation of synthetic DNA, but there's a critical need to update these regulations. The Inquiry should recommend that the Commonwealth promptly revise its regime to align with US strategies, requiring all labs importing DNA into Australia to implement these new screening procedures.

However, simply following the US in regulating synthetic DNA tackles only the immediate risks. Ongoing advancements in biotechnology and AI could potentially enable users to bypass these regulations. Therefore, the Inquiry should propose that the Department of Industry, together with the Department of Health and the CDC, develop minimum safety standards for cutting-edge AI models in Australia, particularly those posing biosafety risks.

We must firmly establish that AI with dual-use capabilities, which could lead to catastrophic outcomes, are not acceptable in Australia. Furthermore, continuous monitoring of biotechnological progress is essential to ensure that the capability to engineer pathogens never becomes widely available.

Lab Leaks

The recent debate over COVID-19's origins has highlighted a critical issue: the safety of high-level biosecurity labs, including Australia's Physical Containment Level 3 and 4 (PC3 and PC4) facilities. This concern is directly relevant to the Inquiry's objective of improving our preparedness for future pandemics, particularly considering the Commonwealth's role as a regulator.

It's crucial to acknowledge the diversity of opinions among experts regarding the safety of current lab practices. The differing views largely stem from whether the perspective is institution-focused or globally oriented. Given the universal impact of pandemics, I advocate for adopting a global viewpoint to evaluate the acceptable levels of risk. Historical events, such as the lab-related last smallpox death in 1978, the SAPS virus escapes, and the unintentional distribution of live anthrax spores by a US military lab, serve as stark reminders that lab leaks are real risks, not mere conjectures.

A key area of concern is the dated regulatory framework governing Australia's PC3 and PC4 facilities. The Office of the Gene Technology Regulator (OGTR) is responsible for setting these standards, yet the guidelines for PC4 facilities haven't been updated since 2007. This 16-year gap has led to outdated practices, such as the HERA filtration criteria, which rely on standards from the early 2000s. These standards have been shown to significantly overestimate PM2.5 filtration efficiency, a finding known since 2016, but seemingly unaddressed by the OGTR.

Further compounding this issue is the limited oversight by the OGTR, as evidenced by its annual reports showing minimal inspections of PC4 facilities in recent years. This lack of regular assessments raises serious questions about the current state of lab safety.

While I recognize the constraints faced by the OGTR, particularly its limited staffing and broad scope of responsibilities, it's imperative that we critically examine the regulatory and oversight mechanisms in place. The apparent shortcomings in the current system are concerning, given the high stakes of the work conducted in these facilities.

Therefore, I propose that the Inquiry recommend an independent review of the regulatory and oversight regimes governing PC3 and PC4 facilities. This review should evaluate their safety and the global standards necessary to avert future pandemics stemming from lab leaks. An independent assessment would not only address potential gaps in current practices but also, if the experts confident in the safety of these practices are correct, help communicate this assurance to the public.

In Summary

The essence of my submission rests on two critical pillars: the potential risks of engineered pandemics accelerated by AI advancements, and the urgent need to reassess and strengthen our lab safety standards. These are not just theoretical risks but real and present dangers, as evidenced by past incidents and expert predictions. The steps we take today in addressing these issues will determine not only our preparedness for future pandemics but also the resilience of our health systems and the safety of our global community.

I strongly believe that the best way forward is through proactive, forward-thinking strategies that embrace both technological advancement and rigorous safety standards. By aligning our efforts with international best practices and continuously adapting to emerging risks, we can create a framework that not only prevents future pandemics but

also strengthens public trust in our scientific and health institutions.

I urge the Inquiry to prioritise these issues in its recommendations. Our collective future depends on the actions we take now. The cost of inaction is too great, and the opportunity to lead and innovate in this space is both a responsibility and a privilege.

This is our chance to shape a safer, healthier future for Australia and the world. Let's seize this moment with the urgency and seriousness it deserves.

Sincerely,

Luke Freeman
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CEO, Giving What We Can
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