

Dear COVID-19 Inquiry panel,

My name is [REDACTED] I'm [REDACTED] year old [REDACTED] working in the energy industry and a concerned Australian citizen. I would like to seize this opportunity to emphasise the critical need for Australia to prioritise endeavours aimed at preventing future pandemics, rather than merely preparing for them.

As a young Australian, I have personally felt the profound impact of COVID-19 on various facets of my life, including education and relationships. It seemed that my demographic, for both social and economic reasons, was comparatively less equipped to navigate the challenges imposed by the pandemic.

While this experience has provided me with various perspectives on how governments can assist individuals and communities, it is evident that even the most well-managed pandemic entails severe consequences. As such, I strongly believe the primary focus should be on preventing pandemics altogether.

I've observed that Australia's governments allocate substantial resources to hazard reduction for other natural disasters, particularly in response to the escalating challenges posed by climate change. However, I am not aware of a parallel commitment to diminishing the likelihood of pandemics, despite the seemingly higher risk to the average Australian.

In this context, I wish to highlight several crucial issues that merit attention and consideration to ensure our collective efforts are directed towards effective pandemic prevention.

### **Preventing zoonotic diseases**

In return for the affordability of meat sourced from factory farms, we witness a stark trade-off – a surge in bacterial infections, once easily treatable, and an alarming rise in pandemics wreaking havoc on lives and livelihoods. Factory farms, akin to pressure cookers, become the breeding grounds for novel pathogens, as highlighted by the UN's projection of a global population reaching 10 billion by 2050. Without transformative shifts in industry or culture, the relentless demand for meat poses an escalating risk.

The pursuit of inexpensive meat through intensive farming practices hinges on increasing livestock density. Animals are crammed into factory farms, breathing and defecating in close quarters, fostering an environment conducive to the emergence of novel pathogens. This density accelerates the evolution of these pathogens, facilitated by abundant transmission routes. The negative public health externalities manifest in antimicrobial resistance and the potential for pandemic viruses. The Inquiry must not condone industries profiting at the expense of endangering lives globally.

Antibiotic overuse in livestock intensifies the problem, with 70% of global antibiotics allocated to them. Projections suggest a 16% surge in antibiotic usage in Australian farming by 2030, contributing to global antibiotic resistance. In 2020, antimicrobial resistance in Australia resulted in 1,031 deaths, \$439 million in premature death costs, and the loss of 27,705 quality-adjusted life years. While steps have been taken to mitigate antimicrobial resistance in livestock, a parallel approach must extend to combat viruses, the primary catalysts for pandemics.

Viruses with pandemic potential often originate in wildlife but can leap to humans, posing catastrophic risks. Wildlife hosts viruses harmlessly, but spillover to livestock in farms introduces novel environments and species, facilitating genetic recombination. This process enhances a virus's ability to infect and transmit among various hosts, including humans. Proximity in settings like live markets, animal exports, abattoirs, or factory farms heightens the risk of interspecies transmission, culminating in the emergence of transmissible viruses. The 2009 H1N1 flu pandemic, originating in swine farms in Mexico, exemplifies the dangers of global animal trading.

Australia must mitigate pathogen transmission risks by reducing animal densities in live animal trade, live exports, and factory farming. Biosecurity strategies should mandate practical measures to curb these risks, and if prevention proves too costly or risky, Australia has a responsibility to cease practices contributing to pandemics and antimicrobial resistance.

The late Professor Mary-Louise McLaws, an eminent infectious disease control expert, emphasised the imperative to halt live animal trade. Australia must surpass this prediction, embracing policies that safeguard against future pandemics and prevent the slow march towards antimicrobial resistance.

### **Preventing engineered pandemics**

An imperative facet of pandemic prevention that merits heightened consideration in Australia is the burgeoning threat of engineered pandemics. The Inquiry's terms of reference underscore the importance of anticipating future pandemics, and compelling evidence indicates that effective preparation necessitates a proactive approach to this potentiality.

Leading experts, including MIT Professor Kevin Esvelt, caution that the technologies essential for designing, creating, and releasing perilous and unprecedented pathogens could become widely accessible by 2025. The Geneva Security report titled "Delay, Detect, Defend: Preparing for a future in which thousands can release new pandemics" expounds on this concern (refer to Figure 1).

In 2021, Professor Brian Schmidt AC, Vice-Chancellor of the Australian National University, expressed profound apprehension about the "democratisation" of biotechnology, foreseeing the imminent availability of mass-market printers capable of manipulating DNA. The fear extends beyond hijacking existing diseases to the creation of entirely novel ones. The subsequent surge in the market for synthetic DNA, specialty reagents, and AI tools amplifies the urgency of addressing this pressing issue.

The prospect of a large and diverse group, whether malicious or not, wielding a technology with the potential to cause mass casualties is unequivocally an unacceptable risk. Acknowledging this peril, President Biden issued an executive order on October 30, 2023, mandating the development of a framework within 180 days. This framework focuses on effective screening for risky DNA sequences, best practices for access controls, technical guidance for screening, and robust oversight mechanisms. Currently, approximately 20% of DNA orders undergo no screening, and non-compliance post the stipulated timeline could result in funding cuts.

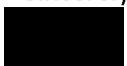
Australia, which already has a permitting regime governing the importation of synthetic DNA, should urgently align with the United States in updating this regime. The Inquiry should recommend that labs importing DNA into Australia adhere to the new screening procedures outlined in the US executive order.

While swift action following the US model will address immediate risks highlighted by Professors Esvelt and Schmidt, it is not a lasting solution. Ongoing advancements in biotechnology and increasingly sophisticated AI may enable nefarious users to circumvent regulations unless regulatory frameworks evolve in tandem. To this end, the Inquiry should advise the Department of Industry to collaborate with the Department of Health and the CDC in formulating minimum safety standards for frontier models deployed in Australia. This includes identifying and restricting models with biosafety risks, setting explicit expectations for developers and deployers, and vigilantly monitoring biotechnological advancements to prevent the widespread accessibility of engineered pathogens.

Throughout history, pivotal public health issues have been overcome through the ingenuity of individuals who brought fresh ideas and perspectives to the realm of health challenges. As the landscape of public health has expanded, so too has its capacity to enhance both longevity and the quality of life.

The essence of this inquiry's terms of reference lies in the pursuit of improvement for the future. Considering the potential severity of future pandemics, the most impactful course of action for the Inquiry is to prioritize pandemic prevention, encompassing a thorough examination of novel ways in which pandemics might unfold in the years to come. While this necessitates grappling with uncomfortable considerations regarding unforeseen topics and emerging technologies, it is precisely these issues that have the potential to wield the most significant influence in securing a healthier and more resilient future.

Sincerely,



Sources:

Biden, J. (2023) [Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence](#). The White House.

[Engineered Pathogens and Unnatural Biological Weapons: The Future Threat of Synthetic Biology – Combating Terrorism Center at West Point](#)

Andrew Leigh MP: Speeches and Conversations”;16 December 2021; at 18:41

[Home | International Gene Synthesis Consortium](#)

[The Common Mechanism - IBBIS](#)

[SecureDNA - fast, free, and accurate DNA synthesis screening](#)

20% of DNA isn't screened:

<https://genesynthesisconsortium.org/#:~:text=The%20International%20Gene%20Synthesis%20Consortium,the%20customers%20who%20place%20them>.

[Disease burden, associated mortality and economic impact of antimicrobial resistant infections in Australia](#)

[Antibiotic use in farming set to soar despite drug-resistance fears \(see table 1\)](#)

[H1N1 Pandemic - Quick stats](#)

[Origins of the 2009 H1N1 influenza pandemic in swine in Mexico](#)