

Thank you for allowing me the chance to contribute my thoughts on this Inquiry and on the establishment of the Australian Centre for Disease Control. As someone who is actively retraining toward a Health Security career, I am thrilled about the inception of the new CDC.

Recent studies—notably a [2022 paper by Bernstein](#)—highlight the vital importance of investing in pandemic prevention. The research convincingly argues that, even under conservative estimates and without factoring in the potential of emerging technologies, substantial investment in preventing pandemics is not only necessary but economically sensible. The paper underscores the economic feasibility and necessity of proactively addressing pandemic threats.

In this context, the new Australian Centre for Disease Control should prioritize initiatives aimed at preventing the emergence of novel pathogens. The recent experience with COVID-19, which was anticipated by medical experts globally, is a stark reminder of the continuous threat posed by infectious diseases. The risk of facing even more severe pandemics in the future is real and imminent. Therefore, it is critical that the Australian CDC not only focuses on immediate health protection but also invests in measures to anticipate, prevent, and if necessary, contain novel infectious diseases effectively.

This submission focuses on two issues that I believe should be high among the Australian CDC's priorities: improving indoor air quality and preventing zoonotic spillover events.

Firstly, the Australian government must establish explicit, robust codes of practice and standards for Indoor Air Quality (IAQ), coupled with stringent regulations for environments deemed high-risk. Annually, countless Australians suffer illnesses due to airborne pathogens in indoor spaces, with our most susceptible populations, including the elderly and immunocompromised, facing heightened risk. Enhanced IAQ controls would not only fortify our defenses against current and future pandemics but also mitigate health issues stemming from other airborne threats such as indoor smog, hazardous materials, non-pandemic respiratory ailments, and a spectrum of airborne health risks.

Despite the fact that Australians [spend upwards of 90%](#) of their time indoors, the Australian Department of Climate Change, Energy, the Environment and Water reveals a glaring lack of specific IAQ controls, save for the minimal guidelines set forth by [Work Safe Australia](#). In the absence of national standards and codes delineating minimum performance criteria for infection control, I fear we are at risk of defaulting to subpar measures that offer scant protection against pathogens.

The institution of clear, rigorous IAQ codes and standards in Australia would establish unambiguous metrics and targets for air quality, aiming to curtail pathogen transmission. Absent these standards, there is a looming concern that manufacturers and innovators might develop products insufficient in purifying indoor air to levels that significantly diminish pathogen spread. Standards grounded in the latest scientific insights into respiratory disease, air filtration, sanitation, public health, and behavioral science would forge the ideal regulatory landscape, ensuring the availability of effective IAQ interventions for the Australian populace. Moreover,

explicit guidelines are crucial for high-risk settings such as aged care facilities, hospitals, and other healthcare environments, where airborne infections pose a dire threat.

The Lancet COVID-19 Commission Task Force's proposal of [Non-infectious Air Delivery Rates \(NADR\)](#) provides tangible goals for ventilation and filtration that defend against infectious disease transmission. While scientific debate persists over the optimum metrics and targets, there is a consensus that current practices are inadequate. I urge the Inquiry to review the Task Force's report for a deeper understanding of the factors involved in setting efficacious IAQ codes and standards.

The Australian Building Codes Board (ABCB) could incorporate these standards into the National Construction Code, drawing expertise from the Australian Commission on Safety and Quality in Health Care, the [Australasian Health Infrastructure Alliance \(AHIA\)](#), and the ABCB's existing work on IAQ. The [ASHRAE Standard 241](#) on the Control of Infectious Aerosols could also be instrumental in shaping these standards.

Secondly, research indicates that the probability of zoonotic pandemics is higher and increasing more than previously assumed. Key factors such as **land use** change, **climate change**, and the intricacies of **global travel and trade** are recognized catalysts for the emergence of novel pathogens. While not all of these elements can be halted, the Inquiry should propose feasible domestic interventions and advocate for international strategies that mirror these efforts.

For instance, land use alterations are a significant contributor to disease transmission from animals to humans. An illustrative case is the urban expansion in Queensland, which has led to nutritional stress and fragmentation of flying fox habitats, subsequently causing the spillover of Hendra virus into horses and humans.

Additionally, the movement of live animals, whether through legitimate (e.g., live animal exports) or illicit means (such as smuggling), poses risks for disease spread. Notably, coronaviruses found in pangolins seized in the illegal wildlife trade in Vietnam have been traced back to Yunnan and Guangxi, China – regions where bats known to harbor SARS-related coronaviruses akin to SARS-CoV-2 are found.

The interplay between climate change and anthropogenic land use intensifies spillover risks. Currently, an estimated 10,000 virus species capable of infecting humans are circulating in wild mammals, largely unnoticed. Alterations in climate and land use are expected to facilitate viral exchanges among previously isolated species. By 2070, it is projected that there will be 300,000 novel animal pair encounters globally, effectively doubling the chances for a virus to cross species barriers.

The Inquiry is positioned to recommend that Australia, through both national and jurisdictional biosecurity strategies, implement practical interventions addressing these trends and their associated risks.

Moreover, while aiding foreign governments may fall outside this Inquiry's direct mandate, proposing international policies that protect Australians globally is pertinent. In this light, the Inquiry should explore recommendations that leverage Australia's international influence to advocate for comprehensive global pandemic prevention strategies.

Given our close ties with the Asia-Pacific region, where [four out of nine pandemics](#) since 1900 have originated, regional capacity building emerges as a vital aspect of global public health. The [Indo-Pacific Centre for Health Security](#) is already making significant strides in this area. The Inquiry should consider how to expand and focus this entity's efforts on pandemic prevention, potentially including projects that address risks associated with land use change, trade, travel, and climate change. Additionally, exploring how this Inquiry's innovative pandemic prevention recommendations could be disseminated regionally would be beneficial.

Australia can also enhance its role in international leadership. As a member of the International Experts Group of Biosafety and Biosecurity Regulators and an advocate for chemical and biological weapons security, including through the [Australia Group](#), we have a foundation to build upon. Actions could include:

- Adhering to the Global Health Security Index's 2021 report recommendation by reporting to the World Organisation for Animal Health (OIE) on human cases of zoonotic diseases, establishing a critical global norm.
- The Foreign Minister could consider incorporating in free trade agreements with animal-related clauses a "national treatment" obligation, compelling trading partners to adopt or exceed standards and practices that prevent zoonoses. This approach would not only elevate best practices in Australia but also encourage our trading partners to adopt similar standards, enhancing safety both domestically and globally.

In conclusion, I believe pandemics are one of the most important issues facing the world. This Inquiry should carefully consider how future pandemics could start and ensure it makes specific recommendations to reduce their likelihood. These should include improving indoor air quality and preventing zoonotic spillover events—the most common starting point for global pandemics.

## Sources

- [The costs and benefits of primary prevention of zoonotic pandemics - PMC \(nih.gov\)](#)
- [National Safety and Quality Health Service Standards \(second edition\) | Australian Commission on Safety and Quality in Health Care](#)
- [Handbook: Indoor air quality \(abcb.gov.au\)](#)
- [Intensity and frequency of extreme novel epidemics](#)
- [Land Use-Induced Spillover: A Call to Action to Safeguard Environmental, Animal, and Human Health](#)
- [The emergence of Hendra virus from flying foxes \(Pteropus spp.\)](#)
- [Climate change increases cross-species viral transmission risk](#)
- [The Need to Prioritize Prevention of Viral Spillover in the Anthropopandemicene: A Message to Global Health Researchers and Policymakers](#)