The opportunity to future proof Australian public indoor spaces against pandemic disease and enable healthier, safer and more productive lives with world class Indoor Air Quality

My name is Suzanne Jennings and I am co-founder (with [redacted] of the Cleaner Air Collective[1], a grassroots advocacy group with more than 350 members across Australia. We collaborate to improve pandemic policy and protections, with a strong focus on the benefits of Clean Air. Thank you for the opportunity to contribute to this Inquiry; I would be interested to participate in the targeted stakeholder engagement you have planned in 2024.

My submission addresses the Term of Reference: "Mechanisms to better target future responses" and focuses on the neglected opportunity to create safer, more inclusive public indoor spaces with better Indoor Air Quality (IAQ). This would help protect Australians against all airborne infectious disease, now and in the future. It's important to note that the Australian Government has a role in the National Construction Code, which covers minimum ventilation requirements for new buildings; this is one key pathway to improvement in IAQ.

Introduction

COVID-19 was not recognised as an airborne virus by the World Health Organization (WHO) until April 2021 – more than one year into the pandemic. As a result of this delay, the importance of safeguarding air quality and ventilation has been overlooked in Australia's response to managing COVID-19.[21] However, there is a significant exception - parliamentarians both Federal and State enjoy the privilege of very high IAQ in Parliament House.[3] For instance, in August 2021, the NSW Premier upgraded the NSW Parliament House ventilation system to ensure "eight exchanges of fresh air in the chamber every hour".[22]

If the Inquiry panel were to recommend investment in one thing to prepare for future pandemic challenges, it must be to convince the Health Minister and Federal government to take URGENT action on Indoor Air Quality for all Australians. The government needs to create safe public indoor spaces to protect the public from any new airborne pandemic threat, so that lockdowns become unnecessary.

Given that COVID-19 is airborne,[2] it and other viruses can travel through the air much farther than six feet/1.5 metres.[17] Since Australians spend 90% of their time indoors[3] where air quality is 2-5 times worse than outdoor air quality[3], it is clear that a focus on improving IAQ would lead to improved health and economic outcomes in both current and future pandemics. The result would be healthier schools and aged care facilities, as well as safer, future-proofed workplaces, public transport and retail, hospitality and tourism venues.

Indeed, in early 2023 the Australian Federal Parliamentary Health Committee reported that there is "compelling evidence that poor indoor air quality and ventilation leads to increased risk of COVID-19 infection. The Committee [was] convinced of the role that good air quality and ventilation play in preventing the transmission of COVID-19, and therefore in preventing long COVID and repeated COVID infections. Thus, the Committee [was] of the view that the Australian Government needs to act quickly to establish consistent indoor air quality regulation, working with the states and territories, while taking advice from ventilation and multidisciplinary experts and following international best practice."[21]

International Best Practice

The Australian Federal government can look to international best practice for inspiration as countries all over the world are researching, developing and implementing clean air standards, policies and projects in schools, workplaces, conferences and retail settings. Australia must recognise this urgent and important opportunity or be left behind with poorer health and economic outcomes.

In January 2023, the World Economic Forum, held in Davos, consulted the "world's leading health experts and virologists to develop a plan to create a Covid safe environment to protect the safety and wellbeing of its participants[4]. The resulting document is a game-changing blueprint to keep people safe in public indoor spaces; state of the art ventilation and use of HEPA filtered air purifiers are key parts of the plan.

Here is a non-exhaustive list of countries leading the global Cleaner Air revolution:

- JAPAN: venues such as shops, movie theatres and restaurants are displaying real-time CO2 levels on large screens outside so that customers can assess air quality and staff can take steps to improve when necessary, by opening windows or adjusting ventilation systems.[5,6]
- BELGIUM and the NETHERLANDS: recently introduced legislation and regulations to make it compulsory for public venues such as bars, schools and community centres to have visible CO2 levels publicly displayed on the wall[7,8]
- IRELAND: the Safety, Health and Welfare at Work (General Application) Regulations have been amended to ensure that an employer takes appropriate actions, in accordance with the relevant Health and Safety Authority code of practice, to ensure sufficient fresh air is circulating in enclosed spaces within a place of work.[9,10]

- NEW ZEALAND: all schools have been supplied with a CO2 monitor and air purifiers are used when ventilation is insufficient.[11]
- CANADA: Health Canada is currently developing new IAQ guidance for all Canadian schools, providing recommendations and best practices; these are based on the latest science and include improving ventilation and filtration. A draft of the new guidance will be available for public comment in 2024.[12]
- US: in May 2023 the US Center for Disease Control and Prevention (CDC) updated its ventilation guidelines, in conjunction with a new standard from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHARE); this provided detailed recommendations for how to make indoor air healthier, including setting a target of five air changes per hour, MERV-13 air filters in all HVAC systems, portable or built in HEPA filtration, UV air treatment systems and CO2 monitoring.[13, 14]
- US/Canada: businesses are already embracing air quality improvements with a recent survey of facility managers in the U.S. and Canada finding that since March 2020, roughly two-thirds of respondents have upgraded their MERV filters and increased their air exchange rates. In New York City, JPMorgan Chase's new headquarters will have state of the art air quality controls and Amazon's new offices have a $2.5 million HVAC system.[17]
- UK: nearly 1000 schools are working with scientists to monitor and evaluate classroom air quality in a large-scale citizen science project, expected to be the biggest study of air quality in schools anywhere in the world.[15]
- UK: a team of Cambridge doctors and scientists devised a way of reliably measuring the cleanliness of air, proving that a standard, off-the-shelf air filter was able to remove most airborne virus particles (such as coronavirus on an intensive care ward); there are applications for not only hospitals, but also schools and homes.[16]
- ITALY: a study of Italian classrooms showed efficient mechanical ventilation systems providing six air replacements per hour can reduce the transmission of COVID-19 in schools by more than 80%.[18]
- WHO/SWITZERLAND: experts gathered for the first WHO Indoor Air Conference on 20 September 2023, with the aim of identifying how to improve the safety of indoor environments.[19]
- UNITED NATIONS: in July 2022, the United Nations' General Assembly adopted a historic resolution declaring the fundamental human right to a clean, healthy and sustainable environment. (Despite such a landmark move, Australia still lacks a legislative framework and enforcement regime to implement this right for its citizens.)[23]
- AUSTRALIA: a Clean Air forum at Australian Parliament House (2023) gathered experts to discuss the importance of interventions to promote clean air, for preventing COVID and other health problems.[24]

Well informed choices

Indoor Air Quality is not just about engineering solutions and investment. There is the potential for millions of good choices by individuals to reduce the risk of infectious diseases spreading - if individuals are educated about the importance and protection of Clean Air. A high-risk event or venue can be made safer by improving ventilation - something as simple as opening a window. Similarly, turning on a portable HEPA air purifier, suitably sized for the room, or shortening the time frame of the event, will reduce the risk. People can combine all these mitigations, or move the event outdoors, and reduce risk even further. Risk mitigation is straightforward once people understand airborne transmission.

In Australia we are fortunate to have world-class IAQ experts, including Distinguished Professor [redacted] Professor [redacted] Associate Professor [redacted] and the multi-disciplinary team of experts at OZSage. It only makes sense to utilise their expertise so that trusted sources are independently advising and educating the government and public, and helping to develop standards and protocols.

Additional benefits

Of course, fixing IAQ requires investment, but we already invest in refrigerators to keep food safely cool and pay for water to ensure it's free of cholera. Investing in clean air should be just as high a priority. Indeed, the benefits far outweigh the costs, and these include improvements in productivity, learning and general health, not to forget reducing covid infections, workplace absences, hospitalisations, and mortality. There is an estimated investment return of 5 to 1 – that is, every dollar invested saves about $5.[7]

During its Long COVID Inquiry, the Federal Parliamentary Health Committee investigated IAQ and recommended that a multidisciplinary expert advisory body assess the impact of poor IAQ on the economy and develop national IAQ standards.[20] I urge the members of the Covid Response Inquiry panel to add your voices to this recommendation and call on the government to act with urgency.

Recommendations to future proof Australia against pandemic disease:

1. Immediately implement Recommendation 7 of the Long Covid Inquiry report - assessing IAQ and developing national IAQ standards - and then legislate them.
2. While IAQ standards are being developed, immediately invest in HEPA filtered air purifiers and CO2 monitors for every school classroom in Australia, with education and clear instructions for teachers and school administration to ensure compliance.
3. Create a high profile national public health education campaign around both airborne transmission of infectious diseases (not only COVID-19 but also flu, colds, RSV, chicken pox, measles, TB and others), and the importance of IAQ in protecting against these and other hazards such as bushfire smoke, pollution, pollen and mould.

Thank you for your time and consideration.

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