

## IBEC Australian Members Submission to the Australian Commonwealth Government COVID-19 Response Inquiry

IBEC (the Integrated Biosciences and Built Environment Consortium) is a US-registered international not-for-profit scientific body founded in 2020 in response to the COVID-19 pandemic. It integrates expertise in buildings, pathogens, and people, with diverse advisors in scientific, engineering, medical, and social science. We collaborate to bridge science to practice. Led by individuals with extensive experience in research, disaster management, risk mitigation, and biological agent control, IBEC addresses pandemic challenges with a focus on safeguarding lives, economies, and long-term health. This submission responds to the terms of reference detailed by the Commonwealth Government in their submission instructions.

This document represents a combined submission by four Australian IBEC members:

- Dr Professor Lidia Morawska: Aerosol science and practice – Queensland – Scientific Advisor to IBEC.
- Dr Melissa Marot: Neuropsychology/organisational psychology – Victoria - Scientific Advisor to IBEC.
- Brett Cole: - Infection control and occupational hygiene – Victoria – Board member of IBEC.
- Dr Claire Bird: Microbial ecology and bioaerosol detection – Queensland – Vice President, IBEC.

**Governance and advisory bodies** - We believe that an anticipated national threat calls for a pre-emptive nationwide plan delivered by strong leadership at the time of need. For nearly two years, global organisations such as the WHO<sup>2</sup> and the CDC<sup>3</sup> hesitated to acknowledge airborne transmission as the primary route of SARS-CoV-2 spread. The Australian Government delayed discussions with relevant Australian peak bodies e.g. AIOH<sup>4</sup>, AIRAH<sup>5</sup>, IAQAA<sup>6</sup>, ABSANZ<sup>7</sup> and OzSage and world-leading experts in airborne disease transmission prevention such as those within the School of Earth and Atmospheric Sciences at the Queensland University of Technology. WHO action was prompted only after a letter to leaders was produced by over 200 scientists, led by Prof. Morawska, but not by the Australian Government<sup>8, 9</sup>.

This breakdown in communication blocked a robust scientific response, contributing to the unchecked spread and evolution of the virus into highly transmissible strains.

In direct response to a publication involving several of IBEC Scientific Advisors led by Prof. Morawska<sup>10</sup>, in 2023 the House of Representatives Standing Committee on Health, Aged Care and Sport recommended establishment and funding of a multidisciplinary advisory body. This body would include experts in ventilation, architecture, aerosol science, industry, building codes, and public health. Its purpose would be to assess the economic impact of poor indoor air quality (IAQ) and ventilation, focussing on high-risk settings e.g. hospitals, aged care facilities, childcare, and educational settings. Additionally, the advisory body would lead the development of national IAQ Standards for use in Australia. IBEC supports the creation of the Australian Centre for Disease Control, however the Inquiry recommendations emphasising ongoing Government collaboration with professional organisations. IBEC, actively networks with experts across the global IAQ industry and can support such initiatives.

<sup>1</sup> Morawska L, Allen J, Bahnfleth W, Bluyssen PM, Boerstra A, Buonanno G, et al. A paradigm shift to combat indoor respiratory infection. *Science*. 2021 May 14;372(6543):689–91).

<sup>2</sup> World Health Organization

<sup>3</sup> Centers for Disease Control and Prevention

<sup>4</sup> Australian Institute of Occupational Hygiene

<sup>5</sup> Australian Institute of Refrigeration, Air Conditioning and Heating

<sup>6</sup> Indoor Air Quality Association Australia

<sup>7</sup> Association for Biosafety for Australia and New Zealand

<sup>8</sup> Morawska, L., 2021, Australia must get serious about airborne infection transmission. Here's what we need to do. *The Conversation*, 26 July 2021.

<sup>9</sup> Morawska, L. and Marks, G.B., 2022, Ventilation reduces the risk of infection: why are we still ignoring it? *The Conversation*, published online 1 December 2022.

<sup>10</sup> Morawska, L., Marks, G.B., Monty, J. et al. (2022) Healthy indoor air is our fundamental need: the time to act on this is now. *Medical Journal of Australia*, 217(11): 578-581.

Politicising the pandemic cost Australia immeasurably, with travel barriers and conflicting actions failing to protect public health and the economy, whilst eroding public confidence in Government. We advocate for increased Federal responsibility in preparing bipartisan plans for critical infrastructure before pandemics, including plans for inter-state travel, fair vaccination allocation, human diagnostics, and protective equipment for vulnerable populations. A robust Standard is crucial to a unified framework for all relevant professions and parties to ensure a comprehensive, single voice at times of crisis. IBEC has started to develop a framework and could assist in those developments in Australia.

Public guidance on preventing airborne pathogen transmission was unclear; emphasis was wrongly placed on hand sanitation and physical distancing, diverting attention from more effective measures. IBEC's and AIHA's<sup>11</sup> Commit-2-C.A.R.E. online tool addressed the gap, educating the public on options to reduce transmission. The simple user-interface was supported by a robust back-end model demonstrating the effect of increased ventilation, air filtration and mask use, reducing occupant density and spending less time in potentially contaminated spaces. Users were empowered to better protect themselves and others. Collaboration with Australian scientists and engineers could have enhanced such tool development, provided solid public advice, and reduced transmission rates and misinformation spread.

Despite whole of government training towards pandemic preparedness and response at state level in previous decades, the response to SARS-CoV-2 revealed a surprising lack of application of these lessons when meeting human and infrastructure challenges. A national response would assist in bipartisan application of these lessons. In healthcare settings, there was existing pandemic response protocols built into most major public hospital operations, *i.e.* one Pandemic Ward. However, this proved to be completely inadequate to service the inpatient load at the height of the pandemic. Furthermore, the lack of planning and infrastructure to expedite ward conversion of to treat COVID-19 patients led to major outbreaks in clinical staff. Infection spread was accelerated by inadequate and inappropriate HVAC advice, poor timing and low effectiveness.

Despite exhaustive scientific, medical, and engineering publications on airborne transmission mitigation and infection control, supplies and stockpiles of N95 respirators were inadequate to protect healthcare workers and were unable to support the Government mandated use of masks. Public guidance lacked clarity on basic respiratory protection limitations, correct usage, and deployment in specific scenarios. Inadequate regulation allowed defective devices into the market. The AIOH<sup>12</sup>, AIHS<sup>13</sup>, IAQAA<sup>14</sup>, and NZOHS<sup>15</sup> collaborated on a document to help buyers identify compliant respiratory protective products. This was supported by several States, Worksafe, and trade unions and included appropriate compliance to Respiratory Protective Device Standards (AS/NZS 1715<sup>16</sup> etc.) and appropriate fit testing. The AIOH further developed the RESPFit<sup>17</sup> Program to assist the public in validating appropriate respiratory protective devices and fit. The need for this work highlighted failure to implement effective preparedness plans at Federal level.

**Key health response measures** - Disease outbreaks in quarantine centres could have been prevented by consulting aerosol science specialists. While vaccination and diagnostics were crucial, a balanced discussion on preventing interpersonal infection was overlooked and cost lives. Implementing air monitoring devices, understanding ventilation, and air filtration could have saved lives; IBEC recommends a more holistic response to future pandemics. Further, Australia confronts ongoing public health and economic risks beyond COVID-19, including increasing outbreaks of emerging and re-emerging respiratory diseases, increased spread of disease caused by climate change, and growing antimicrobial resistance. Ensuring confidence in government decision-making during health crises requires understanding, foreseeing and managing individual and collective responses to evolving situations. Expert input on optimal public health messaging and risk is vital for pandemic preparedness. Australians seek assurance of coordinated prepared governments learning from current situations. Utilising the expertise of Australian leaders in airborne infection

---

<sup>11</sup> American Industrial Hygiene Association – Centers for Disease Control and Prevention-funded joint project

<sup>12</sup> Australian Institute of Occupational Hygiene

<sup>13</sup> Australian Institute of Health and Safety

<sup>14</sup> Indoor Air Quality Association Australia

<sup>15</sup> New Zealand Occupational Health Society

<sup>16</sup> AS/NZS 1715:2009 - Selection, use and maintenance of respiratory protective equipment

<sup>17</sup> AIOH - Respirator fit testing training and accreditation – Accessed at: <https://respfite.org.au/>

transmission, hygiene and IAQ control is crucial. The government should actively engage with this sovereign knowledge, while also seeking international collaboration for global health threats. Treating proven methods as restrictions on personal freedoms was a critical error. Human behaviour experts able to predict public responses to lockdowns and mask-wearing, engineers and scientists advising on ventilation and protective measures could have minimised the need for prolonged isolation. Conflating protective measures with a message of personal freedom hindered mask adoption, impacting disease transmission and personal freedom.

**Broader health supports** - Through Medicare, the Federal Government provided good support by increasing mental health session allocation and changing legislation to include Telehealth. Working closer with the State Governments would enable faster rollout of these services to the community.

**International policies to support Australians** - The closure of international borders and securing of supply deals for vaccinations were important control measures in the early part of the pandemic prior to our current understanding of, and access to alternative controls. Given the rapid development in infection reduction and detection technologies it will be even more critical that experts are consulted early in the event of a future pandemic, or in better managing current and emerging airborne infective agents which impact quality of life and productivity.

**Support for industry and business** - Insufficient training and resources left business owners struggling to navigate health risks, human resource decisions, and business survival, resulting in psychosocial implications for both owners and staff. First responders, healthcare professionals, teachers, aged care staff, and gig economy workers, faced disproportionate risks while being expected to work. When these same workers declined vaccination at a later stage they were barred from work. Targeted measures such as mask-wearing, continuous COVID-19-related sick pay support, reduced occupant density, improved ventilation, air filtration, and simple air monitoring devices would have reduced job losses, financial hardship and business closures.

While dependence on international trade poses a supply chain vulnerability, Australia has a small population compared to the size of the international community it may interact and liaise with. IBEC recommendations include studying overseas developments in infection control in the building, such as ASHRAE 241<sup>18</sup>. To support this, Australia should invest in research and deployment of HVAC and air purification technologies, advocate for specialist providers and engage universities and professional bodies in industry guidance.

**Community supports** - There are numerous examples of where a direct clash between Federal and State policies which lie outside of the terms of this inquiry impacted critical areas of risk, including child protection and domestic violence.

Hard borders for international students in Australia were an oversight, neglecting the economic and intellectual contributions they bring. The mistreatment of students, who invested significantly in Australian education, is regrettable and will impact universities for years. This not only affects educational institutions but also hampers primary industries reliant on graduates for innovation and market creation.

**Targeting help for particular populations** - Disseminating important messages to vulnerable groups is challenging, and we need both a communication plan and low-cost technologies to reduce psychosocial and health risks. A nationally coordinated response, collaboratively with First Nations peoples and CALD groups, radio and television organisations, may mitigate operational challenges of resource poor state-based communication operations. This messaging also needs to be clear, concise and harmonised across Federal and State based Governments.

Individuals can become part of a discrete “population” at particular times in their lives. Imposing a hard lockdown preventing people sharing end-of-life time with their family members resulted in significant distress for all parties. The inflexibility and disparity across the country must be prevented in the future by implementing controls to avoid such loss and in developing a national framework, consequent standards and potential regulation to protect all people at times of vulnerability.

---

<sup>18</sup> ASHRAE Standard 241, *Control of Infectious Aerosols*