

Dear Independent Panel,

When the Prime Minister and Health Minister announced the Commonwealth Government COVID-19 Response Inquiry, they said the next pandemic is inevitable.<sup>1</sup> In our view, nothing about pandemics is so inevitable that we should rely only on mitigating the risk, rather than seeking to prevent it with concrete interventions at multiple levels.

Prevention is almost certain to be more cost-effective than “wait and respond”.<sup>2</sup> We can reduce the chance that pathogens with pandemic potential emerge and, even if they do, we can also reduce the chance that they turn into pandemics.

Combined domestic action and global leadership is our path to a future without pandemics.

## **Primary prevention – natural, accidental and intentional**

There are a limited number of ways a pandemic can begin, and practical interventions on multiple levels across science, public health and communication can reduce their likelihood.

Zoonoses have been the major cause of pandemics<sup>3</sup> and climate change is intensifying their risk.<sup>4</sup> Australia is a large and biodiverse country with significant factory farming, interdependence on the global animal trade,<sup>5</sup> deforestation and habitat loss, and a track record of zoonoses – including Hendra virus<sup>6</sup> and Australian bat lyssavirus.<sup>7</sup> The next pandemic-causing organism could originate here.

Australia’s international statements and biosecurity strategies acknowledge the risk of zoonoses and promote a One Health approach.<sup>8</sup> But they do not actively address the factors that predispose a pathogen to spread to new populations and locations or aim to reduce high-risk interactions – including between humans, domesticated animals, and wild animals.<sup>9</sup> Australian governments should:

- 1. Affirm that the Australian Centre for Disease Control should prioritise the prevention of pandemics – natural, accidental and intentional.**
- 2. Implement practical measures to reduce the risk of zoonoses.**

Zoonoses are not the only risk. While Australia must keep punching above its weight in pathogen research,<sup>10</sup> biosafety and dual-use research are genuine concerns.

Unfortunately, biosafety incidents happen,<sup>11</sup> including in Australia,<sup>12</sup> and as recently as this year.<sup>13</sup> Our risk mitigations need to be effective, innovative and account for the potential global consequences if the worst were to happen. Risk also comes from the knowledge and technology necessary for engineered pathogens becoming more widely available.<sup>14</sup> Open publication practices and AI may accelerate these trends.<sup>15</sup> Australian governments should:

- 3. Review biosafety practices and requirements for research involving human or animal pathogens, at a laboratory and national level, to ensure any balancing of risk properly accounts for the global consequences of incidents.**
- 4. Develop a framework to safeguard against engineered pandemics, including enhancing access controls and screening for certain technologies, such as high-risk synthetic DNA.<sup>16</sup>**

## **Early detection and control of novel pathogens**

While preventing novel pathogens from emerging is ideal, early detection and control can halt outbreaks before they become a pandemic.

### **Early detection**

Early detection allows better response. Ideally, any potential pandemic pathogen would be identified and understood early enough that it can be contained and eliminated via rapid escalation at the first sign of an outbreak. Developing field and lab-based technologies, including metagenomics-enabled microbial surveillance, may be ready to make this a reality.<sup>17</sup> The same technology would have co-benefits, allowing Australia to unlock promising use cases including in agriculture, precision medicine and combating the impact of climate change and antimicrobial resistance on disease outcomes.<sup>18</sup> Australian governments should:



- 5. Operate and coordinate pathogen-agnostic metagenomic surveillance in strategic locations – like aviation wastewater<sup>19</sup> and human-livestock interfaces – to allow the early identification and assessment of novel pathogens.<sup>20</sup>**
- 6. Develop and regularly exercise a national plan to contain and eliminate novel pathogen outbreaks with pandemic potential.**

## **Indoor air quality as a public health strategy**

While clean water has been a public health priority for almost 200 years, the importance of clean air was undervalued pre-COVID-19. As respiratory viruses spread rapidly, widespread implementation of existing and emerging air filtration and pathogen inactivation technologies may slow the spread of a novel pathogen and provide time for early detection and medical and human interventions to translate into effective action. Improving indoor air quality would both aid pandemic prevention and provide additional health, educational and economic benefits.<sup>21</sup> Australian governments should:

- 7. Develop an indoor air quality strategy with practical measures to make indoor air safer, including implementing mature technologies in high-risk settings.<sup>22</sup>**
- 8. Fund research into promising pathogen reduction technologies, including far-UVC light, and evolve the indoor air quality strategy as new technology becomes available.**

COVID-19 showed us that the human, social and economic costs of pandemics are catastrophic, and that willingness to act on the advice of experts was critical to good outcomes.<sup>23</sup> These eight recommendations, implemented nationally and promoted globally through capacity-building efforts, could substantially reduce the rate at which pandemics occur. With the right ambition, COVID-19 could be humanity's last pandemic.

Yours Faithfully,

Australians for Pandemic Prevention

**Emeritus Professor John Murtagh AO**

FRACGP, DipObst(RCOG), MBBS, MD, BSc, BEd  
Department of General Practice  
Monash University

**Professor Lyn Gilbert AO**

FAHMS, FRACP, FRCPA, MD, MSt Bioethics  
Sydney Infectious Diseases, Faculty of  
Medicine and Health  
University of Sydney

**Professor Rob Moodie AM**

MPH, DTM, MBBS  
Professor in Public Health  
Melbourne School of Population and Global  
Health  
The University of Melbourne

**Distinguished Professor Lidia Morawska**

PhD, MSc  
School of Earth and Atmospheric Sciences  
Director, ILAQH  
Queensland University of Technology

**Professor Colin Butler**

PhD, DTM&H, MSc, BMedSc(Hons), MBBS  
National Centre for Epidemiology and  
Population Health  
Australian National University

**Associate Professor Gert Frahm-Jensen**

FRACS (Vasc), MBBS, BBiotech  
Chair Royal Australian College of Surgeons  
ACT Committee

**Professor Wendy Hoy AO**

FAA, FRACP, PhD, MBBS, BS, BScMed  
Director of the Centre for Chronic Disease  
University of Queensland

**Professor Michelle Leech AM**

FRACP, PhD, MBBS(Hons)  
Deputy Dean Faculty Medicine Nursing And  
Health Sciences, Head of the Medical Course  
Monash University

**Professor Mike Toole AM**

DTM&H, MBBS  
Associate Principal Research Fellow, Burnet  
Institute  
Adjunct Professor, Monash School of Public  
Health

**Professor Thea van de Mortel**

FACN, FACIPC, SFHEA, PhD, RN  
School of Nursing and Midwifery  
Griffith University

**Professor Karen Price**

FRACGP, MBBS  
Immediate Past President RACGP  
PhD Candidate  
Monash University adjunct  
GPDU Co-founder & Admin

**Associate Professor Nicholas G. Evans**

PhD, MSME, BSc (Hons)  
Associate Professor and Chair  
Department of Philosophy  
University of Massachusetts Lowell

**Associate Professor Nigel Beebe**

PhD, MSc, BSc  
School of the Environment, Faculty of  
Science  
University of Queensland

**Dr Yibeltal Assefa Alemu**

PhD, MD, MSc  
Senior Lecturer in Health Systems  
School of Public Health  
University of Queensland

**Dr Cassidy Nelson**

PhD(Ox), MPH, MBBS  
Head of Biosecurity Policy  
The Centre for Long-Term Resilience

**Dr Dan Epstein**

FRACGP, PhD, MBBS(Hons), BmedSc(Hons)  
Director, The Long Game Project

**Dr Akhil Bansal**

MD, BSc  
University of Sydney  
Graduate, Bachelor of Science and Doctor of  
Medicine

**Dr Sid Sharma**

MD, MPH (Global Health), BSc  
Public Health Physician  
Metropolitan Communicable Disease  
Control, WA Health

**Mr Solomon Silverstein**

MPH, BBiomedSc/BSc(Hons)  
Epidemiologist

**Dr Bridget Williams**

FAFPHM, MSt, MPH, MBBS(Hons), BMedSc(Hons)  
Public Health Physician and DPhil Candidate at  
the University of Oxford

**Dr Amalie Dyda**

PhD, MAE  
Senior Lecturer  
School of Public Health  
University of Queensland

**Dr Claire Bird**

Affil. AIRAH, PhD, BSc  
Integrated Biosciences and Built Environment  
Consortium (IBEC)  
Director, LITMAS Pty Ltd

**Dr Ruby Biezen**

PhD, MAppSc, BSc  
Senior Research Fellow Infection and  
Immunisation Lead  
Melbourne Medical School

**Dr Bridget Williams**

FAFPHM, MSt, MPH, MBBS(Hons), BMedSc(Hons)  
Public Health Physician and DPhil Candidate at  
the University of Oxford

**Dr Jun Young (Charlie) Jeong**

MPH, BMed  
Co-Executive Director, Clear Solutions

**Mr Thom Dixon**

Vice President  
Australian Institute of International Affairs NSW

## Endnotes

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