

**Australian Academy of Science submission on the
*COVID-19 Response Inquiry***

Australia's response to the COVID-19 pandemic was largely successful, in no small part due to the provision of timely science advice to government, and the ability of the scientific community to mobilise science and technology capability to support national and international public health responses and vaccine development.

Science is at the core of our preparedness and ability to generate the knowledge required to see Australia through the next crisis.

The COVID-19 response inquiry has the opportunity to consider:

- The robustness and readiness of the Australian science system in the context of declining investment to secure the knowledge and technologies needed to underpin future responses.
- A robust and permanent science advice mechanism for independent multi-disciplinary science advice to inform policy across government.
- The role of Australia's Chief Scientist as a scientific advisor to government in crises.
- A national strategic plan for emergency pandemic preparedness and coordination.
- Ongoing and proactive science communication to counter mis- and disinformation.

Strong science capability underpins future pandemic responses.

The pandemic tested science systems globally. Global science development and vaccine platforms, the product of decades of investment in fundamental science, performed well.

For Australia, the pandemic demonstrated the importance of maintaining a strong science and research base as a national capability and resource that sets the foundation for crisis response and evidence-informed policy.

The science which helped inform public health measures during the pandemic and designed, tested and manufactured vaccines, resulted from decades of patient investment in science worldwide and in Australia. We could never know at the time of investment that the outcomes would have provided us with the knowledge and capability base to respond to a global pandemic rapidly. For example, mRNA vaccines were developed based on decades of fundamental scientific research.

The strength and openness of international scientific collaboration was essential to the world's ability to respond to the pandemic. This included the work of Australian researchers such as ██████████ ██████████ who, working with collaborators in China, was among the first to publicly release the genome sequence of COVID-19, which allowed the world to begin to understand the virus and fight it.

Our national response drew upon multiple existing research programs and the skills of researchers who pivoted their research to support the pandemic response. Without this scientific research base, our response to the pandemic would have been less informed and more dependent on scientific advice from other jurisdictions.

Australia's investment in science has been declining for over a decade. Strategic coordination across government is rare, most science programs are small and piecemeal, and on most indicators, Australia's performance is stagnating or going backwards.

Not initiating large-scale collaborative research based on research priorities early in the pandemic was a lost opportunity. Open competitive calls to fund research created competition rather than facilitating collaboration for greater impact. Also noted in the Academy of Health and Medical Science's (AAHMS) submission, Australia would be better positioned to respond to future pandemics by strategic planning and establishing systems to

support coordinated research in priority areas and suitable clinical trials and studies to be ready ahead of time to respond immediately.

Strategic access to reliable science advice is essential for pandemic responses.

Our nation was well served by policymakers being able to access scientific evidence. Mechanisms that now bring science to the heart of government should not be lost post-pandemic and must be an important part of our future preparedness.

The Rapid Research Information Forum

One example of how science advice was provided to policymakers during the pandemic is the Rapid Research Information Forum (RRIF). RRIF is a cross-disciplinary forum that was established in 2020 in response to the pandemic and provided a practical, evolving and responsive mechanism for timely and independent science policy advice.

The RRIF was chaired by Australia's Chief Scientist and its operations were led by the Australian Academy of Science. It prepared and published responses to questions sought by federal Ministers. The membership of the RRIF included Australia's Learned Academies, the Australian Council of Learned Academies, members of the Forum of Australian Chief Scientists, and other research sector organisations, including CSIRO, Universities Australia and Science and Technology Australia, among others listed [here](#).

Contributing authors of RRIF reports included relevant experts drawn from academia, education, industry, government, and the community sector.

The RRIF sought to rapidly provide the best available scientific evidence relating to the COVID-19 pandemic, drawing on expertise in various fields, including all aspects of science, technology, humanities, social science and public health. Reports provided by RRIF synthesised the current evidence relevant to the question, were apolitical and did not make policy recommendations.

RRIF filled a gap in formal mechanisms at the science-policy interface in Australia, providing policymakers with access to the latest evidence, compiled by experts, that was timely, independent, transparent and reliable and was designed to serve their needs. It supplemented siloed domain advice with its utilisation of multidisciplinary expertise.

Advantages of the RRIF include:

- RRIF reports were designed to be accessible to a non-specialist policy audience and provided advice in a policy-relevant timeframe, addressing the mismatched timeframes of research and policy.
- Questions were posed by Ministers and scoped with the Chief Scientist and Learned Academies, ensuring salient advice that could be delivered and served the needs of those who would use it.
- It was a formal mechanism which had a trusted organisational base and convening power through the Learned Academies.
- Responses were grounded in a diverse range of experts' current knowledge and were peer-reviewed and published publicly.

RRIF has evolved into a permanent advice system, now called [Rapid Response Information Reports](#), as a pathway for advice to government beyond the immediate risks and uncertainties of the pandemic. This system, organised through the Prime Minister's National Science and Technology Council, is in its infancy and has not yet operated effectively at scale.

The UK Scientific Advisory Group on Emergencies

The UK's Scientific Advisory Group on Emergencies (SAGE) is a permanent mechanism for science advice to provide policy-aware expert advice to government. SAGE participants included those in key expert positions in government, government scientific advisors, the Chief Scientific Advisor and the Chief Medical Officer, and

leading academics. Subcommittees of scientific experts focussed on particular areas, such as modelling, behavioural science and emerging viruses and worked alongside informal science advice networks.¹

However, there were limitations of the SAGE model. Criticisms included narrow representation of different forms of expertise, insufficient engagement with policymakers to ensure that SAGE was answering the right questions based on the right information and that its process was not independent or transparent enough—meeting minutes, reports and SAGE membership were only published later in the pandemic.^{2,3}

Recommendations for Australia's Science Advice Mechanisms

There is a strong need for Australia to have coordinated, independent, strategic and permanent mechanisms for scientific and public health advice to reach government.

Australia's scientists and public health experts were at the forefront of the nation's COVID-19 response, providing the information and advice that was essential to evidence-informed decision-making. However, the rapid proliferation of state, territory and national advisory bodies during the pandemic contributed to duplication and fragmentation, made coordination and appropriate consultation challenging and created a high burden on scientists and other experts contributing to these advice networks.

Also problematic is narrow consultation from one segment of the expert community on health and technological matters, which can contribute to missed opportunities such as Australia's delayed access to mRNA vaccines. The government should always consider the voices of researchers working in the fundamental biological and physical sciences as well as those who work at the translational stage, be it in engineering or the clinic.

Australia lacks a strategic and structured independent scientific advice system. It is essential that this system has a close dialogue with policymakers and has trust and legitimacy. SAGE provides an informative model, and innovations learned through the RRIF may address some of the pitfalls of the UK's science advice experience.

The RRIF was transparent and provided advice mediated through the Learned Academies and other research organisations and advisors, providing independence, legitimacy and the ability to convene input from a broad range of experts, quickly.

Australia's Chief Scientist should have a legislated role in providing advice to government during crises. There was much scientific evidence that was relevant to Australia's pandemic response, but potentially fell out of the remit of the Chief Medical Officers who were relied upon to provide health advice and played an important leadership role.

The Academy supports the Government's intention to establish an Australian Centre for Disease Control (CDC). The CDC would be ideally placed within a national network of scientific advice capability to translate research into evidence-based guidelines in emergencies and facilitate data sharing and surveillance infrastructure, working closely with the research sector. AAHMS' submission provides further detail on the infrastructure requirements for health data.

There will be other crises, and Australia requires robust, coordinated science policy advice mechanisms that enable rapid access to reliable, independent and transparent scientific advice for evidence-informed decision-making.

Effective science communication in crises

Misinformation through the repetition of pseudoscience narratives on vaccination efficacy and other health matters was a barrier to effective management of the pandemic. Disinformation narratives—false or

¹ Whitty CJM, Collet-Fenson LB. 2021, Formal and informal science advice in emergencies: COVID-19 in the UK. *Interface Focus*, 11: 20210059. <https://doi.org/10.1098/rsfs.2021.0059>

² House of Commons Health and Social Care, and Science and Technology Committees. 2021, Coronavirus: lessons learned to date. <https://committees.parliament.uk/work/657/coronavirus-lessons-learnt/publications/>

³ Freedman, L. 2020, Scientific Advice at a Time of Emergency. *SAGE and Covid-19. The Political Quarterly*, 91: 514-522. <https://doi.org/10.1111/1467-923X.12885>

misleading information with the intention to cause harm—were detrimental to the national and global pandemic response, perpetuating falsehoods on the mechanism of COVID-19 transmission and vaccine misinformation.

Expert-informed frameworks for identifying and combatting mis- and disinformation and other problematic content help inoculate against false narratives. The focus needs to be on pre-empting or “pre-inoculation” against misinformation. The Academy’s [collaboration](#) with the federal Department of Health on COVID-19 information resources, reviewed by Australian experts, is an example that could be built upon.

A national strategic plan for pandemic preparedness

The COVID-19 pandemic has exposed weaknesses in local and international public health preparedness and cooperation. Our ability to learn from state and territory, national and international experiences will direct our preparedness for the next crisis.

Australia should develop a national strategic plan for emergency pandemic preparedness, with extensive consultation, that can be implemented to strengthen coordination, access to scientific and public health advice and public engagement and communication in future crises.

To discuss or clarify any aspect of this submission, please contact