Submission to the COVID-19 Response Inquiry by the National Centre for Immunisation Research and Surveillance (NCIRS) Australia, December 2023

Key points

The national response to the COVID-19 pandemic was swift, comprehensive and effective overall. In preparation for future pandemics and to leverage learnings from COVID-19 to improve health and wellbeing, consideration (with a focus on vaccination) should be given to:

1. improving leadership and governance structures around vaccine procurement, policymaking, and program design and delivery
2. providing greater transparency around evidence and decision-making underpinning vaccine recommendations
3. establishing comprehensive, strategically designed, real-time national linked data systems that include key health and other outcome variables, as well as greater investment in rapid assessment of the effectiveness of vaccines, antivirals and other interventions
4. further developing and utilising evidence-based assessment of vaccine acceptance and uptake, particularly in known high-risk, low-coverage populations, to both improve routine vaccine update and enable rapid expansion of uptake in a pandemic
5. continuing to expand systems and conduct high-quality studies that monitor and provide evidence to the public on vaccine safety while simultaneously countering disinformation.

Organisation statement and role in COVID-19 response

NCIRS, Australia's immunisation public health agency, was established in 1997 in conjunction with the National Immunisation Program. NCIRS provides expert technical support and leadership in national evidence-informed immunisation policy and guideline development; immunisation program development and evaluation; vaccine-preventable disease epidemiologic assessment; and monitoring of vaccine coverage, factors impacting uptake and vaccine effectiveness and safety. NCIRS is funded by the Australian Government (DoHAC, DFAT for work in the Indo-Pacific), the NSW Government, the World Health Organization, Gavi, the Vaccine Alliance and various research granting bodies.

NCIRS' contributions to the national COVID-19 pandemic response were diverse and multifaceted. Key examples of our work included:

- provision of comprehensive technical and scientific support to the Australian Technical Advisory Group on Immunisation (ATAGI), including its COVID-19 Working Groups (>95 ATAGI meetings, >82 technical documents)
- presenting and disseminating disease- and vaccine-relevant technical information to other key national groups and committees, such as the Australian Health Protection Principal Committee, the Communicable Diseases Network Australia, states/territories and others
- dissemination to key stakeholders of high-quality research and information on COVID-19 vaccine candidate development, vaccine effectiveness and global COVID-19 variants
- first and ongoing COVID-19 vaccine effectiveness analyses (in partnership with jurisdictions and the Commonwealth) to monitor impact on severe disease
- expanding our national vaccine safety monitoring program, AusVaxSafety, to conduct near-real-time COVID-19 vaccine safety surveillance (over 6 million

surveys) and conducting extensive analyses of a range of potential adverse events following immunisation
- designing and co-leading the Australian COVID-19 Serosurveillance Network's national serosurveys to measure SARS-CoV-2 antibody prevalence in target populations
- studying COVID-19 transmission and severity in schools and early childhood education and care settings in children and staff to inform school opening practices.

Responding to the Inquiry Terms of Reference

1. Leadership and governance on vaccine procurement, policy and program delivery

Early in the pandemic, substantial challenges occurred in vaccine procurement, planning for vaccine delivery and communication, in the context of initially constrained vaccine supply and adjustments to recommendations in the wake of serious albeit very rare adverse events. While greater capacity for effective strategic and operational management developed during the pandemic, the many lessons learned need to be incorporated into new plans and operational response strategies for future pandemics.

A more strategic leadership and governance framework that is fit-for-purpose for future pandemics will best be established by improving these processes for Australia's existing range of national vaccine programs (i.e. the NIP and separate COVID-19, Japanese encephalitis and mpox vaccine responses) now. This can be done most effectively under an Australian Centres for Disease Control (ACDC) whereby appropriate expertise can be sourced and coordinated. Development of a more strategic planning process around which vaccines the Australian public needs now and will need in the future is needed. Detailed analyses and synthesis of evidence will be required to inform this process. Timely, comprehensive and appropriately resourced monitoring and evaluation plans to assess all vaccine program outcomes and impacts are also needed, particularly as many new vaccines are becoming available. Strengthening national governance and oversight would assist program delivery, through the timely development of a comprehensive suite of training materials; requirements for immunisation providers and jurisdictional health authorities on vaccine administration, handling, logistics, scheduling and clinical administration; and consistent guidance for vaccine administration and responding to cold chain issues.

2. Greater transparency of evidence-based decision vaccine policy making

Trust is built on understanding. Transparency of processes, both within and by Government and to and from its peak advisory groups, was suboptimal at various times during the pandemic. While considerable evidence supported by sound expert input and consensus underpinned decision-making, this could not always be 'seen'. Much greater and more timely analysis and publication of data, technical evidence, summary documents and presentations used for decision-making and meeting minutes – such as is done by the US Advisory Committee on Immunization Practices, the UK Health Security Agency and others – must occur and will build greater confidence and trust and more effective responses.

3. Responding to health needs through high-quality and timely data

There were many improvements in data availability to inform public health decision-making during the pandemic. However, access to timely, linked data that enables

better analyses to inform national monitoring of disease burden and impacts of interventions (vaccines, antivirals) needs further improvement. Data systems remain fragmented. During the pandemic, more timely national collation of disease notifications occurred, but these were unable to be linked to other data such as hospitalisation/ICU/mortality or vaccination status. This need remains unmet without a strategic plan underpinning it. Large states with greater workforce capacity were able to do some linkages and analyses, but methods were inconsistent, preventing harmonisation and leading to a 'patchwork' effect with information gaps.

Efforts to set up real-time linked national data systems (beyond mortality data, which already exists in the AIR-PLIDA [formerly AIR-MADIP] resource), enabling nationally consistent analysis, should be accelerated and assessed through demonstration projects to test such systems outside of the acute pandemic situation. These systems should be refined in preparation for when there is an urgent need. Further work within the ACDC should be undertaken now. While NCIRS continues to work as permitted with strong expertise in such data assets, we call for a collaboratively derived and resourced preventative health strategic framework for analysis of large-linked datasets to drive evaluation of program implementation and outcomes.

4. COVID-19 vaccine acceptance and uptake

During the pandemic there was insufficient real-time evidence on factors influencing vaccine acceptance and uptake. This resulted in strategies not being optimally targeted to the context and needs of specific populations. In future pandemic responses, data collection on behavioural and social factors influencing vaccine uptake and other public health-related actions should be enhanced, made more frequent and be appropriately targeted in the context of a pandemic or an emergent disease. This work should be done in collaboration with priority populations for co-design and testing of tailored interventions. By working closely with experts, academics and networks (such as the NCIRS-coordinated Collaboration on Social Science and Immunisation), development, testing and rollout of near-real-time multi-modal interventions to improve acceptance and coverage is possible.

5. Further strengthen systems for vaccine safety monitoring to promote confidence

Through AusVaxSafety and enhanced Therapeutic Goods Administration and state/territory processes, Australia has become a global leader in the production of timely, high-quality vaccine safety post-market data. However, mis- and dis-information about vaccine safety abounds and may increase. Improvements in vaccine safety monitoring and public communication should include better planned and collaborative national coordination; national consistency of processes and data; and, most importantly, more detailed epidemiologic assessment for key select and concerning adverse events that occur *after, but not necessarily from* vaccines. Systems for spontaneous reporting and AusVaxSafety active monitoring should be augmented by both scheduled and, where needed, responsive, well-resourced epidemiological risk-association studies, using both large-linked data and detailed clinical case assessment. NCIRS has led the way on a small number of these studies, but more can be done to ensure strengthening of the evidence base for vaccine policymaking, communication strategies and accompanying resources.

NCIRS welcomes the opportunity to expand on this response through participation in the Inquiry's next stage of targeted stakeholder engagement, roundtables and workshops.