

EDITORIAL

COVID-19 vaccine hesitancy: a unique set of challenges

The global SARS-CoV-2 pandemic has seen a revolution in both vaccine development and approval processes enabling life-saving vaccines to be implemented at record speed. The resultant vaccines, implemented in Australia under provisional licensure, have incorporated vaccine technologies not used before in Australia. For much of the pandemic, Australia and New Zealand have been spared by the high rates of COVID-19 disease seen elsewhere. Implementing COVID-19 vaccination programmes at an entire adult population level has been a complex, evolving series of programmes, with recommendations and strategies responding to community confidence, concerns and rare but potentially severe post-licensure adverse events. Understanding our diverse community and their concerns, incentivising immunisation and responding openly to emergent concerns are key components to maintaining community and healthcare provider confidence in this critical ongoing COVID-19 vaccine programme.

The COVID-19 pandemic has posed unique and unprecedented challenges in Australia and globally, requiring a phased, whole-of-population vaccination programme, with individuals initially prioritised according to risk and then by potential impact on transmission. Since the innovation of the Australian Childhood Immunisation Register in 1996, Australia's National Immunisation Program (NIP) has a proud history of achieving high childhood vaccine coverage. The expanded whole-of-life Australian Immunisation Register in 2016 enabled accurate programme implementation and evaluation for all ages, with COVID-19 providing a unique opportunity to improve this further.¹ Now, 18 months into the pandemic, it is timely to consider what has been different about the acceptance of COVID-19 vaccines and why.

First, the unprecedented timeline of vaccine development to implementation has meant that instead of waiting up to 15 years, we have been able to introduce COVID-19 vaccines into the population within 9–12 months after the commencement of clinical development. Additionally, we have been able to capitalise on mRNA and viral vector technology, already under development for other pathogens, for COVID-19 vaccine development.² Although no vaccine development phases were skipped, many were overlapping and expedited due to huge global investment and collaboration. Regulatory processes utilised emergency use access or provisional licensure mechanisms to enable implementation

of life-saving vaccines after safety follow up had been completed for all participants 2 months after their final doses. Nevertheless, despite this triumph of science and the unprecedented collaboration that has delivered effective COVID-19 vaccines in record time, there remains deep distrust for some. The speed of vaccine development and potential implications for vaccine safety continue to impact vaccine acceptance globally.

Vaccine acceptance and hesitancy is dynamic and has fluctuated throughout the pandemic, being most affected by surges in COVID-19 disease.^{3,4} In Australia, vaccine acceptance was around 70% prior to vaccine introduction in February 2021 and dipped to 65% at the height of the concerns regarding AstraZeneca and the rare thrombosis and thrombocytopenia syndrome (TTS) vaccine safety signal. By late December, 2021, it reached over 89% for two doses nationally. It reached over 80% as SARS-CoV-2 transmission and COVID-19 cases increased due to the delta strain, with the emergence of the highly transmissible Omicron strain reinforcing the need for a subsequent third booster dose. Since its implementation in late February 2021, vaccine uptake has primarily been impacted by supply and access factors, although hesitancy has continually been highlighted by the media. Using the World Health Organization Behavioural and Social Drivers vaccine acceptance framework, vaccine hesitancy is affected by what people think and feel about vaccines, including attitudes and concerns about vaccine safety, as well as the social processes that underpin acceptance, including provider recommendations and establishing vaccination as the social norm.⁵ Practical barriers to vaccination or access factors, such as time to make or travel to an appointment or waiting time, moderate but do not drive vaccine hesitancy.

Inability to make an appointment or get time off work to attend a vaccine appointment is not hesitancy, and yet many vulnerable groups with low coverage afflicted by such barriers to vaccination are falsely labelled as vaccine hesitant.⁶

COVID-19 vaccines have posed a unique set of challenges to vaccine acceptance. Vaccine safety, including concerns about common and expected side-effects, serious but rare and potential long-term safety issues, have been leading causes of vaccine hesitancy. However, provisional licensure has still required full clinical trial data, albeit with shorter follow-up time periods than are required for full licensure. Even the largest clinical trials are not powered

to detect rare adverse events, irrespective of follow-up duration, and these are always monitored for in post-licensure surveillance. Explanation of rare but potentially serious vaccine safety issues, such as TTS after some adenoviral vector vaccines and myocarditis and pericarditis post-mRNA vaccines, have required careful risk–benefit communications on an unprecedented level, according to age and risk profiles.^{7,8} When the peak immunisation expert committee Australian Technical Advisory Group on Immunisation revised their AstraZeneca vaccine preferred age recommendations in April and then June in response to developing risk profile understanding, providers and individuals struggled to make sense of the evolving risk and benefit data and changing recommendations.⁹ These further complicated how to interpret and communicate risk according to individual patient's circumstances.¹⁰ This was debated publicly, including by healthcare professionals, in mainstream media and social media platforms.¹¹ Furthermore, baseless conspiracy theories have continued to circulate, particularly around whether the mRNA vaccines insert genetic material into people's DNA or whether the vaccines contain microchips.^{12,13}

Is the vaccine hesitancy observed during the COVID-19 vaccine implementation a different phenomenon than in groups previously described in relation to routine childhood vaccines?¹⁴ While childhood NIP coverage remains high, above 90% across Australia, both positive and punitive incentives have been utilised including linking some family assistance payments and access to early childhood education and care access to immunisation status through the 'No Jab' policies.¹⁵ It remains to be seen how much routine childhood vaccine hesitancy corresponds with COVID-19 vaccine-hesitant community members, although the small 'refuser' group is likely to overlap substantially.

Vaccine coverage in Australia, as of 30 October, was 77.2% for two doses and 88.2% for one dose for all adults aged over 16 years, with 90.3% of the over 70-year-old group fully vaccinated. NSW was leading, with over 12 million doses, and more than 35 million doses given nationally.¹⁶ High-risk vulnerable groups, such as people receiving or working in aged or residential care, people with disabilities, people in Aboriginal and Torres Strait Islander communities and many different cultural groups, require targeted and in-reach strategies to improve vaccine coverage. These include strong community

engagement, as well as by empowering and working with community, faith and indigenous leaders to build trust. Drivers of vaccine hesitancy in many of these groups may include conspiracy theories from countries of origin or historical mistrust in medical and scientific organisations, which may have been exacerbated by public health interventions during the COVID-19 pandemic.

Strong provider support with tailored risk–benefit resources, Medicare reimbursement for time spent counselling vaccine-hesitant individuals and broad and tailored communication campaigns that address both the direct and indirect benefits of vaccination are needed. Campaigns that focus on the broader benefits of vaccination and harness people's positive motivation to get vaccinated around ability to travel, freedom from lockdowns and school closures, financial security and social mobility, especially for younger adults who have missed significant life events and freedoms in their lives, will be needed to reach high vaccine coverage.¹⁷ Mandatory vaccination legislation, as well as population vaccine passports, are now being introduced, requiring careful consideration to ensure equity and ethical issues do not compound disadvantage and unfairly penalise certain groups.¹⁸

For Australia to transition from Phase A to B in the Plan for Australia's National COVID-19 Response and to start to relax some of the public health measures, it is estimated that we need at least 70–80% full vaccination coverage of the adult population aged >16 years, although ongoing mitigation measures will still be needed. The Omicron strain is now posing new challenges to public health control measures, at a time when some measures have been relaxed. This will place even greater emphasis upon vaccine coverage and timeliness. To reach the highest possible coverage, we need to overcome the supply and access issues that have hindered the rollout to date and ensure ongoing targeted strategies for hard-to-reach groups and effective, transparent communication to overcome vaccine hesitancy.

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