

COVID-19 and changes in the National Immunisation Program: a unique opportunity to optimise the Australian Immunisation Register (AIR)

Putting in place the mechanisms to assess coverage in vulnerable groups is essential to drive optimal uptake and best practice

Several targeted vaccine programs introduced to the Australian National Immunisation Program (NIP) in 2020 exposed the limitations of the Australian Immunisation Register (AIR), particularly, its inability to collect information on medical risk factors to monitor vaccine uptake in at-risk groups. These program changes highlight the need to optimise AIR reporting to improve the accuracy of individual-level vaccination data for the benefit of patients and treating clinicians as well as the ongoing surveillance of vaccine coverage for medically at-risk groups.

As of 1 July 2020, Bexsero (GSK), the meningococcal B vaccine, was funded by the NIP for all Aboriginal and Torres Strait Islander children aged under 2 years and for other populations with specific medical risk factors, including asplenia, hyposplenia, complement deficiency, and use of eculizumab therapy.¹ Additional doses of the pneumococcal 13-valent conjugate vaccine (Prevenar 13, Pfizer) and the 23-valent pneumococcal polysaccharide vaccine (Pneumovax 23, MSD) are now funded for Aboriginal and Torres Strait Islander people and for individuals with certain medical risk factors (eg, asplenia, immunosuppressive conditions, specific respiratory disorders).² While these NIP changes are welcomed, clinicians need access to data that include information on medical risk to optimise benefits to patients. Both patients and medical practitioners need capacity to track receipt, ensuring that the most vulnerable people receive the recommended vaccines, and avoid unnecessary repeat vaccinations. Assessing compliance with these policy changes will be difficult because medically at-risk individuals are currently unable to be identified on the AIR. The functionality of the AIR needs to change to enable the collection of medical risk factors, including pregnancy, and strive for more complete reporting of vaccinations that will deliver benefits at both a population and individual level.

Accurate coverage data are vital for clinicians to be able to offer evidence-based care and ensure their most vulnerable patients are protected, and to inform strategies to improve vaccine uptake. Globally, the strongest predictor of influenza vaccine receipt in pregnant women and children with medical comorbidities is a health care provider recommendation.³⁻⁵ Facilitating health care provider recommendations and other effective strategies to improve uptake, such as reminders or prompts for clinicians or text messages from clinicians to patients, will not be optimal without accurate vaccination



data. In this article, we aim to highlight the need for optimising reporting to the AIR and increasing its capacity to collect information on medical risk factors, ensuring maximum program reach of targeted programs, and propose potential solutions.

Lower uptake of targeted vaccine programs

Despite targeted vaccine programs aiming to improve coverage for vulnerable groups, they often have lower uptake than universal vaccine programs.^{3,4,6-8} With the exception of Aboriginal and Torres Strait Islander people, the AIR currently fails to recognise people who qualify as vulnerable because the AIR does not capture “at-risk” status, rendering the eligible group (ie, denominator) not easy to identify. Before 2016, the Australian Childhood Immunisation Register only recorded childhood vaccines up to 7 years. With the expansion to the whole-of-life AIR in September 2016, it was hoped that adult vaccinations, including maternal influenza and pertussis vaccines for pregnant women and vaccines for medically at-risk groups, would be captured. This is an ongoing priority because the uptake of maternal influenza vaccine remains suboptimal, estimated to be 39% in Victoria between 2015 and 2017,⁶ with variation nationally across years and jurisdictions — 31.7% (Northern Territory, 2016), 54% (New South Wales, 2016) and 76% (South Australia, 2017).⁸⁻¹⁰ Similarly, influenza vaccine uptake in medically at-risk children also remains suboptimal (about 40% nationally for 2014–2015 and 2017).^{3,4}

Lack of recording of at-risk status

At present, there is no capacity to link vaccine receipt on the AIR with a person’s at-risk status, as the register lacks the functionality to do so. There

Jane Tuckerman¹

Christopher C Blyth² 

Frank H Beard^{3,4} 

Margie H Danchin^{1,5}

¹ Murdoch Children’s Research Institute, Melbourne, VIC.

² University of Western Australia, Perth, WA.

³ National Centre for Immunisation Research and Surveillance, Children’s Hospital at Westmead, Sydney, NSW.

⁴ University of Sydney, Sydney, NSW.

⁵ Royal Children’s Hospital, Melbourne, VIC.

jane.tuckerman@mcri.edu.au

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is a need for the AIR to be able to more accurately track vaccine receipt nationally to identify strategies to improve coverage in at-risk groups. The lack of pregnancy status capture in the AIR necessitates the use of other data sources, such as perinatal datasets in jurisdictions where maternal immunisation is collected, or population surveys to obtain coverage estimates, but these are of no use to clinicians at the individual level. This is also the case for children who are medically at-risk, with no capacity to link medical risk factors with vaccine receipt for identification and tracking of these children. Parents are known to over-report vaccination status, particularly for children with complex and ongoing medical conditions.¹¹ Identification of at-risk status would also enable more targeted estimates of vaccine effectiveness for at-risk individuals, rather than extrapolating from population-level data, enabling more comprehensive assessment of targeted vaccine programs. Aside from the few countries that link national or statewide immunisation registers to health data,¹² evaluating the uptake of influenza vaccination in medically at-risk groups is a global problem, with considerable gaps in monitoring coverage due to incomplete identification of these individuals.

Requirement to report vaccines to the AIR

Until recently, while strongly encouraged, there was no requirement to report vaccinations to the AIR except for pharmacists under legislation in NSW and the Australian Capital Territory.¹³ However, an amendment to the AIR Act has recently been legislated, making it mandatory for all vaccination providers to report to the AIR vaccines given under the NIP, through school-based programs and privately, such as for seasonal influenza and vaccines required for travel purposes.¹⁴ Under the new legislation, coronavirus disease 2019 (COVID-19) vaccines must be reported to the AIR. In addition, influenza vaccinations must be reported to the AIR from 1 March 2021 and all other NIP vaccinations must be reported from 1 July 2021.¹⁵ The requirement has ramifications, as the completeness of reporting is likely to be lower for vaccines recommended and funded as part of targeted programs on the NIP, previously limiting accurate coverage assessments. While no studies have examined completeness of reporting maternal vaccination to the AIR,^{6,7} this is exacerbated by incomplete adult vaccination data in the register, especially with the expansion of other vaccine providers, such as pharmacists and workplace programs.¹⁶

The COVID-19 pandemic highlights the requirement for a more adaptable AIR. With more than 200 COVID-19 vaccine candidates in development,¹⁷ the rollout of COVID-19 vaccines will be complex due to expected availability and the delivery capacity of immunisation providers. With a need to protect the most vulnerable people first, Australia's COVID-19 vaccination program will prioritise border and quarantine staff, health care workers and medically at-risk groups. These vaccination encounters will need

to be recorded and tracked, both for coverage and vaccine safety, using active surveillance systems such as AusVaxSafety (www.ausvaxsafety.org.au).

Potential solutions to improve vaccine uptake and tracking

Improving vaccine uptake in targeted programs requires a multifaceted approach, such as education, reduction of access barriers, and key structural modifications that should focus on core capabilities of the AIR and reporting requirements. While recent NIP changes present a unique opportunity to redefine the core functions of the AIR, there are potential complexities and ethical considerations around reporting pregnancy and medical conditions to the register.

One potential solution would be to consider the linkage of AIR data to other national datasets (eg, Medicare, the Pharmaceutical Benefits Scheme, hospitalisations, the Therapeutic Goods Administration adverse event database), as occurs in some other countries.¹² This is relevant for the introduction of COVID-19 vaccines, for which safety monitoring and coverage tracking will be critical. Another solution would be to include pregnancy and medical risk factor data fields in the AIR. This information could be entered directly by providers if reporting on the AIR secure website or reported in a semi-automated manner via practice management software (PMS), which is how most reporting currently occurs. While pregnancy and medical risk factors are often recorded in PMS, ensuring this is done routinely and updated appropriately would require substantial provider education. To improve access and ensure better integration within immunisation provider settings, particularly in general practice, bidirectional capacity could be developed to enable the AIR to link with PMS to reconcile vaccination status and provide clinical decision support on catch-up vaccination schedules. The stricter reporting requirements, such as mandated reporting of all vaccinations and linking NIP vaccines with reporting, as outlined in the recent Australian Immunisation Register Amendment (Reporting) Bill 2020,¹⁴ will be beneficial, although the implementation and ensuring compliance may be challenging. Under the new AIR Reporting Bill, in addition to education and support, non-compliant providers may also be subject to financial penalties. However, an incentives approach to reporting, in addition to mandated reporting, could also be implemented. For example, general practitioners and other immunisation providers could receive administrative payments for reporting vaccinations to the AIR (similar to what is done with the NIP childhood vaccines), thus acknowledging the time it takes from their busy schedule.

Despite the AIR being internationally recognised and celebrated within Australia, there is opportunity for improvement if the AIR is to fulfil its potential as a lifelong register. The most pressing challenges ahead are the need to continue to optimise reporting to the AIR and build capacity to identify special risk groups

(particularly given the new targeted NIP programs), and the need to improve reporting of all non-NIP vaccines. We welcome the recent AIR Reporting Bill 2020; however, there remains a particularly urgent need to have the ability to identify individuals with risk factors such as pregnancy or medically at-risk status. This would not only use the full potential of the AIR and optimise vaccine coverage surveillance but would also offer benefits at the individual level.

We appreciate that such changes to the AIR and provider practice may be cumbersome. However, we are seeking support from the broader medical community to raise awareness and advocate that these changes should be prioritised, not only to improve accuracy in recording of vaccinations and at-risk status but also to facilitate providers' ability to access AIR data for better patient care. NIP vaccine programs tailored to the increased risk experienced

by population groups are important, such as those targeted to pregnant women or medically at-risk individuals. We must ensure that we have the mechanisms to accurately assess coverage in these vulnerable groups, not just the routine childhood NIP-funded groups, to drive optimal uptake and best practice.

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