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Improving access to immunisation for migrants and refugees: recommendations from a stakeholder workshop

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Australia is a nation of migrants with an estimated 28.1% (6.6 million people) of the resident population born overseas, of whom two-thirds were born in non-English speaking countries and a further 23% born to migrant parents.¹ About 190,000 permanent migrants (skilled and family visa categories) and 14,000 humanitarian entrants enter Australia each year.² In the majority of migrant source countries, the national immunisation programs include fewer vaccines than are listed on the Australian Standard Vaccination Schedule, and coverage is variable.³ Refugees invariably arrive from countries with disruptions to health infrastructure, including immunisation programs. Primary care and specialist practitioners who see recently arrived migrants and refugees reported a need for catch-up immunisation in these groups.⁴⁻⁶ Currently, there is no universal pre-arrival immunisation requirement for migrants or refugees entering Australia on permanent visas, unlike in the United States.⁷

Australia's National Immunisation Program (NIP) is one of the most comprehensive and successful publicly funded immunisation programs in the world. However, gaps in vaccination coverage and population immunity undermine the success of the overall program. The Australian Immunisation Handbook advises the targeted catch-up vaccination of all migrants and refugees without valid documentation of vaccination,⁸ but no national system exists to achieve this. Failure to address immunisation gaps

in a coordinated manner at a national level for these vulnerable groups increases their individual risk and also the risk of outbreaks of vaccine-preventable diseases in Australia. For example, the largest epidemic of measles in Australia since 1997, the year of the Measles Control Campaign, occurred in 2012/13 in Sydney, with under-vaccinated migrant communities a key driver of this epidemic.⁹ Catch-up immunisation may be overlooked upon arrival due to competing settlement priorities and there may be missed opportunities early during settlement to complete immunisation schedules. Other factors that contribute to under-immunisation of migrants and refugees include language difficulties, barriers to health-seeking, financial constraints, fragmented health service delivery and poor health system literacy.^{10,11} In a study of East African migrants settled in Melbourne, only one in five had received a vaccine since arriving in Australia, despite multiple primary care and hospital visits.¹² The NHMRC Centre for Research Excellence (CRE): 'Immunisation

in under studied and special risk populations' hosted a stakeholder workshop in August 2013 in migrant, refugee and travel health. This workshop was the first in Australia to bring together stakeholders in immunisation, refugee and migrant health to discuss immunisation gaps and future policy direction. This commentary summarises the recommendations from this workshop, with key recommendations presented in Table 1.

1. Whole-of-life immunisation register with the capacity to identify at risk groups such as migrants and refugees

A universal tool for recording past immunisations is essential for the efficient provision of catch-up immunisations for all ages. Poor prior documentation and cultural and language differences create difficulties for primary care providers assessing immunisation needs among migrants and refugees. The Australian Childhood Immunisation Register (ACIR), funded by the Australian government since 1997, records vaccines provided to children up to seven years of age. The register informs provider assessment of immunisation status of children and provides essential data on immunisation coverage at a population level. Data on immunisation coverage across the life-span have not been available for vaccines administered after seven years of age in Australia and presents a significant gap in assessing individual immunisation needs.¹³ For example, in South Western Sydney, routine immunisation coverage monitoring by the ACIR failed to flag this geographic area as being at risk for measles, because the under-vaccinated groups were outside of the age group recorded in the ACIR, and some were not Australian citizens.⁹

Table 1: Key recommendations for addressing the gap in immunisation.

1.	A whole-of-life immunisation register in Australia with the capacity to identify at risk groups such as migrants and refugees.
2.	Address gaps in immunisation policy for refugee and migrants through a national approach to the implementation of the National Immunisation Strategy for Australia 2013-2018.
3.	Fund vaccines for catch-up immunisation for recently arrived migrants and refugees for all age groups.
4.	Inform targeted health education and health care delivery through improvements in the identification of risk groups for under-immunisation in routinely collected data.
5.	Improve refugee service coordination and support for immunisation delivery in the primary care sector.
6.	Improve community engagement and education to support immunisation program initiatives.

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The Australian Immunisation Register (AIR), a whole-of-life immunisation register, is in development. In January 2016, the ACIR was expanded to capture vaccines given to children and adolescents up to and including the age of 19 years, with roll out to include all ages expected from September 2016. Currently, refugee and other newly arrived migrants aged 19 years or less are automatically added to the Australian Childhood Immunisation Register upon registration with Medicare and it is anticipated that all Australians registered with Medicare will be included on the future AIR. A key recommendation arising from the CRE workshop was the development of a whole-of-life immunisation register with the capacity to register previous, verified immunisations including those documented from previous countries of residence. All adults, including refugees and other newly arrived migrants will appear as under-immunised on the register until providers record prior vaccinations. Additionally, the inclusion of a minimum dataset of country of birth, year of arrival and language spoken would enable monitoring and evaluation of migration-related risk factors in low coverage populations in Australia.¹⁴ While the full extent of data capture from the anticipated AIR has not been fully articulated, the first iteration of the AIR will include data required on enrolment with Medicare, which includes country of birth and date of arrival but not language spoken. Collection of additional data on parental country of birth would enable identification of Australian-born children of migrants who have travelled, visiting friends and relatives (VFR), who comprise a significant proportion of cases of notified vaccine-preventable diseases acquired during travel.¹⁵ A well-designed whole-of-life immunisation register has the potential to identify under-immunised migrants and refugees, to link coverage and disease surveillance data and enumerate differentials in risk, to reduce missed opportunities for immunisation, and reduce vaccine wastage and potential adverse events from over-vaccination.

2. National immunisation strategy

The National Immunisation Strategy for Australia 2013-2018, co-ordinated by the National Immunisation Committee, supports the objectives of equity of access to NIP vaccines without financial or geographical barriers and maintaining

or improving immunisation coverage for high risk population groups.⁸ However, a greater emphasis on migrant and refugee immunisation in the implementation of this strategy would provide an opportunity to target the large, culturally and linguistically diverse populations that are particularly vulnerable to under-immunisation, and address an important gap in national communicable disease control. The strategy should explicitly address equity of access to immunisation for overseas-born residents, and include a national agreement to ensure consistent eligibility and entitlements of catch up vaccines for refugees and migrants of all ages and all visa groups.

3. Fund vaccines for catch-up immunisation for newly arrived migrants and refugees of all ages

The lack of universal funding for catch-up for migrants and refugees who have missed scheduled NIP vaccines is as a significant barrier to the equitable provision of immunisation.^{8,16} Recently arrived refugees and migrants may fall outside the age cut-off for catch-up vaccines, particularly for the school-based programs for human papillomavirus, varicella-zoster virus vaccine and the hepatitis B and combined diphtheria-tetanus-acellular pertussis boosters. To enable effective delivery of vaccinations, including opportunistic immunisation, funded vaccines should be readily accessible to enable catch-up for all people of refugee or migrant background.

4. Identifying recent migrants and refugees in routine databases and disease surveillance systems

While country of birth is often recorded in routine data collections and primary care data software, year of arrival and migration status is not. The assessment of migration-related risk factors requires a consistent dataset across primary care, disease surveillance, and hospital and death records. Collection of migrant and refugee status is required for the monitoring and evaluation of immunisation coverage in migrant and refugee groups and to identify at-risk communities. A recommended minimum dataset includes country of birth, year of arrival in Australia, migration status on arrival, language spoken and interpreter requirements.

5. Supporting immunisation delivery for migrants and refugees in primary care

Diverse models of care that provide multiple pathways for screening of newly arrived refugees can create confusion among providers who are responsible for catch-up immunisation.¹⁷ Providers may not be aware of the health needs of recent migrants and refugees, and may not be aware of refugee health care resources available to them.¹⁸ If refugee or recent migrant status is not flagged at the first primary care encounter, opportunities for immunisation may be missed.¹¹ For refugees, the refugee health assessment provides the best opportunity for offering catch-up vaccinations soon after arrival. Some newly arrived migrants to Australia in the family visa stream are also from refugee-like backgrounds¹⁹ with similar immunisation needs. A systematic method for health providers to identify refugee or migrant patients when they encounter the Australian health system would optimise care for these groups, including assessment of vaccination status. Optimal models for provider care including practice and patient reminder systems would support delivery of vaccines through primary care.

Immunisation support to primary care from Primary Health Networks and refugee and migrant health services is one approach to improving immunisation in this setting. Settlement services assisting refugees to settle in Australia need to work with their local primary care providers to support the delivery of catch-up immunisation. Support by the Primary Health Networks (PHNs) through provider training in refugee health assessments, and the expansion of health education programs to refugees and migrants, would likely decrease barriers to immunisation. Determining prior immunisations and catch-up needs is time-consuming and difficult for healthcare providers. The WHO tool summarising country profiles of vaccines on national immunisation programs and reported coverage can be useful in determining the need for catch-up by country of origin.²⁰ However, this tool is neither widely publicised nor user-friendly. The development of an online catch-up immunisation calculator for all age groups was a commonly described need by immunisation providers at the workshop. The South Australian Department of Health immunisation calculator is useful for determining catch-up requirements for

young children²¹ and could be expanded to cover all ages.

6. Community engagement and education

Cultural differences in health seeking behaviour and attitudes to preventive healthcare may result in reduced prioritisation of the importance of immunisation.¹¹ A lack of understanding of the Australian health system, including rights to healthcare and the services provided under Medicare, are barriers to accessing services for migrants and refugees¹¹ and are compounded by language barriers, lack of interpreters and a lack of information in their own language.²² Community engagement can help inform migrant and refugee communities about targeted health education initiatives, while culturally appropriate education can empower them to navigate Australia's healthcare system.

Conclusion

People from migrant and refugee backgrounds in Australia are at greater risk of under-immunisation and are therefore susceptible to vaccine-preventable diseases. This, in turn, can result in epidemics of vaccine preventable diseases, as seen in the case of a large measles outbreak in Sydney.⁹

Pockets of unimmunised individuals within these vulnerable groups pose a risk to their own health and to the NIP. Lack of identifiers for refugees and migrants, unfunded vaccines, and lack of a whole-of-life immunisation register are the main barriers to delivery of catch-up immunisation. Assessment of immunisation status post-arrival in Australia, an appropriate data record system and universal funding for catch-up immunisation are strategies for addressing the current gap in immunisation for migrants and refugees.

References

1. Australian Bureau of Statistics. *3222.0 - Population Projections Australia 2006 to 2101* [Internet]. Canberra (AUST): ABS; 2008 [cited 2016 Mar 22]. Available from: <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/3222.0Media%20Release12006%20to%202101?opendocument&tabname=Summary&prodno=3222.0&issue=2006%20to%202101&num=&view=>
2. Fisher JM, Garside M, Hunt K, Lo N. Geriatric medicine workforce planning: A giant geriatric problem or has the tide turned? *J R Coll Physicians Lond.* 2014;14(2):102-6.
3. Braun ES, Crawford FW, Desai MM, Meek J, Kirley PD, Miller L, et al. Obesity not associated with severity among hospitalized adults with seasonal influenza virus infection. *Infection.* 2015;43(5):569-75.
4. Hull BP, McIntyre PB, Sayer GP. Factors associated with low uptake of measles and pertussis vaccines - an ecologic study based on the Australian Childhood Immunisation Register. *Aust N Z J Public Health.* 2001;25(5):405-10.
5. Reekie J, Gidding HF, Kaldor JM, Liu B. Country of birth and other factors associated with hepatitis B prevalence in a population with high levels of immigration. *J Gastroenterol Hepatol.* 2013;28(9):1539-44.
6. Sathanandan D, Gupta L, Liu B, Rutherford A, Lane J. Factors associated with low immunity to rubella infection on antenatal screening. *Aust N Z J Obstet Gynaecol.* 2005;45(5):435-8.
7. Centre for Disease Control and Prevention. *Current Vaccination Criteria for U.S. Immigration* [Internet]. Atlanta (GA): CDC; 2009 [cited 2016 Mar 22]. Available from: <http://www.cdc.gov/immigrantrefugeehealth/pdf/revised-fact-sheet-fed-reg-notice-vaccination-immigration.pdf>
8. Australian Department of Health. *The Australian Immunisation Handbook 10th ed (updated June 2015)* [Internet]. Canberra (AUST): Government of Australia; 2015 [cited 2015 Aug 22]. Available from: <http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>
9. Najjar Z, Hope K, Clark P, Nguyen O, Rosewell A, Conaty S. Sustained outbreak of measles in New South Wales, 2012: Risks for measles elimination in Australia. *Western Pac Surveill Response J.* 2014;5(1):14-20.
10. Benson J, Smith M. Early health assessment of refugees. *Aust Fam Physician.* 2007;36(1-2):41-3.
11. Murray SB, Skull SA. Hurdles to health: Immigrant and refugee health care in Australia. *Aust Health Rev.* 2005;29(1):25-9.
12. Skull SA, Ngeow JY, Hogg G, Biggs BA. Incomplete immunity and missed vaccination opportunities in East African immigrants settling in Australia. *J Immigr Minor Health.* 2008;10(3):263-8.
13. Skull SA, Nolan TM. Australia needs an expanded immunisation register for further improvements in vaccine delivery and program evaluation. *Med J Aust.* 2007;187(9):504-5.
14. Paxton GA, Kay MP, Correa-Velez I. Lost and found: Improving ascertainment of refugee-background Australians in population datasets. *Med J Aust.* 2012;197(10):552-3.
15. Ericsson CD, Hatz C, Leder K, Tong S, Weld L, Kain KC, et al. Illness in travelers visiting friends and relatives: A review of the GeoSentinel Surveillance Network. *Clin Infect Dis.* 2006;43(9):1185-93.
16. Royal Children Hospital. *Catch-up Immunisation in Refugees* [Internet]. Melbourne (AUST): RCH; 2015 [cited 2016 Apr 9]. Available from: http://www.rch.org.au/immigranthealth/clinical/Catchup_immunisation_in_refugees/
17. Royal Australasian College of Physicians. *Immunisation Position Statement* [Internet]. Sydney (AUST): RACP Paediatrics and Child Health Division; 2012 [cited 2016 Apr 9]. Available from: <https://www.racp.edu.au/docs/default-source/advocacy-library/immunisation-position-statement.pdf>
18. Farley R, Askew D, Kay M. Caring for refugees in general practice: Perspectives from the coalface. *Aust J Prim Health.* 2014;20(1):85-91.
19. Davidson N, Skull S, Chaney G, Frydenberg A, Jones C, Isaacs D, et al. Comprehensive health assessment for newly arrived refugee children in Australia. *J Paediatr Child Health.* 2004;40(9-10):562-8.
20. World Health Organisation. *Vaccine-preventable Diseases: Monitoring System 2015 Global Summary* [Internet]. Geneva (CHE): WHO; 2015 [cited 2016 Feb 22]. Available from: http://apps.who.int/immunization_monitoring/globalsummary
21. South Australian Department of Health. *Immunisation Calculator* [Internet]. Adelaide (AUST): State Government of South Australia; 2014 [cited 2016 Apr 9]. Available from: <http://immunisationcalculator.sahealth.sa.gov.au/>
22. Neale A, Ngeow JY, Skull SA, Biggs BA. Health services utilisation and barriers for settlers from the Horn of Africa. *Aust N Z J Public Health.* 2007;31(4):333-5.

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