



Better primary health care for refugees

Catch up immunisation

Christine B Phillips

MBBS, BMedSc, MA, MPH, FRACGP, is Senior Lecturer, Social Foundations of Medicine, Medical School, College of Medicine and Health Sciences, Australian National University, and a medical officer, Companion House Medical Service, Canberra, ACT. christine.phillips@anu.edu.au

Jill Benson

MBBS, DCH, FACPsychMed, is Director, Health in Human Diversity Unit, Discipline of General Practice, University of Adelaide, and Medical Officer, Migrant Health Service, Nunkuwarrin Yunti and Parklands Medical Practice, South Australia.

BACKGROUND

Many newly arrived refugees come from countries with fragile primary health infrastructure. As a result they may have had patchy primary immunisation against vaccine preventable diseases.

OBJECTIVE

This article outlines key considerations in developing an effective catch up immunisation program for refugees.

DISCUSSION

The potential challenges include knowing which vaccines to give to provide catch up vaccination, access to appropriate vaccines through public health units, and adequate follow up to support completion of immunisation courses. The most useful immunisations for adolescent and adult refugees are adult diphtheria/tetanus, measles/mumps/rubella, inactivated polio, and hepatitis B vaccines. Immunisation programs for refugees require cooperation between primary health care practitioners and health policy makers to ensure that good primary health care is available to the most vulnerable groups arriving in Australia.

Among wealthy nations, most vaccine preventable diseases have become rarities due to childhood immunisation programs. Childhood immunisation programs demand an efficient primary health service, an effective cold chain and access to vaccines. Australia's humanitarian program targets a cohort of people who come from countries in turmoil, often with very poor primary health infrastructure. In the 2004–2005 financial year intake, at least 75% of the 12 096 entrants who arrived in Australia under the offshore resettlement program came from countries with immunisation coverage rates below 50% in the 1990s.¹ A recent survey of African refugees in Melbourne (Victoria) found almost one half of those under 15 years of age were not immune to tetanus or measles.² As a general rule, protection against vaccine preventable diseases in refugees appears to increase with age,³ although among African refugees in Australia, this was not the case for tetanus.² This is despite the policy in Afghanistan and many African countries of giving two doses of tetanus toxoid as part of antenatal care.⁴

Refugees should have the same protection against vaccine preventable diseases as every other Australian resident. Refugees will often have poor health status and are likely to be more susceptible to vaccine preventable

diseases. Most refugees need at least some component of catch up immunisation, and sometimes the entire primary course of immunisations, incorporated into their early health management.

Difficulties to be negotiated by general practitioners in crafting a catch up program for refugees are:

- knowing what immunisations to give
- planning catch up immunisation
- getting the right vaccines at the right time, and
- ensuring completion of immunisation courses.

Knowing what immunisations to give

Many refugees are unsure about their vaccination histories and do not have records (see *Case study*). Many refugees arriving from war torn regions of Africa have spent their early childhood in flight, and have not had access to routine childhood immunisations. It is generally unsafe to assume that residents of a refugee camp have had access to complete immunisation programs. While some camps have excellent immunisation programs for children under the age of 5 years, most adolescents and adults will only have received intermittent vaccination as part of disease eradication programs such as the Global Polio Eradication Initiative.

There are important differences between immunisation schedules in developing countries and those used in Australia. Tuberculosis vaccination (BCG) is part of most

schedules for neonates in developing countries, but is no longer part of the Australian schedule. In most African countries, monovalent immunisation against measles will be provided, while polyvalent measles/mumps/rubella (MMR) is provided in Australia. Haemophilis influenza B (Hib) vaccination is not part of the schedule of most countries of origin for refugees in the Australian humanitarian program.

In mid 2005, medical screening 72 hours before departure for Australia was introduced for refugees and some sponsored humanitarian entrants departing from eastern and western Africa, Egypt, Sudan and Thailand. This screening includes MMR vaccine for those aged less than 30 years. This is recorded on an electronic health manifest, which is available to the local settlement service provider through the Department of Immigration and Citizenship (DIAC).⁵ It is important to note that not all refugees will have had this predeparture screening.

If there is no written evidence of immunisation, should one test for serological evidence of

immunity, or vaccinate at once? The small body of cost effectiveness research suggests that testing is not a cost effective strategy in situations where the patient may be lost to follow up.^{6,7}

Refugees tend to be more mobile than other Australian residents, and are more likely to have periods of homelessness.⁸ The *Australian Immunisation Handbook* recommends that catch up immunisation be provided to all refugees who do not have documented evidence of immunisation,⁹ and so it would be prudent to start vaccination at the first consultation, if possible.

One of the challenges in providing catch up immunisation is calculating the correct age of a child. Many refugees have no birth record, children have been separated from the parents for periods of time, or life has been so disrupted that remembering a date of birth has not been possible. For some children, immigration authorities have estimated their age. Sometimes a detailed history, weight and height will help clarify a more realistic date of birth, so that the right schedule and vaccines are given.

Planning catch up immunisation

Catch up immunisation is notoriously tricky. Schedules change depending on the age of the person receiving catch up, with younger children generally needing a higher number of doses. Some immunisations, such as the hepatitis B vaccines Engerix-B and HBVax-II are interchangeable, while others, such as the Hib vaccines which are conjugated to meningococcal protein (LiquidPedaxHIB or ComVax) have a two dose schedule, while those conjugated to nontoxic diphtheria protein (HibTITER) or tetanus toxoid (Hiberix, ActHib) have a three dose schedule. Conjugated products containing Hib vaccines (Infanrix-Hexa, Pediacel or Poliacel) should not be used for children over the age of 5 years.

Childhood vaccines with diphtheria toxoid contain 15 times the dose of diphtheria toxoid contained in adult diphtheria/tetanus vaccine. Inadvertent administration to adults or adolescents of vaccines containing doses intended for children (eg. diphtheria/tetanus/pertussis [DTP] or the polyvalent childhood vaccines containing diphtheria toxoid) will result in marked swelling and tenderness at the injection site. Catch up vaccination for tetanus and diphtheria for children over the age of 8 years should use adult diphtheria/tetanus (Td), not the childhood vaccines containing the higher dose of diphtheria toxoid. Children should not receive more than six doses of DTP vaccine because of the increased risk of local reaction. If the person has tenderness and swelling in the arm, and the correct vaccine has been given for that person's

Case study

Habiba, 22 years of age, is from northern Afghanistan and arrived in Australia under the humanitarian program after spending 5 years living in Pakistan. This consultation, her first since arriving in Australia, is for a rash and fever at 10 weeks of pregnancy. Rubella IgM antibodies are detected on serological testing. You also find that she is an asymptomatic carrier of hepatitis B and is positive for both hepatitis B surface antigen and hepatitis E antigen. She tells you that she believes she has been immunised on a few occasions in a refugee camp in Pakistan after leaving Afghanistan, but she is not sure what the vaccines were. She has no recollection and no record of having immunisations as a child.

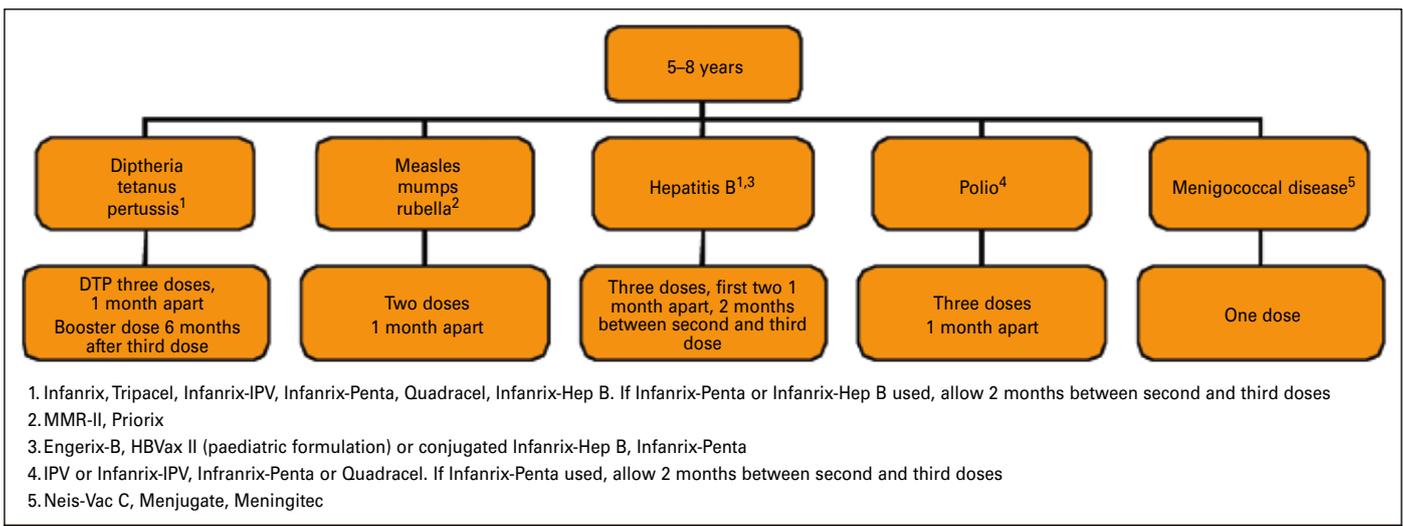
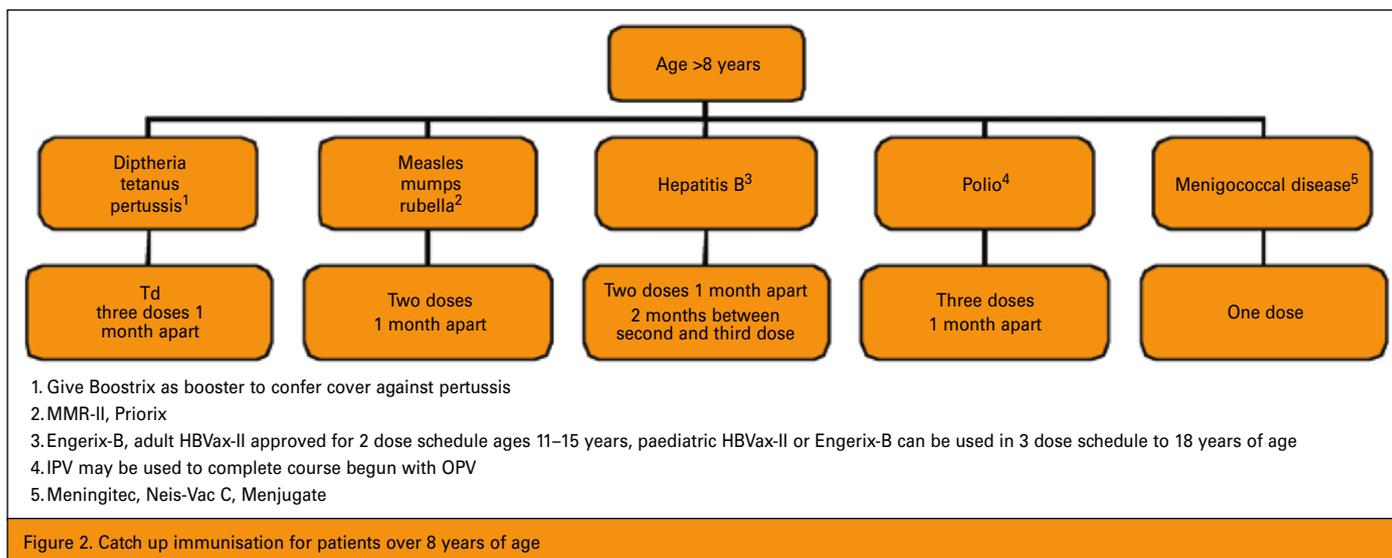


Figure 1. Catch up immunisation for children aged 5–8 years



age, they should not be given further diphtheria/tetanus immunisation.⁹

There are two types of pneumococcal vaccine available in Australia: the 7-valent conjugated pneumococcal vaccine Prevenar and the 23-valent polysaccharide vaccine Pneumovax. The routine childhood schedule includes three immunisations with Prevenar between 2–6 months of age. Catch up immunisation can be undertaken for children up to the age of 2 years and is not undertaken routinely after this. Refugees over 5 years of age who require immunisation against invasive pneumococcal disease (eg. those with sickle cell disease) should receive Pneumovax.

The MMR vaccine can inhibit the response to Mantoux tests, and so tuberculin testing for tuberculosis should be delayed for at least 4 weeks after MMR vaccination.⁸ Mantoux testing is often done in schools or a government or hospital chest clinic and needs to be properly coordinated with MMR immunisation. Although there is no evidence of the impact of varicella vaccine or live attenuated influenza vaccine on tuberculin tests, the Centres for Disease Control currently recommends that it would be prudent to also delay Mantoux testing for at least 1 month after these vaccinations.¹⁰

Figure 1, 2 shows funded immunisations for catch up for children aged 5–8 years and children and adults over the age of 8 years.

Getting the right vaccines

Catch up vaccination requires some flexibility in vaccine provision. In Australia, refugees face systematic gaps in immunisation provision.

The Australian Immunisation Program is a joint state-federal initiative. Vaccines provided free from the national schedule are determined by states who tender for specific vaccines or vaccine combinations. Increasingly, states have begun to limit their free vaccines to those provided in childhood.

In 2005 all states in Australia began to structure their childhood immunisation schedule around polyvalent vaccines, in which up to six vaccines were provided in single conjugated form. Different states have elected to stock different polyvalent vaccines. Therefore, although the schedule is to a large extent harmonised across states, the vaccines provided are not. Polyvalent vaccines reduce the number of needles young children have, but for refugees over 8 years of age may paradoxically limit their capacity to access complete catch up immunisation. Some government funded programs for adolescents are conceived as one off 'catch up' programs. For example, government funded immunisation programs for meningococcal disease ceased for those aged 15–19 years in 2006 and for those aged 7–15 years in June 2007.

Because of the high prevalence of hepatitis B in many countries, one of the initial vaccines given should be hepatitis B, especially in the case of families where one member is a carrier (see *Case study*). All refugees should have a hepatitis B status assessment as part of their initial health examination, however giving hepatitis B vaccine to those already immune or to carriers does no harm. The combination vaccines containing

childhood doses of diphtheria toxoid can only be used up to the age of 8 years.

Adult diphtheria/tetanus is a central vaccine for catch up immunisation programs for adults and adolescents. Most states now provide adult diphtheria/tetanus/pertussis vaccine (Boostrix) rather than Td to immunisation providers as it also boosts protection against pertussis. Although the product information for Boostrix states it is not intended for primary immunisation, there is evidence supporting its role in a primary course in adults against pertussis, tetanus and diphtheria.¹¹ Doctors may still access Td through the emergency (doctor's bag) supplies section of the Pharmaceutical Benefits Scheme, which provides up to 15 doses of ADT-Booster per month. Although the product information for ADT-Booster states that the product is not intended for primary courses, it has similar constituents to Td, and therefore is equally suitable for primary vaccination. Accessing ADT-Booster through doctor's bag supplies can be cumbersome, and pharmacists have in the past few years experienced shortfalls in supply from the manufacturer. In all states, the new polyvalent vaccines include IPV. This means that states will need to provide monovalent IPV for catch up or primary immunisation for patients over 8 years of age.

Failure to provide suitable vaccines for newly arrived refugees compounds the health inequities already suffered. Much refugee primary health care occurs in a policy vacuum. There is no formal statement by states that refugee adults and adolescents are entitled to full catch

up immunisation. In practice, many states do source and supply monovalent IPV and ADT on a case-by-case basis for catch up immunisation. Where there are refugee specific health services, these are generally provided with all catch up vaccines. General practitioners who provide care for refugees in their own practices may need to make direct requests their state public health unit to supply IPV and ADT when needed.

Ensuring completion of immunisation courses

Resettlement is a demanding process for all refugees. Completion of an immunisation schedule may come lower on the priority list than finding employment and accommodation. It is important to provide a hand held record of the vaccinations given to refugees of all ages and, if the child is under 7 years of age, to document immunisations on the online Australian Childhood Immunisation Register (ACIR). A recall and reminder system and drop in appointment system for refugees to the clinic may support completion of immunisation schedules. School based catch up immunisation has been recommended in New South Wales for newly arrived refugee and migrant children.¹² In the ACT, work based immunisation visits were introduced for businesses that employed a large number of newly arrived refugees.

Unfortunately, the General Practice Immunisation Incentives Scheme does not recognise catch up immunisation for children over 7 years of age, so most providers of refugee primary health care will not be entitled to Service Incentive Payments (SIP) for completion of catch up schedules. The Enhanced Primary Care (EPC) refugee health assessment item number 714, introduced in 2006, provides some recognition of the extra time taken to ensure good assessment and early intervention for refugee health.

Conclusion

Routine childhood vaccination is one of the major health advances of the past 60 years. Newly arrived refugees often have substandard protection against simple vaccine preventable diseases. Improving immunisation rates among this group of people should be a core general practice activity. Effective catch up immunisation programs in general practice require crafting a program that takes into consideration the age and

immunisation history of the individual, a flexible delivery system, and support from public health units to provide the necessary vaccines.

Resources

- Information on immunisation schedules in different countries: www.who.int/immunization_monitoring/en/globalsummary/scheduleselect.cfm
- Free translation of records written in languages other than English are funded through the Telephone and Interpreter Service and can be obtained at the Adult Migrant English Programs (a directory can be found on the Department of Immigration and Citizenship website or by telephoning the Telephone and Interpreter Service directly on 131450). Refugees on temporary protection visas are not eligible for this service
- An online calculator of catch up immunisation needs for children under 7 years of age is available at: www.health.sa.gov.au/immunisationcalculator.

Conflict of interest: none declared.

References

1. Phillips CB, Patel MS. The switch to new conjugated immunisation may compromise immunisation coverage for refugees. *Med J Aust* 2006;184:473.
2. Tiong A CD, Patel MS, Gardiner J, et al. Health issues in newly arrived African refugees attending general practice clinics. *Med J Aust* 2006;11/12:602–6.
3. Barnett ED, Christiansen D, Figueira M. Seroprevalence of measles, rubella, and varicella in refugees. *Clin Infect Dis* 2002;34:403–8.
4. World Health Organisation. Vaccine preventable diseases, 2006 global summary. Available at www.who.int/vaccines-documents/GlobalSummary/GlobalSummary.pdf.
5. NSW Refugee Health Service. Pathway and health processes for humanitarian program entrants to NSW. Sydney: NSW RHS, 2006.
6. Cohen AL, Veenstra D. Economic analysis of prevaccination serotesting compared with presumptive immunisation for polio, diphtheria, and tetanus in internationally adopted and immigrant infants. *Pediatrics* 2006;117:1650–5.
7. Figueira M, Christiansen D, Barnett ED. Cost effectiveness of serotesting compared with universal immunisation for varicella in refugee children from six geographic regions. *J Travel Med* 2003;10:203–7.
8. Beers A, Foley P. Housing need and provision for recently arrived refugees in Australia. Australian Housing and Urban Research Unit, 2005.
9. Australian Government Department of Health and Ageing. The Australian immunisation handbook. 8th edn. Canberra: AGPS, 2003.
10. Centers for Disease Control. Epidemiology and prevention of vaccine preventable diseases. The pink book. 9th edn, updated January 2006. Atlanta: CDC, 2006.
11. Pichichero ME, Blatter MM, Kennedy WA, Hedrick J, Descamps D, Friedland LR. Acellular pertussis vaccine booster combined with diphtheria and tetanus toxoids for adolescents. *Pediatrics* 2006;117:1084–93.
12. Milne B, Raman S, Thomas P, Shah S. Immunisation of refugee and migrant young people: can schools do the job? *Aust N Z J Public Health* 2006;30:526–8.