

PART 2: VACCINATION FOR SPECIAL RISK GROUPS

2.1 VACCINATION FOR ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE

Aboriginal and Torres Strait Islander people historically had a very high burden of infectious diseases, including those for which vaccines were subsequently developed. These high rates of disease in the early period of European colonisation were mainly due to a lack of previous exposure and acquired immunity,¹ and in more recent years have been associated with lower standards of living and poorer access to water, housing and health care.² For some vaccine-preventable diseases (VPDs), such as diphtheria, polio, tetanus, hepatitis B, measles, mumps and rubella, vaccination has been very successful in eliminating or substantially reducing disease in all Australians, and has made a substantial contribution to improvements in Aboriginal and Torres Strait Islander child mortality in recent decades.³ For some other VPDs, in particular invasive pneumococcal disease and influenza in adults, greater burdens of illness still occur in Indigenous compared to non-Indigenous people and remain a major cause of illness and death.³ Detailed information on the current status of VPDs and vaccination status in Aboriginal and Torres Strait Islander people is available elsewhere.³

This chapter discusses the vaccines for which there are different recommendations for Aboriginal and Torres Strait Islander people in at least some parts of Australia. These are, for children, BCG, hepatitis A, *Haemophilus influenzae* type b, and pneumococcal vaccines, and, for adults, influenza and pneumococcal polysaccharide vaccines.

CHILDREN

BCG vaccine and tuberculosis

In the past, Aboriginal and Torres Strait Islander people have suffered from much higher rates of tuberculosis, more than 20 times the rate of non-Indigenous Australian-born people in some areas.⁴ While there have been substantial improvements in disease rates in recent decades, tuberculosis remains more common in Indigenous than non-Indigenous Australian-born people in many parts of Australia, particularly northern and central Australia.^{5,6} Although there is uncertainty about the efficacy of BCG in preventing pulmonary tuberculosis, it provides substantial protection against disseminated forms of the disease in young children.⁷ BCG is therefore recommended for Aboriginal and Torres Strait Islander neonates in regions of high incidence (Northern Territory, far northern Queensland, some regions of both Western Australia and South

Australia), where infants are at higher risk of acquiring this serious, and often fatal, condition. State and Territory guidelines should be consulted where BCG is being considered for neonates <2.5 kg in weight. Nevertheless, as the incidence of pulmonary tuberculosis in adults and the risk of disseminated tuberculosis in infants decreases, the risk of severe complications of BCG, documented in native peoples elsewhere, may become a significant consideration.⁸ State/Territory health authorities should be consulted to determine the recommendations for particular areas. It is usually administered to eligible infants by hospital staff (ie. midwives or nurses who have been specially trained) soon after delivery. Injection technique is particularly important for BCG vaccination which must be administered intradermally. Adverse events, such as regional lymphadenitis, are less common when administration is performed by trained staff.⁹ See Chapter 3.22, *Tuberculosis* for more information.

Haemophilus influenzae type b

Before the introduction of an effective *Haemophilus influenzae* type b (Hib) vaccine, not only was the incidence of invasive Hib disease very high in Aboriginal and Torres Strait Islander children, particularly in more remote areas, it also occurred at a younger age than in non-Indigenous children. Thus, a vaccine to prevent Hib disease in Aboriginal and Torres Strait Islander children needed to be immunogenic as early as possible in infancy. The vaccine known by the abbreviation PRP-OMP (PedvaxHIB or COMVAX) is more immunogenic at 2 months of age than the other conjugate Hib vaccines, and so was the preferred Hib vaccine for Aboriginal and Torres Strait Islander children from the inception of the Hib vaccination programs in 1993. Since then, there has been a dramatic decline of Hib disease in Aboriginal and Torres Strait Islander children.^{10,11} The experience in other high incidence populations indicates that it is important to continue to use PRP-OMP vaccine in Aboriginal and Torres Strait Islander populations demonstrated to be at highest risk, as in central and northern Australia. However, the available data indicate that Indigenous children in areas of low incidence, and non-Indigenous children, have a pattern of Hib disease which is adequately covered by a vaccine not prompting significant immune response until after the second dose.¹² New combination vaccines which include a Hib (PRP-T) component have the advantage of reducing the number of injections required. Therefore, in the Northern Territory, Queensland, South Australia and Western Australia, all Aboriginal and Torres Strait Islander children should receive a Hib vaccine with a PRP-OMP component, while Indigenous children in other jurisdictions, and non-Indigenous children, may receive either PRP-T or PRP-OMP Hib vaccines (see Chapter 3.4, *Haemophilus influenzae type b*). State/Territory health authorities should be contacted about the vaccination schedule for each jurisdiction.

Hepatitis A

Hepatitis A infection has been shown to be very common in Aboriginal and Torres Strait Islander children across northern Australia.¹³⁻¹⁵ Although the symptoms of infection in early childhood are usually mild or absent, cases complicated by liver failure and death have been reported among Indigenous children in far north Queensland¹⁵ and the Kimberley¹³ and recorded hospitalisation rates have been found to be at least 50 times higher in Indigenous children compared to non-Indigenous children.³ A vaccination program for Indigenous children was introduced in north Queensland in 1999, which resulted in substantial decreases in disease rates not only in Indigenous but also in non-Indigenous children, suggesting a substantial herd immunity effect.¹⁶ Vaccination is now recommended for Aboriginal and Torres Strait Islander children in those jurisdictions with high incidence: the Northern Territory, Queensland, South Australia and Western Australia (see Chapter 3.5, *Hepatitis A*). Two doses should be given, commencing in the second year of life. As the exact recommended ages of administration vary between States and Territories, jurisdictional health authorities should be contacted about their vaccination schedules.

Pneumococcal vaccines

Some of the highest rates of invasive pneumococcal disease (IPD) ever reported in the world were in young central Australian Aboriginal children before the availability of the conjugate vaccine,¹⁷ and very high rates were also reported in Indigenous children in other parts of northern Australia.^{18,19} High rates of pneumococcal pneumonia have also been documented in central Australian children,²⁰ and *Streptococcus pneumoniae* has been implicated in the high rates of otitis media.²¹ In response to this, the 7-valent pneumococcal conjugate vaccine (7vPCV) was made available for Aboriginal and Torres Strait Islander children from 2001. As well as higher rates of IPD, a wider range of serotypes is responsible for disease in Aboriginal and Torres Strait Islander children, resulting in a lower percentage of cases (below 60%) caused by serotypes included in the 7vPCV.^{18,19} Therefore, a booster dose of 23-valent pneumococcal polysaccharide vaccine at 18–24 months of age, following the primary course of 7vPCV, is recommended in areas of high incidence, ie. the Northern Territory, Queensland, South Australia and Western Australia. See Chapter 3.15, *Pneumococcal disease* for more information. There has been a rapid decline in invasive pneumococcal disease in Indigenous children since the introduction of the pneumococcal vaccines in 2001.²²

ADULTS

Influenza

Influenza and/or pneumonia is the primary cause of around 2.5% of deaths in Aboriginal and Torres Strait Islander people, the vast majority being adults.² The disease burden is greatest in the elderly, with hospitalisation and death more than twice as frequent in Indigenous adults aged ≥50 years, compared

to non-Indigenous adults.³ Younger Indigenous adults suffer an even greater relative burden than non-Indigenous younger adults, at least 7 times higher for hospitalisations, and 28 times higher for death,³ probably related to a high prevalence of risk factors such as diabetes, renal disease and excessive alcohol use.² The most common complication of influenza is secondary bacterial pneumonia, and influenza vaccine has been shown to be effective in preventing pneumonia and death in the elderly.²³ Therefore, yearly influenza vaccination is recommended for all Aboriginal and Torres Strait Islander adults aged ≥15 years.

Pneumococcal polysaccharide vaccine

Studies in far north Queensland and the Kimberley have demonstrated a favourable impact of the 23-valent pneumococcal polysaccharide vaccine (23vPPV) on rates of invasive pneumococcal disease in Indigenous adults,^{18,24,25} but, at a national level, disparities in disease rates between Indigenous and non-Indigenous adults remain. As is the case for influenza and pneumonia, rates of invasive pneumococcal disease are highest in older Indigenous adults, with rates around 4 times higher in Indigenous compared to non-Indigenous adults aged ≥50 years.³ Rates in younger adults are slightly lower, but the relative difference between Indigenous and non-Indigenous is much greater, around 12 times higher in Indigenous compared to non-Indigenous adults aged 25–49 years.³ This has been attributed to a high prevalence of at-risk conditions such as diabetes, renal disease and excessive alcohol use.²⁶

23vPPV is recommended for all Aboriginal and Torres Strait Islander people aged ≥50 years, and for those aged 15–49 years who have high-risk underlying conditions, and has been funded nationally for people in these categories since 1999. Eligibility for Indigenous adults may be broader than this in some regions; jurisdictional health authorities should be contacted for further information. A single revaccination is recommended after 5 years, and a second revaccination is recommended in some circumstances. See Chapter 3.15, *Pneumococcal disease* for more details.

Other vaccines

The first ever outbreak of Japanese encephalitis (JE) in Australia occurred in the remote outer islands of the Torres Strait in 1995. JE vaccine was first offered to the residents of these islands in late 1995 and, since then, the vaccine has been integrated into the childhood vaccination schedule commencing at 12 months of age (see Chapter 3.10, *Japanese encephalitis*).²⁷

Service delivery

General Practitioners, Aboriginal Community Controlled Health Services, Community Health Services, the Royal Flying Doctor Service and State/Territory Corrective Services all provide substantial levels of vaccination services to Aboriginal and Torres Strait Islander people, and are important to the success of programs to vaccinate Indigenous people. While vaccination coverage estimates

vary over time and between communities, a relatively consistent finding has been higher coverage in Aboriginal and Torres Strait Islander people in remote compared to urban areas.^{28,29} Recent estimates suggest that, for vaccines recommended for both Indigenous and non-Indigenous people, coverage is as high or higher in Indigenous people as non-Indigenous people,³ but vaccination is more frequently delayed.³⁰ Coverage for vaccines recommended only for Aboriginal and Torres Strait Islander people is generally lower than for vaccines which are funded for all people in a particular age group.³¹ This points to the importance of identification of Indigenous status, particularly in mainstream health services, and particularly in urban areas. The use of patient information systems to record Indigenous status and schedule preventive health services has the potential to increase opportunistic vaccination and enable the provision of patient reminders, with improved coverage and timeliness.³²

References

Full reference list available on the electronic *Handbook* or website <http://immunise.health.gov.au>.