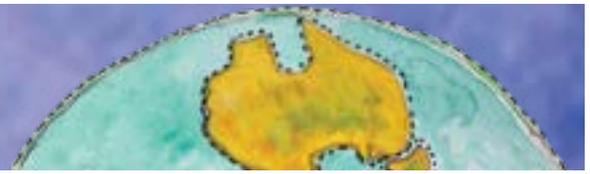


4.14 Immunisation and vaccine preventable disease



Vaccination is one of the most successful and cost-effective health interventions. There are 16 diseases for which vaccines are provided free in Australia to people of particular age or risk groups. The characteristics of diseases and vaccines differ. Sometimes it is possible to achieve disease eradication, while for other vaccines the aim is to limit severe disease in the most vulnerable. This snapshot looks at vaccination coverage and then considers the impact of vaccination on disease notifications, hospitalisations and deaths.

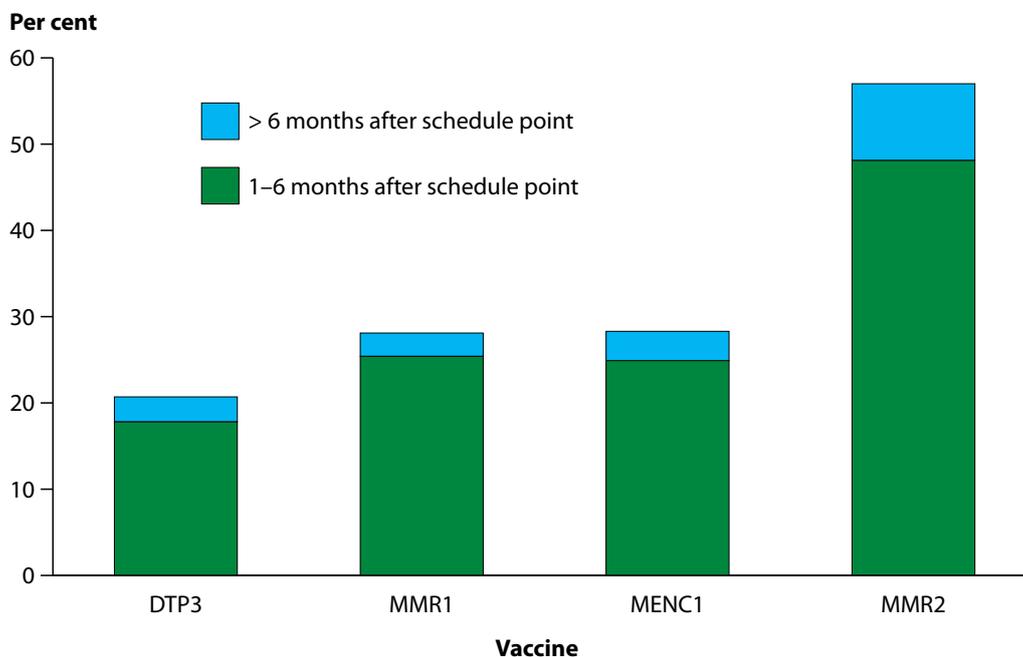
Vaccination coverage

- At December 2012, 92% of children were assessed as fully vaccinated at each of the 3 childhood milestones (12, 24 and 60 months). Coverage at 12 and 24 months has been steady at around 90% since 2003, while at 60 months it rose substantially from around 80% in 2008 after a change in eligibility rules for incentive payments.
- The proportion of Australian children vaccinated late varies by vaccine type and dose. The greatest delay was with the second dose of measles, mumps and rubella (MMR) vaccine, with 57% of doses given late and 9% given more than 6 months late (Figure 4.17).
- 20% of infants received their vaccination due at 6 months of age at least 1 month after the due date in 2012, putting them at risk of severe diseases such as whooping cough.
- Indigenous children at 12 months of age have coverage 6 percentage points lower than non-Indigenous children. Coverage for both groups is comparable at 24 and 60 months.
- In 2012, 82% of females aged 14–15 had received at least 1 dose of human papillomavirus (HPV) vaccination, and 71% had received all 3 doses. HPV vaccination coverage in all age groups was higher for earlier doses—as high as 82% for the first dose in females aged 14–15. Coverage was higher for younger females who were vaccinated at school—just under half (44%) of females aged 20–26 were fully vaccinated.
- Influenza (in previous 12 months) and pneumococcal polysaccharide (in previous 5 years) vaccine coverage for older Australians (65 and over) was 75% and 54% respectively in 2009.

Impact of vaccine preventable diseases

- Several previously common vaccine preventable diseases (VPDs) have been eliminated or are now rare, including diphtheria and poliomyelitis (0 cases in 2012).
- In 2012, there were 7 deaths reported in young children due to VPDs. All children were either too young to be vaccinated, or incompletely vaccinated.
- Each year, influenza infects an estimated 5–10% of the population, causes 13,000 hospitalisations (mainly in young children and the elderly) and 3,000 deaths (nearly all in the elderly) (Neuzil et al. 2002; Newall et al. 2008).

Figure 4.17

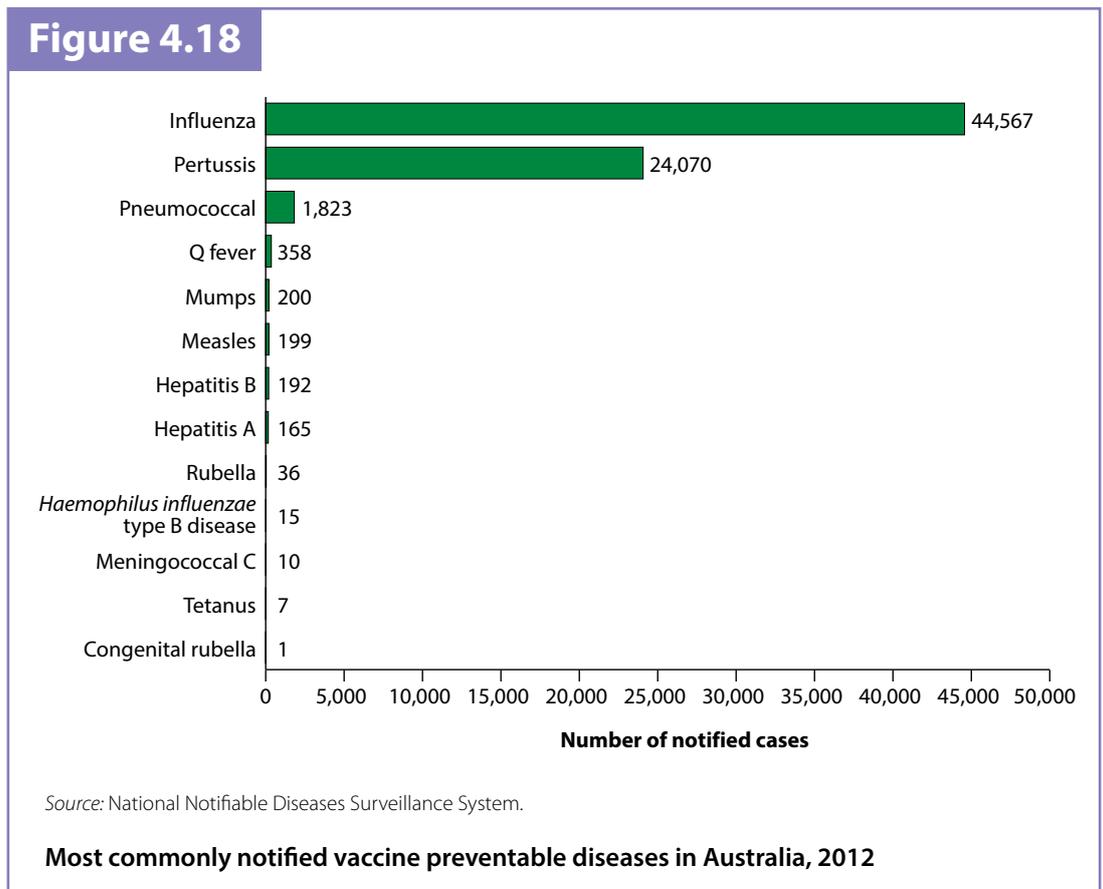


DTP3 = 3rd dose of a diphtheria (D), tetanus (T) and pertussis-containing (P) vaccine, schedule point at 6 months of age.
 MMR1 = 1st dose of a measles, mumps and rubella vaccine, schedule point at 12 months of age.
 MENC1 = 1st dose of a meningococcal C vaccine, schedule point at 12 months of age.
 MMR2 = 2nd dose of a measles, mumps and rubella vaccine, schedule point at 48 months of age.
 Note: This analysis is for doses assessed in 2012, allowing sufficient time to capture delayed doses.
 Source: Australian Childhood Immunisation Register.

Vaccination delay for Australian children, 2012

- Pertussis (whooping cough) is the second most commonly notified VPD after influenza (see Figure 4.18). The highest incidence of whooping cough by age group was in infants aged under 6 months (1 in 300) but 50% of all cases were in adults aged 20 and over (Pillsbury et al. forthcoming). The most recent whooping cough epidemic was in 2009–2010. Between 2000 and 2010, multiple epidemics of pertussis occurred in Australia, with the highest rate of notifications reported in 2010 (156 cases per 100,000 population) (Department of Health 2013).
- There were 888 hospitalisations recorded due to invasive pneumococcal disease in 2011–12, with the highest rates in people aged under 1 and over 80. Infant vaccination for pneumococcal disease also prevents an estimated 1,500 pneumonia hospitalisations in children each year (Jardine et al. 2010). In 2012, there were 123 deaths due to invasive pneumococcal disease, of which 86 were people aged over 65.

- There were 1,280 hospitalisations recorded due to rotavirus in 2011–12. Hospitalisations for all cases of acute gastroenteritis are an estimated 7,000 a year fewer than in pre-vaccine years (Dey et al. 2012).
- An average of 3,794 women a year aged under 25 had high-grade cervical abnormalities detected in 2010–2011, about 700 a year fewer than in 2004–2006—the period immediately before the human papillomavirus vaccine was introduced.
- There were 805 hospitalisations for chickenpox in 2011–12, an estimated 600 fewer per year than in pre-vaccine years (1998–1999).



What is missing from the picture?

VPDs are most commonly monitored using reports of disease notifications (predominantly laboratory diagnoses), hospitalisations and deaths. Any diseases or manifestations not easily captured by these sources are more difficult to monitor.

There are no national data on vaccination coverage for adolescents for vaccines other than HPV. HPV coverage by Indigenous status is not available due to limitations in Indigenous status reporting. Vaccination coverage for the elderly is only obtainable when periodical Adult Vaccination Surveys are undertaken.

Where do I go for more information?

Communicable disease information including publications related to VPDs can be found at the [National Notifiable Diseases Surveillance System](#) website. Information on the National Immunisation Program is at the [Immunise Australia](#) website. See also www.ncirs.edu.au.

References

- Department of Health 2013. The Australian Immunisation Handbook 2013. 10th edn. Canberra: Department of Health.
- Dey A, Wang H, Menzies R & Macartney K 2012. Changes in hospitalisations for acute gastroenteritis in Australia after the national rotavirus vaccination program. *Medical Journal of Australia* 197:453–57.
- Jardine A, Menzies R & McIntyre P 2010. Reduction in hospitalizations for pneumonia associated with the introduction of a pneumococcal conjugate vaccination schedule without a booster dose in Australia. *Pediatric Infectious Disease Journal* 29:607–12.
- Neuzil KM, Zhu Y, Griffin MR, Edwards KM, Thompson JM, Tollefson SJ et al. 2002. Burden of interpandemic influenza in children younger than 5 years: a 25-year prospective study. *Journal of Infectious Diseases* 185:147–52.
- Newall AT, Wood JG & MacIntyre CR 2008. Influenza-related hospitalisation and death in Australians aged 50 years and older. *Vaccine* 26:2135–41.
- Pillsbury A, Quinn H & McIntyre P, forthcoming. Australian Vaccine Preventable Disease Epidemiological Review Series: Pertussis 2006–2012. *Communicable Diseases Intelligence*.