



Australian Government

Department of Health,  
Disability and Ageing

# AUSTRALIAN TECHNICAL ADVISORY GROUP ON IMMUNISATION (ATAGI)

## Advice regarding diphtheria vaccination in outbreak settings

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Version 1

### Background

This *Advice regarding diphtheria vaccination in outbreak settings* was first developed as internal advice in early April 2026 for the Northern Territory Department of Health (NT Health) in response to initial outbreak cases. This advice will continue to be updated as the outbreak progresses and evidence emerges.

Further information, including the [Interim guidance for diphtheria outbreak management](#) from the Communicable Disease Network of Australia (CDNA), is available on the [Australian Centre for Disease Control website](#).

### ATAGI guidance

Diphtheria vaccination for contacts in an [outbreak setting](#), including healthcare workers

- Medium and high-risk contacts as per the [current definitions provided by the CDNA Interim guidance for diphtheria outbreak management](#) should receive a booster dose if more than 12 months have passed since their last diphtheria-toxoid vaccine (see [Table 1](#)).
- Low-risk contacts and other people in outbreak settings should be offered a booster if more than 5 years have passed since their last dose.
- Any contact who is unvaccinated or has incomplete vaccination should commence a primary or catch-up vaccination schedule. Serological testing is not recommended, see *Role of serological testing* below.
- Healthcare workers in outbreak settings should actively review their vaccination status and have a booster dose if more than 5 years have passed since their last diphtheria-toxoid vaccine.
  - Those healthcare workers identified as [medium and high-risk contacts](#), should receive a booster dose if more than 12 months have passed since their last diphtheria-toxoid vaccine.
- Travellers to an outbreak setting, including [outbreak settings in Australia](#), should receive a booster dose if more than 5 years have passed since their last diphtheria-toxoid vaccine.
- When providing a booster dose in the above circumstances, use of a diphtheria-tetanus-pertussis containing vaccine can be considered to boost protection against pertussis.
- Additional or booster doses of diphtheria-tetanus-pertussis containing vaccine can be given safely within a shorter timeframe than the timeframes recommended above, such as for pregnancy or if an individual is identified as a high/medium risk contact.
- If a child aged 10 years and older receives a dose of dTpa as part of diphtheria outbreak management response, they will not require the routine dose recommended at 11-13 years.
- If a [DTPa](#) booster is given to a child aged between 5 and 9 years as part of diphtheria outbreak management response, the routine dose of dTpa should be given at age 11–13 years.

**Table 1. Vaccination based on [exposure risk in outbreak settings](#)**

| Contacts    | Completed childhood and adolescent vaccination course                                     | Unvaccinated or Incomplete vaccination or Vaccination status unknown                       |
|-------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Low risk    | Booster dose if more than 5 years have passed since their last diphtheria-toxoid vaccine. | Commence a primary or catch-up vaccination schedule. <i>See serological testing below.</i> |
| Medium Risk | Booster dose if more than 12 months                                                       |                                                                                            |
| High Risk   | have passed since their last diphtheria-toxoid vaccine.                                   |                                                                                            |

Further details on recommended primary course vaccination are available in the [Diphtheria chapter](#) of the Australian Immunisation Handbook.

## Individuals at increased risk

- Individuals at increased risk of diphtheria include any person who is nonimmune (under or unvaccinated), particularly young children, as those aged under five years have a significantly higher risk of severe disease and death compared with adults over 20 years of age<sup>i</sup>.
- Travellers to and from areas with known diphtheria cases are also at increased risk due to greater likelihood of exposure.
- People who are immunocompromised may be more vulnerable to infection and complications, underscoring the importance of ensuring adequate protection in these groups.
- Risk is also influenced by where a person lives, with higher vulnerability in communities with lower vaccination coverage, crowded living conditions, limited access to healthcare, or in remote and regional settings where delayed diagnosis and treatment may occur.
- ATAGI notes that the high incidence of respiratory and cutaneous diphtheria observed in Aboriginal and Torres Strait Islander people is closely linked to the above social, economic and geographical factors, rather than individual risk, underscoring the importance of equitable access to culturally safe healthcare and immunisation services.

## Role of serological testing in outbreak settings

- Serological testing for diphtheria immunity is generally not recommended. In routine or outbreak settings, serological testing may delay timely access to vaccination and create additional administrative burden, an issue that is often amplified in remote and regional settings where access to pathology services, follow up, and workforce capacity may be limited.
- However, laboratory workers who are exposed to toxigenic *Corynebacterium diphtheriae* in their jobs are recommended to have serological testing every 10 years as per advice in the [Australian Immunisation Handbook](#).

## Further Information

- Diphtheria has been rare in Australia since the introduction of effective vaccines in routine childhood immunisation programs, with only sporadic cases reported. Vaccination is an important outbreak control measure, alongside case isolation, antibiotic prophylaxis and other contact management strategies.
- Diphtheria-toxoid vaccines prevent symptomatic toxin-mediated disease but do not consistently prevent carriage or transmission. While diphtheria vaccination coverage in children is generally high (up to 97% at 60 months in 2019<sup>ii</sup>), a substantial immunity gap exists in older adults, with only around 30% of adults aged 50 years and older up to date for diphtheria vaccination (i.e. received a dose of diphtheria-toxoid containing vaccine after the age of 40 years) in 2024<sup>iii</sup>. An Australian seroprevalence study conducted in 2022 found that approximately 64% of blood donors aged 50 years and over had seroprotection against diphtheria<sup>iv</sup>, indicating higher population immunity than suggested by vaccination status alone, but still suboptimal.
- ATAGI notes that there is currently a worldwide shortage of diphtheria antitoxin which is used in management of severe cases of respiratory diphtheria, increasing the importance of preventive measures. However, even with adequate antitoxin supply, vaccination is critical to bringing diphtheria outbreaks under control and preventing severe outcomes.
- ATAGI recommends that all people maintain protection against diphtheria as per age-appropriate vaccination recommendations with booster doses in adulthood to maintain protection over time.
- The [National Immunisation Program](#) (NIP) includes a diphtheria- toxoid vaccine available for free for:
  - A primary course for children with 5 doses at 2, 4, 6, 18 months and 4 years.
  - A booster dose for adolescents between 11 and 13 years.
  - Catch-up vaccination for children and adolescents under 20 years of age.
  - Women who are pregnant.
- Additional doses for adults, including boosters and catch-up vaccinations, are not available for free on the NIP, but may be available through state and territory programs and can be accessed privately.

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<sup>i</sup> Truelove, SA, Keegan, LT, Moss, WG et al. 2020. Clinical and Epidemiological Aspects of Diphtheria: A Systematic Review and Pooled Analysis. *Clinical Infectious Diseases*, 71(1):89-97.

<sup>ii</sup> National Centre for Immunisation, Research and Surveillance (NCIRS). [Rare Diseases | Vaccination for Our Mob | NCIRS](#). Accessed 2 April 2026

<sup>iii</sup> Hendry, AJ, Quinn, HE, Macartney, K & FH Beard. 2024. Tetanus, pertussis and diphtheria vaccination coverage in older adults, Australia 2023: analysis of Australian Immunisation Register data. *The Medical Journal of Australia*. 221 (4):224-225

<sup>iv</sup> Hirani, R, Koirala, A, Mowat, Y et al. 2025. Seroprevalence of diphtheria, tetanus and pertussis in Australian blood donors [Abstract]. Joint Blood2025-ISBT 36th Regional Congress, Perth, Australia. [Seroprevalence of diphtheria, tetanus and pertussis in Australian blood donors \(abstract #130\)](#)