

Meningococcal vaccines

FREQUENTLY ASKED QUESTIONS

This fact sheet provides responses to some common questions about meningococcal vaccines. More detailed information about meningococcal disease and the available meningococcal vaccines can be found in the NCIRS fact sheet [Meningococcal vaccines](#).

Questions about meningococcal vaccines and vaccine schedules

- Q1. What changes were introduced in 2018 regarding meningococcal vaccination in the National Immunisation Program? What further changes are planned in 2019?
- Q2. Who should be vaccinated with meningococcal vaccines?
- Q3. Which MenACWY vaccines are available in Australia, and are there any differences between them?
- Q4. How many doses of MenACWY vaccine are required?
- Q5. Which MenB vaccines are available in Australia, and are there any differences between them?
- Q6. How many doses of MenB vaccine are required? Has there been a change to dosing recommendations for Bexsero®?
- Q7. Which vaccine is more important to give, MenACWY or MenB?
- Q8. Is there a different vaccine schedule for people with specified medical conditions associated with an increased risk of meningococcal disease?
- Q9. Are meningococcal vaccines safe?
- Q10. Are there any contraindications to using meningococcal vaccines?
- Q11. Are MenACWY or MenB vaccines available for free?
- Q12. Can a different brand of meningococcal vaccine be used to complete a vaccination course (i.e. are the brands interchangeable)?
- Q13. If a child received only the Hib-MenC vaccine at 12 months of age, should they receive an additional dose of MenACWY vaccine?
- Q14. Can MenACWY vaccine be co-administered with MenB vaccine?
- Q15. Can meningococcal vaccines be co-administered with non-meningococcal vaccines?
- Q16. I have inadvertently given Menactra with 13vPCV. What should I do?
- Q17. I have a child who requires Nimenrix or Menactra but they received Infanrix Hexa recently. What should I do?
- Q18. For adolescents aged 10–19 years who require a catch-up dose of MenC vaccine, is vaccination with a dose of MenACWY vaccine sufficient?
- Q19. An adolescent has had a dose of MenACWY (conjugate or polysaccharide) vaccine in the past and are now eligible for a dose of MenACWY vaccine through the state-based or national program. Should they receive this dose?
- Q20. My patient has received meningococcal vaccines in the past. Do they need a booster dose?
- Q21. My patient has been in close contact with someone who has been diagnosed with meningococcal disease. Do they need vaccination?

Questions about meningococcal vaccines and vaccine schedules

Q1. What changes were introduced in 2018 regarding meningococcal vaccination in the National Immunisation Program? What further changes are planned in 2019?

From 1 July 2018, a single dose of quadrivalent meningococcal (MenACWY) conjugate vaccine (Nimenrix[®]) became available for free under the National Immunisation Program (NIP) to be given at 12 months of age. This vaccine protects against meningococcal disease caused by serogroups A, C, W and Y.

This dose of MenACWY vaccine replaced the combined *Haemophilus influenzae* type b–meningococcal C conjugate (Hib-MenC) vaccine (Menitorix[®]) given at 12 months of age which only covered serogroup C.

With this change, the booster dose of the Hib vaccine is now given as a separate monovalent vaccine (Act-HIB[®]) at 18 months of age (previously at 12 months). Hib-MenC vaccine can still be safely used for this booster Hib dose until supplies are exhausted.

There have also been changes to the Hib and pneumococcal vaccine schedules on the NIP. Refer to NCIRS factsheets — [Haemophilus influenzae type b \(Hib\) vaccines for Australian children](#) and [Pneumococcal vaccines for Australians](#) — for details.

From April 2019, a single dose of Nimenrix will be added to the NIP for adolescents aged 14–19 years and will replace various state-funded programs.

Q2. Who should be vaccinated with meningococcal vaccines?

Any person aged ≥ 6 weeks who wishes to protect themselves against invasive meningococcal disease (IMD) can be vaccinated with MenACWY and MenB vaccines to reduce their likelihood of becoming ill with meningococcal disease caused by serogroups A, B, C, W or Y.

Specific recommendations for meningococcal vaccination for people who have a higher risk of disease were updated in 2018.

Vaccination with both MenACWY and MenB vaccines is strongly recommended for:

- **all children aged <2 years**, as they have the highest rates of IMD
- **adolescents (aged 15–19 years)**, as they have high rates of IMD and the highest rates of meningococcal carriage
- **all Aboriginal and Torres Strait Islander people aged 2 months to 19 years**, as they are at substantially higher risk for meningococcal disease than non-Indigenous people
- **people with specified medical conditions that increase the risk of meningococcal disease** (refer to [Q8](#))
- **laboratory personnel** who frequently handle *Neisseria meningitidis* (the meningococcal bacteria)
- **adolescents and young adults (aged 15–24 years) who are living in close conditions** (such as military recruits or those in residential accommodation), as meningococcal bacteria are carried and spread more frequently in these populations
- **adolescents and young adults (aged 15–24 years) who are current smokers**, as they have a higher risk of carrying the meningococcal bacteria.

MenACWY vaccine is also recommended for people **travelling** to countries where there is an increased risk of exposure to meningococcal A, C, W or Y disease, including those who plan to travel to parts of the world where epidemics of meningococcal A, C, W or Y disease occur, particularly the ‘meningitis belt’ of sub-Saharan Africa. MenACWY vaccination is specifically required for pilgrims attending the annual Hajj in Mecca.

Q3. Which MenACWY vaccines are available in Australia, and are there any differences between them?

There are three brands of MenACWY vaccines available for use in Australia. They differ in the carrier protein that the meningococcal serogroup A, C, W and Y antigens are conjugated (joined) to:

- Menactra[®] (Sanofi Pasteur) – diphtheria toxoid conjugate
- Menveo[®] (GlaxoSmithKline) – CRM₁₉₇ conjugate
- Nimenrix[®] (Pfizer) – tetanus toxoid conjugate

All three vaccines provide effective protection against meningococcal A, C, W and Y disease. However, there are some variations in the level of immune response that each of them induces in different age groups and to different serogroups. Therefore, there are differences in the dosing schedules for each vaccine. The age ranges for which they are registered for use in Australia also vary. In individuals aged ≥ 2 years, it is preferable to receive Menveo or Nimenrix, rather than Menactra. Nimenrix and Menveo provide a slightly better immune response compared with Menactra, and a slower decline in protection over time. However, if Menveo and Nimenrix are unavailable, Menactra should be given as it also provides effective protection. In people aged ≥ 2 years, a single dose of MenACWY vaccine is recommended. Additional doses are recommended in people with specific medical conditions that increase their risk of meningococcal disease.

For all three brands of MenACWY vaccine, multiple doses are required for infants commencing vaccination at age < 12 months. Nimenrix and Menveo can be used in infants as young as 6 weeks of age. Menactra should only be used for infants aged 9 months and older. For healthy toddlers aged 12–23 months, 1 dose of Nimenrix or 2 doses of either Menactra or Menveo are required. For children < 2 years old, there is no preference for any of the three brands as long as the number of required doses are completed.

Although Menactra is not registered for use in those aged > 55 years, it can still be given to people in this age group, as per [The Australian Immunisation Handbook](#).

Certain brands of MenACWY vaccines have precautions when administered with other vaccines. See [Q15](#).

Q4. How many doses of MenACWY vaccine are required?

The number of doses of MenACWY vaccine required varies by age at which vaccination commences and the brand used. An 8-week interval is recommended between doses. However, longer intervals between doses do not reduce vaccine effectiveness or necessitate repeating prior doses.

Refer to NCIRS [fact sheet Meningococcal vaccines for information about dosing schedule recommendations](#).

Q5. Which MenB vaccines are available in Australia, and are there any differences between them?

Two vaccines are available to protect against meningococcal B disease:

- Bexsero[®] (GlaxoSmithKline): Bexsero is a recombinant multicomponent vaccine (MenB-MC) that can be given from 6 weeks of age.
- Trumenba[®] (Pfizer): Trumenba is a recombinant bivalent human factor H binding protein (MenB-fHbp) vaccine that is registered for use from 10 years of age.

There is no preference for use of either vaccine in children aged ≥ 10 years.

Q6. How many doses of MenB vaccine are required? Has there been a change to dosing recommendations for Bexsero[®]?

The number of doses of MenB vaccine required varies by age at which vaccination commences and the brand used. The dosing schedule for Bexsero varies between 2 and 4 doses by age and the presence of specified medical conditions.

Trumenba[®] is used from 10 years of age as a 2-dose schedule in healthy individuals (at 0 and 6 months) or a 3-dose schedule in people with specified medical conditions (see [Q8](#)) at 0, 1 and 6 months.

The dosing schedule for Bexsero[®] has recently changed for healthy infants (but not infants with increased risk of IMD) aged 6 weeks to 5 months. These infants are now recommended to receive a total of 3 doses of Bexsero (similar to infants aged 6–11 months) instead of 4 doses. This change is based on the finding that a 3-dose schedule had equivalent antibody response to a 4-dose schedule in young infants.¹ The 3-dose schedule has been used in the UK's national MenB infant vaccination program since 2015 and has shown good effectiveness in infants.²

Refer to the [NCIRS fact sheet Meningococcal vaccines](#) for more detailed dosing recommendations.

Q7. Which vaccine is more important to give –MenACWY or MenB?

Epidemiological data show that the rate of meningococcal disease varies by age and by state and territory. Meningococcal disease caused by serogroups W and Y has increased since 2013 in Australia. In 2016, in terms of total cases, meningococcal W became dominant and in 2017, similar numbers of cases were caused by meningococcal B and W. In general, meningococcal B disease is still more common than meningococcal W disease in young children, especially infants. As epidemiology is constantly changing, ideally both vaccines should be given, particularly for those people for whom vaccination is strongly recommended (see [Q2](#)). Bexsero protects primarily against meningococcal B disease but may also provide some cross-protective benefit against the currently circulating strains of meningococcal W.³ This may be particularly relevant for infants, in whom the rate of meningococcal B disease has remained higher than that of meningococcal W disease. However, vaccination with MenACWY vaccine is still needed to adequately protect against the A, C, W and Y serogroups. They can be administered together on the same day (refer to [Q14](#)). Financial constraints may have to be considered, as MenB vaccine is not currently funded on the NIP (but is state-funded in South Australia for some age ranges), while a single dose of MenACWY vaccine (Nimenrix) is NIP-funded at 12 months of age and will be funded for adolescents aged 14–19 years from April 2019.

Q8. Is there a different vaccine schedule for people with specified medical conditions associated with an increased risk of meningococcal disease?

Additional doses of MenACWY and MenB vaccines are recommended for people with specified medical conditions associated with an increased risk of meningococcal disease. These conditions include:

- inherited defects or deficiency of properdin or complement components
- current or future treatment with eculizumab
- functional or anatomical asplenia
- HIV infection
- haematopoietic stem cell transplant.

Refer to [NCIRS fact sheet Meningococcal vaccines](#) for more detailed dosing recommendations.

Q9. Are meningococcal vaccines safe?

Meningococcal conjugate vaccines (including MenC and MenACWY vaccines) are generally safe and well tolerated. Limited data suggest no significant differences in frequency or severity of adverse events between brands of MenACWY vaccines. MenB vaccines are also safe for use in the age groups that they are registered for. From a safety perspective, all meningococcal vaccines can be given with other routine childhood and adolescent vaccines. However, a moderately higher rate of fever in young children aged <2 years following Bexsero has been observed. Prophylactic use of paracetamol reduces the risk of fever, and is recommended with every dose of Bexsero in these young children.

Additional information on adverse events following meningococcal vaccination can be found in [The Australian Immunisation Handbook](#) and the [NCIRS Meningococcal vaccines](#) factsheet. Any reports of adverse events following

immunisation can be made to the Therapeutic Goods Administration (TGA) and jurisdictional adverse event surveillance systems. Further information on reporting can be found on the [NCIRS website](#).

Q10. Are there any contraindications to using meningococcal vaccines?

The only absolute contraindications for meningococcal vaccines are anaphylaxis following a previous dose of the respective vaccine or anaphylaxis following any component of the vaccine. Previous meningococcal disease, regardless of the serogroup, is not a contraindication for vaccination.⁴

The product information for Menveo states that the tip cap of the syringe contains natural rubber. The risk of allergy is lower from natural rubber than from latex. However, consider using an alternative product in people with an allergy or sensitivity to latex.

Q11. Are MenACWY or MenB vaccines available for free?

Children aged 12 months are eligible to receive a single dose of MenACWY vaccine (Nimenrix) for free under the NIP. An NIP-funded adolescent dose of Nimenrix will be introduced in April 2019 to be given between 14 and 19 years of age. All other recommended doses of MenACWY or MenB vaccines are not currently free under the NIP, including recommended doses for infants aged <12 months or people with specific medical conditions that increase their risk of meningococcal disease (see [Q8](#)). There is no funded catch-up MenACWY vaccination program for children previously immunised with Hib-MenC vaccine at 12 months of age, but MenACWY vaccine may be obtained through private prescription.

In addition to the NIP-funded dose of MenACWY vaccine for 12-month-old children, most states and territories have funded MenACWY vaccination programs for some age ranges including adolescents and/or children 1–4 years. Refer to the NCIRS fact sheet [Meningococcal vaccines](#) and state and territory health department websites for further details and up-to-date information on who is eligible for vaccination.

In South Australia, Bexsero is available free of cost through a state-funded program to all infants and children aged 6 weeks to 12 months (with catch-up to <4 years). Additionally, from February 2019, Bexsero will also be available to adolescents and young adults aged 15–16 years (catch-up to <21 years) through this state-funded program. Refer to the [South Australian health department website](#) for details on this program.

Q12. Can a different brand of meningococcal vaccine be used to complete a vaccination course (that is, are the brands interchangeable)?

MenACWY vaccines: It is preferable to use the same brand of MenACWY vaccine when giving subsequent doses, especially for completing a primary vaccination course for young children. However, a different brand may be substituted in cases where the initial brand used is unavailable or not known. Clinical trials where an alternative brand has been used as a booster dose in children have shown equivalent levels of immune response between those re-vaccinated with a similar or different brand.⁵ Therefore, children who have been vaccinated with Menveo as infants, for example, can be safely immunised and protected with a funded dose of Nimenrix at 12 months under the NIP. Among people who require booster doses every 5 years, a different brand of MenACWY vaccine may be used.

MenB vaccines: Bexsero and Trumenba are not interchangeable; the same vaccine must be used to complete the vaccination course. This is because the strains that the two vaccines protect against are slightly different. If the vaccine used to initiate the vaccination course is unavailable, a complete primary course of the alternative vaccine must be given to ensure protection.

Q13. If a child received only the Hib-MenC vaccine at 12 months of age, should they receive an additional dose of MenACWY vaccine?

Vaccination with the Hib-MenC vaccine (the NIP scheduled and funded vaccine prior to 1 July 2018) does not provide protection against meningococcal disease caused by serogroups A, W and Y. Children aged <2 years are particularly

recommended to receive MenACWY vaccine, for the additional benefit of protection against serogroups A, W and Y. A child who has previously received the combination Hib-MenC vaccine at 12 months can be vaccinated with a MenACWY vaccine (noting that the number of doses required are different with different brands), with an interval of 2 months or more after the previous dose of Hib-MenC vaccine. There is no NIP-funded catch-up MenACWY vaccine program for children who were born prior to 1 July 2017 and have already received the Hib-MenC vaccine. For these children, MenACWY vaccine is obtainable by private prescription.

Q14. Can MenACWY vaccine be co-administered with MenB vaccine?

MenB vaccines can be co-administered with MenACWY vaccines. Prophylactic administration of paracetamol is recommended before and after administration of Bexsero in children aged <2 years (refer to [ATAGI's advice on the use of Bexsero](#)).

Q15. Can meningococcal vaccines be co-administered with non-meningococcal vaccines?

Yes, MenACWY and MenB vaccines can be co-administered with most other routine NIP childhood vaccinations with some exceptions.

Menactra (MenACWY vaccine) should not be co-administered with 13vPCV (Prevenar 13). This is because Menactra may interfere with the immune response against some pneumococcal serotypes. If a person needs both vaccines, they should preferentially receive Menveo or Nimenrix with 13vPCV instead. If only Menactra is available, the person should receive 13vPCV first, followed by Menactra at least 4 weeks later.

The immune response to a single dose of Nimenrix was shown to be slightly lower in studies of toddlers aged 12–23 months and in adults, if it was given 1 month after a tetanus toxoid (TT)-containing vaccine (such as Infanrix Hexa or Boostrix).^{6,7} Similar is the case for the response to Menactra when it is given 1 month after a diphtheria toxoid (DT)-containing vaccine in children and adolescents.^{8,9} These effects are thought to be due to interference by the tetanus or diphtheria vaccines with the particular meningococcal conjugate vaccine having the same carrier protein. However, lower responses do **not** occur when the vaccines are given at the same time (i.e. Nimenrix with a TT-containing vaccine^{6,7} and Menactra with a DT-containing vaccine).¹⁰ Also, these studies do not provide information about the most suitable interval between TT-containing and Nimenrix vaccines and DT-containing and Menactra vaccines. When planning future administration of these vaccines, the meningococcal vaccine should be co-administered with, or given before, the TT- or DT-containing vaccines whenever possible.

Children aged <2 years have an increased risk of fever if Bexsero is co-administered with other routine vaccines, compared with when these vaccines are given separately. However, this is not a contraindication to co-administration of Bexsero with other vaccines. Alternatively, children aged <2 years can receive Bexsero separately from other routine infant vaccines, with a minimum interval of 3 days, to minimise the risk of fever. In this case, do not delay routinely recommended vaccines. Children aged <2 years are recommended to receive prophylactic paracetamol if they are receiving Bexsero, even if this is given alone.

Q16. I have inadvertently given Menactra with 13vPCV. What should I do?

If Menactra and 13vPCV are inadvertently co-administered, there may be a risk of decreased responses to 13vPCV. This is more important for people with medical conditions associated with an increased risk of invasive pneumococcal disease (IPD). A second dose of 13vPCV may be required, particularly in those at increased risk of IPD, at a minimum of 8 weeks after the first 13vPCV dose. Seek the advice of the treating clinician or an immunisation expert.

Q17. I have a child who requires Nimenrix or Menactra but they received Infanrix Hexa recently. What should I do?

Infanrix Hexa given as part of the primary series in children aged ≤ 12 months should not delay vaccination with Nimenrix (or Menactra from age 9 months) as there are no data on interaction in this age group. From 12 months of age, if the Infanrix Hexa vaccine has already been given first, the MenACWY vaccine should be given as originally scheduled and not delayed as the optimal dosing interval in sequential administration is not known. Although immune

responses may be slightly lower, the child will still have some protection against meningococcal disease. Delaying vaccination means that the child will not have protection against meningococcal disease during the age when risk of disease is high, and also puts the child at risk of missing vaccination.

Q18. For adolescents aged 10–19 years who require a catch-up dose of MenC vaccine, is vaccination with a dose of MenACWY vaccine sufficient?

Yes, vaccination with MenACWY vaccine provides protection against MenC disease and is accepted by the Australian Immunisation Register (AIR) as a dose of MenC vaccine. It can be given in lieu of monovalent MenC vaccines. [The Australian Immunisation Handbook](#) provides further details on catch-up requirements in people aged ≥ 10 years, and an Australian Government Department of Health [fact sheet](#) provides information on catch-up doses available at no cost under the NIP. Catch-up vaccination for the MenC vaccine dose with a MenACWY vaccine is currently not funded under the NIP (but may be available for free through other state and territory programs).

Q19. An adolescent has had a dose of MenACWY (conjugate or polysaccharide) vaccine in the past and is now eligible for a dose of MenACWY vaccine through the state-based or national program. Should they receive this dose?

Yes. Eligible adolescents can receive a dose of funded MenACWY vaccine through the state or national immunisation program if they have been vaccinated with MenACWY vaccine in the past (provided there is at least 8 weeks since the last dose), even if the previous dose was within the past 5 years. Repeat vaccination can offer a benefit by boosting immunity, and does not increase the risk of experiencing side effects. Adolescents who have previously received a polysaccharide meningococcal vaccine (at any age), which would have provided protection for only a limited period, can be vaccinated with MenACWY vaccine now, provided that at least 6 months have passed since they received the last dose of polysaccharide vaccine.

Q20. My patient has received meningococcal vaccines in the past. Do they need a booster dose?

MenACWY vaccines: In healthy individuals of any age, routine booster doses of MenACWY vaccine after vaccination with an age-appropriate number of doses are not recommended in Australia.

People at increased risk of meningococcal disease due to certain medical conditions (refer to [Q8](#)), laboratory personnel who handle *Neisseria meningitidis* and people travelling to areas with increased risk of exposure to meningococcal disease have ongoing increased risk of infection and should receive regular booster doses, as per the schedules in the NCIRS fact sheet on [Meningococcal vaccines](#). Serological testing to determine immune status is neither necessary nor recommended.

MenB vaccines: Routine booster doses of MenB vaccines are not currently recommended in Australia for any age or risk group.

Q21. My patient has been in close contact with someone who has been diagnosed with meningococcal disease. Do they require vaccination?

The relevant state or territory public health authority should be contacted as soon as possible for advice on determining the risk of disease and for guidance on management, including whether to offer clearance antibiotics or vaccination.

For more information on meningococcal disease, vaccines and schedules, refer to the NCIRS fact sheet – [Meningococcal vaccines](#).

References

1. Martinon-Torres F, Safadi MAP, Martinez AC, et al. Reduced schedules of 4CMenB vaccine in infants and catch-up series in children: Immunogenicity and safety results from a randomised open-label phase 3b trial. *Vaccine* 2017;35:3548-57.

2. Parikh SR, Andrews NJ, Beebejaun K, et al. Effectiveness and impact of a reduced infant schedule of 4CMenB vaccine against group B meningococcal disease in England: a national observational cohort study. *The Lancet* 2016;388:2775-82.
3. Ladhani SN, Giuliani MM, Biolchi A, et al. Effectiveness of meningococcal B vaccine against endemic hypervirulent *Neisseria meningitidis* W strain, England. *Emerging Infectious Diseases* 2016;22:309-11.
4. Australian Technical Advisory Group on Immunisation (ATAGI). *The Australian Immunisation Handbook*. Canberra: The Australian Government Department of Health; 2018. Available from: <https://immunisationhandbook.health.gov.au/> (Accessed 26/09/2018).
5. Baxter R, Baine Y, Kolhe D, et al. Five-year Antibody Persistence and Booster Response to a Single Dose of Meningococcal A, C, W and Y Tetanus Toxoid Conjugate Vaccine in Adolescents and Young Adults: An Open, Randomized Trial. *Pediatric Infectious Disease Journal* 2015;34:1236-43.
6. Knuf M, Pantazi-Chatzikonstantinou A, Pfletschinger U, et al. An investigational tetravalent meningococcal serogroups A, C, W-135 and Y-tetanus toxoid conjugate vaccine co-administered with Infanrix hexa is immunogenic, with an acceptable safety profile in 12-23-month-old children. *Vaccine* 2011;29:4264-73.
7. Tashani M, Alfelali M, Barasheed O, et al. Effect of Tdap upon antibody response to meningococcal polysaccharide when administered before, with or after the quadrivalent meningococcal TT-conjugate vaccine (coadministered with the 13-valent pneumococcal CRM197-conjugate vaccine) in adult Hajj pilgrims: A randomised controlled trial. *Vaccine* 2018;36:4375-82.
8. Clinicaltrials.gov National Library of Medicine (US). Study of Menactra® in US adolescents when administered concomitantly with Tdap vaccine. Identification number: NCT00777257. 2018. Available from: <https://clinicaltrials.gov/ct2/show/NCT00777257?term=MTA21+menactra&rank=1> (Accessed 27 July 2018).
9. Clinicaltrials.gov National Library of Medicine (US). Study of Menactra® in children aged 4 to 6 years when administered concomitantly with a fifth dose of DAPTACEL®. Identification number: NCT00355121. 2018. Available from: <https://clinicaltrials.gov/ct2/show/NCT00355121?term=NCT00355121&rank=1> (Accessed 27 July 2018).
10. Weston WM, Friedland LR, Wu X, Howe B. Immunogenicity and reactogenicity of co-administered tetanus-diphtheria-acellular pertussis (Tdap) and tetravalent meningococcal conjugate (MCV4) vaccines compared to their separate administration. *Vaccine* 2011;29:1017-22.