

2024 MENINGOCOCCAL DISEASE GUIDE

FOR HEALTHCARE PROFESSIONALS



ABOUT MENINGOCOCCAL DISEASE

Meningococcal disease progresses very rapidly. Deaths can occur in as little as a few hours.

The disease is caused by the bacterium *Neisseria meningitidis*. The most common strains worldwide are A, B, C, W and Y.

Since the introduction of MenACWY vaccination programs, the incidence of MenW disease has reduced. Currently, MenB and MenW cause most meningococcal disease in Australia.^[1]

This guide provides useful information about clinical features of the disease, as well as information on epidemiology, transmission, and vaccination recommendations.

As healthcare professionals you can help stop the spread of meningococcal disease by:

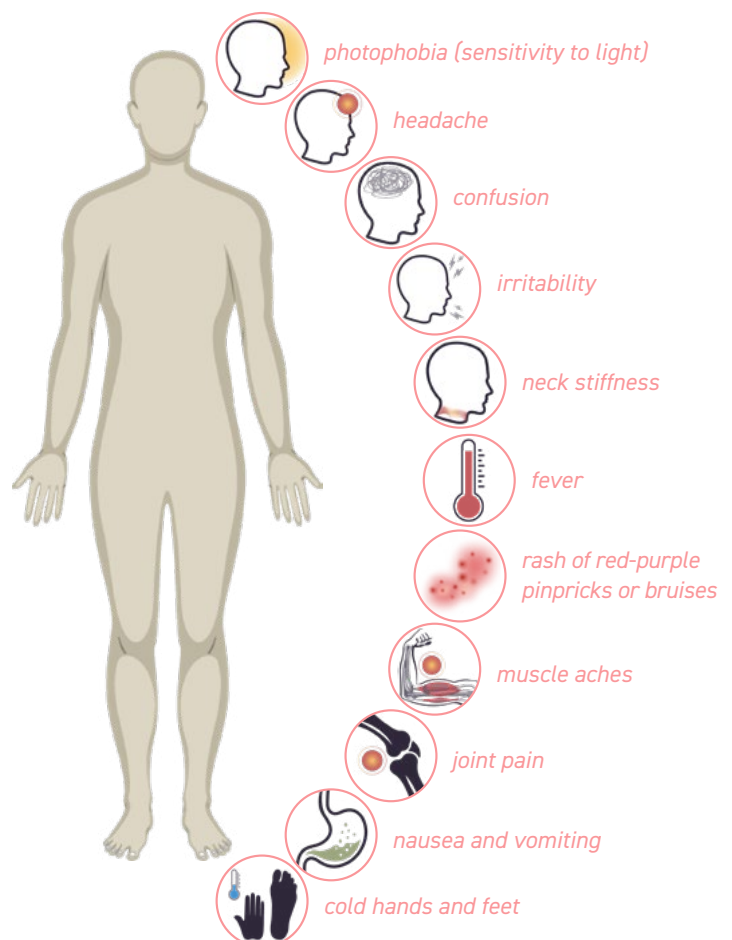
- **Advising** patients and parents about the importance and safety of vaccination
- Helping to **prevent** meningococcal disease in adolescents. Vaccine effectiveness of a 4vMenCV adolescent vaccination program in the United States has been estimated at 80 to 85%^[2]
- Helping to **prevent** the spread of meningococcal disease to the broader community (herd immunity)
- Considering **testing** for invasive meningococcal disease in older patients who may have atypical presentations (septic arthritis and epiglottitis)^[3]
- Upon clinical suspicion, take steps to diagnose and provide early **management**

MENINGOCOCCAL SYMPTOMS

People with meningococcal disease can become extremely unwell very quickly.

After being infected, it usually takes between 1–10 days for symptoms to appear.

The possible symptoms are: sudden onset of fever, rash of red-purple pinpricks or bruises, headache, neck stiffness, photophobia, muscle aches, cold hands and feet, confusion, irritability, joint pain, nausea and vomiting.^[3]



WHAT CAUSES MENINGOCOCCAL DISEASE?

Meningococcal disease is transmitted by close, prolonged household and intimate contact.



The spread of the disease is through the infected secretions from the back of the nose and throat.

The bacteria can only survive a few seconds outside the body so it cannot be picked up from surfaces, swimming pools, buildings or animals.

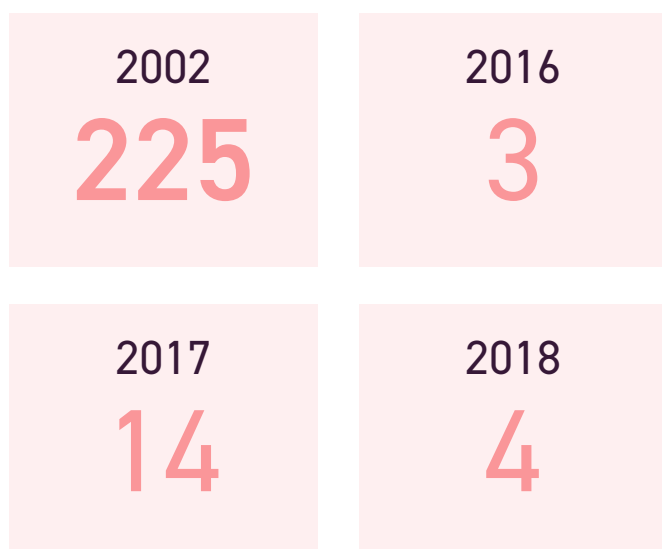
About **1 in 10 people**^[4] can have meningococcal bacteria in their throat or nose. These very rarely cause illness but can be transmitted to others who are more susceptible and cause illness in them.

Teenagers have the highest carriage rates, peaking in 19-year-olds, and so play an important role in transmission.^[5]

Meningococcal disease is caused by the bacterium *Neisseria meningitidis*. The most common strains worldwide are A, B, C, W and Y.

MenW emerged as an increasing cause of meningococcal disease, making up almost half of the Australian cases in 2016. In 2017, MenB strains increased to levels similar to MenW.

In 2018, following MenACWY school vaccination programs, MenB emerged as predominant strains. **MenC**, the target of a national immunisation programme since 2003, has **dramatically declined** ^[6]:



There has been a decrease in MenY.

WHO IS MOST AFFECTED?

Most meningococcal disease occurs in children aged less than 5 years and adolescents.



Meningococcal serogroup B (MenB) disease remains the most common cause of invasive meningococcal disease in children, adolescents and young adults.^[7]

MenW also has its peak in these age groups, however it has a diverse age range.^[8]

RISK FACTORS

Individuals at greater risk of meningococcal infection:^{[3][9]}

- Immunocompromised due to certain disorders of the immune system (particularly complement deficiencies)
 - HIV infection, haematopoietic stem cell transplant
- Certain medical treatments (e.g. eculizumab)
- Asplenia
- Occupational exposure in laboratories
- Exposure to smokers (who are more likely to be carriers)
- Crowded living conditions
- Intimate kissing
- Recent or current viral infection
- Aboriginal and/or Torres Strait Islander people (up to 19 years of age)

COMPLICATIONS

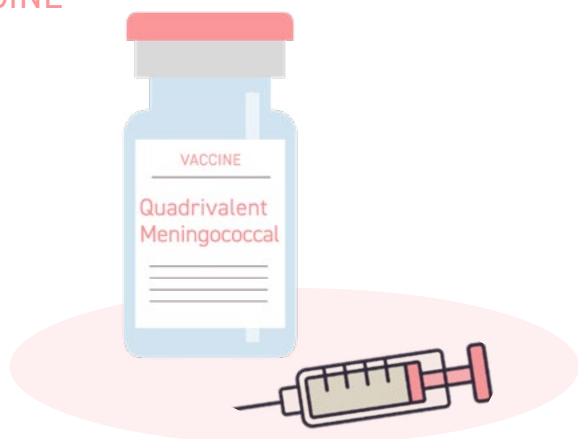
A common presentation of MenW in Australia has been severe sepsis. MenW disease has been associated with atypical presentations, such as septic arthritis, pneumonia and epiglottitis, in **up to 20% of cases**.^[10]

Some people may experience permanent brain damage, and **1 in 10 may die**.

1 in 5 people^[11] who recover may have lingering health problems such as:

- Skin scarring
- Limb deformity
- Limb loss
- Deafness
- Impaired vision
- Learning difficulties^[12]

QUADRIVALENT MENINGOCOCCAL VACCINE



4vMenCV for serogroups A, C, W and Y – Nimenrix and MenQuadfi[#] are available on the NIP for 14-16 year olds and 14-19 year olds as a catch-up program.

Trade Name/ Age available	Age Available	NIP Age Available	Formulation
MenQuadfi ^(#)	From 12 months onwards	14 –16 years Those aged 15 –19 years on catch-up schedules	Quadrivalent tetanus toxoid conjugate
Menveo	From 2 months onwards ^[*]	Not available on the NIP	Quadrivalent CRM 197 conjugate
Nimenrix	From 6 weeks onwards ^[*]	12 months	Quadrivalent tetanus toxoid conjugate

^(#) Added to the NIP on 1 July 2024

^[*] ATAGI recommends Menveo and Nimenrix can be given for 6 weeks of age and up.

WHO SHOULD BE VACCINATED?

- Vaccination may be offered to anyone aged 6 weeks or older wishing to reduce the risk of Men A, C, W and Y.
- Those with increased medical, occupational or other exposure including travel risks of meningococcal disease caused by serogroups A, C, W and Y.
- Infants 6 weeks of age.
- Adolescents/ young adults 14–19 years of age.



AVAILABILITY

Funded for adolescents or children (for varying and limited periods of time):

- *Nimenrix* funded on NIP for children 12 months of age
- *MenQuadfi* funded on NIP for adolescents aged 14–16 years, and those aged 15–19 years on catch-up schedules
- Funded on NIP through school-based program for 14–16 yr olds
- Funded through NIP for people with certain medical conditions at increased risk of IMD. (See Immunisation Handbook for details).
- *Menveo* is **not funded** on the NIP but is available on private script where stock is available

Vaccine is otherwise available on private prescription.

Contact your state or territory health department for more information

ADMINISTERING QUADRIVALENT MENINGOCOCCAL VACCINES

MenQuadfi is in a liquid form and simply drawn up and administered to the individual.

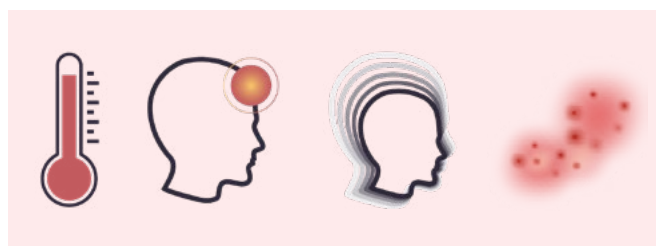
Menveo and *Nimenrix* consist of a powder and a liquid which need to be combined before they are administered.

VACCINE SAFETY

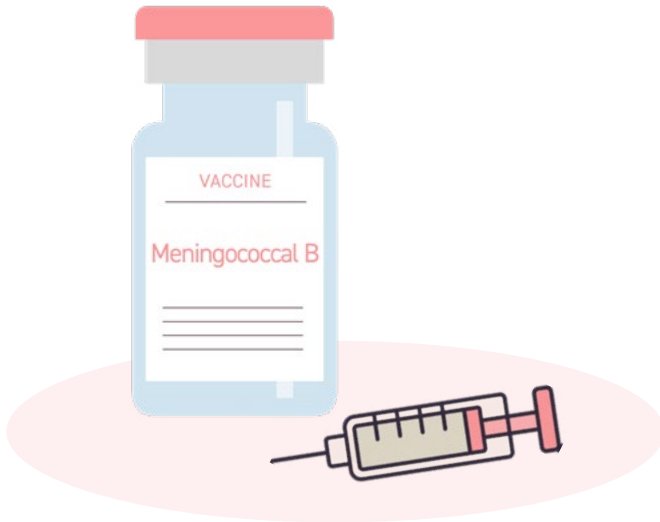
Meningococcal vaccines are safe and well tolerated.



4vMenCV's most frequent side effects include: fever, headache, dizziness and erythema around the injection site (erythema resolves in 48–72 hours).



MENINGOCOCCAL B VACCINE



AVAILABILITY

- Private prescription
- Funded on NIP for Aboriginal and/or Torres Strait Islander children aged <2 years
- Funded on NIP for all ages with specific risk conditions
- Funded vaccination available in South Australia^[13]
 - 6 weeks to 12 months of age: Meningococcal B childhood program (commencing October 2018/ongoing)
 - Year 10 MenB vaccination (commencing February 2019/ongoing)

MenBV for serogroup B

Trade Name	Formulation
Bexsero In South Australia: Bexsero for childhood program Bexsero/Trumenba for school immunisation program and under 21 catch-up program	Recombinant multicomponent MenB

VACCINE EFFECTIVENESS

Based on laboratory tests, estimated vaccine induces protective antibodies against **76% of MenB strains** in Australia.^[14]

WHO SHOULD BE VACCINATED?

Vaccination can be offered to anyone aged 6 weeks^[3] or older who wants to reduce the risk of MenB disease.



Infants and young children, particularly those <2 years, adolescents and those with increased medical or occupational exposure risks of MenB disease.

From 1 July 2020, funded on NIP for people with medical conditions that increase risk of IMD (i.e. asplenia, hyposplenia, complement deficiency and those receiving treatment with eculizumab).

On NIP for Aboriginal and/or Torres Strait Islander children at 2, 4 and 12 months of age.

VACCINE SAFETY

Fever is the most common side effect in infants and young children especially when given concurrently with other vaccines. Prophylactic paracetamol is recommended with MenBV administration in children aged under 2 years.^[15]



MENINGOCOCCAL C CONJUGATE VACCINES



MenCCV for serogroup C

Trade Name	Formulation
NeisVacC	Men C conjugate vaccine
Menitorix	Hib-MenC conjugate combination vaccine

WHO SHOULD BE VACCINATED?

Monovalent vaccine replaced by Hib-MenCCV combination vaccine for use under NIP since July 2013.



In July 2018, MenACWY replaced Hib-MenC on the NIP at 12 months.

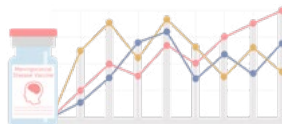
In July 2018, an injection of Hib became available on NIP at 18 months as Hib no longer available at 12 months.^[16]

AVAILABILITY

Monovalent MenC vaccine available on the NIP for those requiring catch-up of the 12-month childhood dose (when they are not eligible to receive MenACWY vaccine).^[1]

VACCINE EFFECTIVENESS

Use from 2003 in Australia resulted in a 96% reduction in MenC invasive disease in all age groups by 2012.^[17]



VACCINE SAFETY

Common side effects: pain, tenderness and occasional erythema at injection site which resolves in 1 day, transient headache.



REFERENCES

1. Meningococcal vaccines for Australians/ NCIRS Fact sheet: February 2024
2. MacNeil JR, Cohn AC, Zell ER, et al. Early estimate of the effectiveness of quadrivalent meningococcal conjugate vaccine. *Pediatric Infectious Disease Journal* 2011;30:451-5.
3. Australian Technical Advisory Group on Immunisation (ATAGI). Meningococcal disease. In: Australian Immunisation Handbook. Canberra: Australian Government Department of Health; 2024. Available from: <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/meningococcal-disease>
4. Centers for Disease Control and Prevention (CDC) Meningococcal Disease Causes and Transmission (page last updated 8 February 2024) Accessed 19 May 2024.
5. Christensen H. et al. 2010. Meningococcal carriage by age: a systematic review and meta-analysis. *Lancet Infectious Diseases* Dec 2010: 853-61.
6. Australian Government Department of Health; Invasive Meningococcal Disease National Surveillance Report-Quarter 4 2018, 1 October 2018 to 31 December 2018.
7. Department of Health and Aged Care National Notifiable Diseases Surveillance System Meningococcal Disease (invasive) Date last updated September 2023. <https://www.health.gov.au/resources/publications/national-notifiable-diseases-surveillance-system-nndss-public-dataset-meningococcal-disease-invasive?language=en>
8. National Notification Disease Surveillance System Annual Report Writing Group. Australia's notifiable disease status, 2016: Annual report of the National Notifiable Diseases Surveillance System. *Communicable Diseases Intelligence* 2021; 45. Available from: <https://www.health.gov.au/sites/default/files/documents/2021/09/australia-s-notifiable-disease-status-2016-annual-report-of-the-national-notifiable-diseases-surveillance-system-australia-s-notifiable-disease-status-2016-annual-report-of-the-national-interoperable-notifiable-diseases-su.pdf>
9. McCall BJ, Neill AS, Young MM. Risk factors for invasive meningococcal disease in southern Queensland, 2000-2001. *Internal Medicine Journal* 2004;34:464-8.
10. Martin NV, Ong KS, Howden BP, et al. Rise in invasive serogroup W meningococcal disease in Australia 2013- 2015. *Communicable Diseases Intelligence* 2016;40: E454-E9.
11. Know Meningococcal website. knowmeningococcal.com.au (Accessed 26 May 2024)
12. Victoria State Government. Health and Human Services. Better Health Channel Meningococcal Disease Fact Sheet. Reviewed on 22 March 2024 (Accessed 26 May 2024).
13. SA Health Meningococcal B Immunisation Program.
14. Therapeutic Goods Administration (TGA) Novartis Vaccines & Diagnostics Pty Ltd. Product information: BEXSERO® suspension for injection. Multicomponent meningococcal group B vaccine (recombinant, adsorbed). 2016.
15. South Australian Neonatal Medication Guidelines. Meningococcal group B vaccine Bexsero® (multicomponent, recombinant). Adelaide: Department for Health and Wellbeing, Government of South Australia; 2019. Available from: https://www.sahealth.sa.gov.au/wps/wcm/connect/8ee18b8e-3bc9-43ce-8dcf-ca5047eb48b4/Meningococcal+Group+B+Vaccine_Neo_v1_0.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-8ee18b8e-3bc9-43ce-8dcf-ca5047eb48b4-oSqDCh2
16. Department of Health National Immunisation Program last update 1st November 2023
17. Lawrence GL, Wang H, Lahra M, Booy R, McIntyre PB. Meningococcal disease epidemiology in Australia 10 years after implementation of a national conjugate meningococcal C immunization programme. *Epidemiology and Infection* 2016; 144:2382-91.