Purchase of non-funded meningococcal vaccines

The Immunisation Advisory Centre

What is meningococcal disease?

Meningococcal disease is caused by the bacterium *Neisseria meningitidis*. At least 12 groups have been identified, including groups A, B, C, X, Y and W (previously called W-135).

In New Zealand (NZ) from 2014 to 2017, group B caused around two-thirds of meningococcal disease each year, group C almost one-third, and groups Y or W the remaining few cases. However, in 2018 group B decreased and caused around half of cases. Group C also decreased significantly. Disease caused by meningococcal groups Y and W increased to cause almost half the number of cases. Group W disease included cases caused by a very virulent sequence type of meningococcal group W (ST-11). Meningococcal group A rarely causes disease in NZ.

How do you catch it?

Meningococcal bacteria are commonly carried in the nose and throat, and do not usually cause disease. Carriage rates are highest in older teenagers and young adults. The bacteria can be transferred from person to person through contact with saliva, e.g. intimate kissing. In rare cases, the bacteria can invade and rapidly lead to severe disease. The underlying reasons for why invasion occurs in some individuals are not well understood.

How serious is it?

If meningococcal bacteria pass into the blood, the disease usually progresses very quickly. A person with meningococcal disease may develop:

» Meningitis (inflammation of the membranes around the brain).
» Septicaemia (blood infection).
» Pneumonia (lung infection).

One to two people out of every 10 who survive meningococcal disease have long-term complications, e.g. extensive skin scarring, limb amputation, hearing loss, seizures, or brain injury. Even when the disease is identified and treated early, one to two people out of every 10 will die.

Who is at risk

The groups with the highest rates of meningococcal disease are over 2014–2017 in NZ are shown in table 1.

Table 1: Groups with the highest rates of meningococcal disease in New Zealand by age and ethnicity over 2014–2017*

Meningococcal group B disease	Meningococcal groups C, Y and W disease	By ethnicity
» Infants and children aged under 5 years » Adolescents aged 15—19 years		» Pacific peoples » Māori

*In 2018, a high rate of group B and groups C, Y and W disease cases were also seen in young adults aged 20—29 years.

What increases the risk?

» Exposure to tobacco smoke, binge drinking, or having another respiratory infection, e.g. influenza.
» Living in close proximity to others, e.g. in a crowded household, at boarding school, in university halls of residence or in long-term institutional care.
» Being in a household or other close contact of someone carrying the bacteria or with the disease, e.g. those who have been intimate, or infants and children attending an early childhood education centre.
» Having a medical condition or receiving treatment that affects the immune system, e.g. functional asplenia, post-splenectomy, or taking disease modifying immunosuppressive medication.
» Age and ethnicity.

Vaccines to protect against meningococcal disease

Meningococcal vaccines are classified by the type of vaccine manufactured and by the meningococcal bacteria groups they protect against. In NZ, conjugate vaccines protect against groups A, C, Y and W (Menactra® or Nimenrix®) or group C only (NeisVac-C®), and the multicomponent recombinant vaccine protects against group B only (Bexsero®).

There have been vaccines against the groups A, C, Y and W for more than 20 years but it has taken much longer to develop vaccines that protect against the different types of meningococcal group B. This is because the immune response to group B is different to the immune response to groups A, C, Y and W.

The MeNZB™ vaccine used in NZ between 2004 and 2011 was designed to target a specific type of meningococcal group B bacteria that caused a prolonged epidemic here in NZ. Protection from this vaccine was not long lasting; those who received the MeNZB vaccine are not expected to still have protection against this type of meningococcal B disease. The active component of MeNZB has contributed to the successful development of Bexsero.

Table 2 summarises the available meningococcal vaccines and the percentage of meningococcal disease cases covered by the vaccines in NZ over 2014–2018. For best protection against all meningococcal disease in NZ, separate vaccinations against group B disease and groups A, C, Y and W disease are recommended.

Table 2: Percentages of meningococcal disease cases covered by vaccines in New Zealand over 2014–2018

Meningococcal group	Vaccines	2014–2017	2018
Group B	Bexsero	64—68%	44%
Group C	NeisVac-C	10—16%	9%
Groups A, C, Y and W	Menactra, Nimenrix	24—31%	59%

Meningococcal vaccines currently available on the National Immunisation Schedule

NeisVac-C (group C) and Menactra (groups A, C, Y and W) are funded for individuals with a medical condition that increases their risk of meningococcal disease AND is listed on the Pharmaceutical Schedule. NeisVac-C and Menactra for funded individuals can be ordered from ProPharma.

Meningococcal vaccines available for purchase

NeisVac-C and Menactra for those not covered by the Pharmaceutical Schedule, Bexsero and Nimenrix can be purchased through general practice. Non-funded vaccines can be ordered from Healthcare Logistics. Vaccinators MUST have a prescription or standing order to administer these vaccines.

Who should be offered immunisation against meningococcal disease?

Vaccines to protect against meningococcal disease should be offered to individuals at increased risk of infection with or exposure to meningococcal bacteria. These groups are described in Table 3 on the next page.

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Vaccine safety

More than 20 years of studies and safety monitoring have shown the conjugate meningococcal vaccines have excellent safely profiles. Bexsero was first approved for use in Europe in 2013 and is now approved for use in over 40 countries including England and Australia. Bexsero has an excellent safety record.

With Menactra, NeisVac-C and Nimenrix, the most common vaccine responses are around the injection site and include redness, swelling, or discomfort or pain. However, fever, headache, fussiness/irritability, drowsiness, nausea/vomiting or diarrhoea, or dizziness can also occur.

With Bexsero, the most common vaccine responses include fever, and discomfort or pain around the injection site. Infants and children may also be irritable, have unusual crying or a decreased appetite. Adolescents and adults may experience headache, muscle or joint aches, malaise or nausea.

When administering Bexsero in children aged under 2 years, either alone or with other vaccines, prophylactic paracetamol is recommended to reduce the risk of high fever and injection site pain that occurs more commonly with this vaccine than other childhood vaccines. Please refer to our fact sheet *Paracetamol use with Bexsero in children aged under 2 years* for more information.

Table 3: Who should be offered immunisation against meningococcal disease

Special groups on the Immunisation Schedule

- Pre/post-splenectomy or with functional asplenia.¥ϡ
- HIV positive.¥ϡ
- Inherited or acquired complement deficiency.¥ϡ
- Pre/post-solid organ transplantation.¥ϡ
- Following stem cell/bone marrow transplantation.¥ϡ
- Following immunosuppression for longer than 28 days.¥ϡ
- Close contact of a meningococcal disease case.¥

Other groups

- Prior to immunosuppression for longer than 28 days.
- Other infants and young children aged under 5 years, adolescents and young adults.
  - Particularly adolescents and young adults living in close proximity to each other, e.g. boarding school, university halls of residence or in long-term institutional care.
- Travellers to high-risk countries and Hajj pilgrims.
- Laboratory workers regularly exposed to meningococcal cultures.

¥ NeisVac-C is funded for infants and children under 2 years.
¥ Menactra is funded for children from 2 years of age and adults.
ϡ Bexsero is also recommended but is not funded for infants from 8 weeks of age, children or adults.

For any vaccine, the most serious but very rare response is a severe allergic reaction (anaphylaxis). The risk of this happening after meningococcal vaccination is less than once per million vaccine doses. Common and rare vaccines responses are listed in *Table 4: Comparison of possible disease effects with vaccine responses*.

Who should not have meningococcal vaccines?

- Anyone with severe allergy (anaphylaxis) to a previous dose of the vaccine or any component of the vaccine should not receive the vaccine.
- Immunisation for any vaccine should be postponed in subjects suffering an acute illness or high fever.
  - The presence of a minor infection is not a reason to delay immunisation.

How protective are the vaccines?

Meningococcal bacteria can cause disease more quickly than the immune system can generate protection. Therefore, having existing circulating antibodies is required for protection against meningococcal disease. Immunisation generates circulating antibodies. Over time, the antibody levels decrease. The number and quality of antibodies and how long they last depend on what type of vaccine is used, the meningococcal group(s) covered by the vaccine, and the age of the person receiving the vaccine.

As there are generally low numbers of meningococcal disease cases in countries such as Australia, England, Germany, NZ and the United States, it is not possible to determine exactly how many cases of disease are prevented by vaccination or how long protection after vaccination lasts. Instead, the immune system response and antibody levels are used as an alternative measure of how well and how long meningococcal vaccines can protect from disease. Table 4 shows the expected protection against meningococcal disease after completion of an age appropriate course of vaccinations.

Recommended vaccine administration schedules

Table 5 on the last page shows the vaccine brands, costs and recommended vaccine administration schedules.

References

A list of references is available in a separate document on the *Written Resources* page of our website.

Table 4: Expected protection against meningococcal disease after immunisation§

	Group B disease	Group C disease	Group A, C, Y, or W disease
Age group	Bexsero	NeisVac-C, Menactra, Nimenrix	Menactra, Nimenrix
Under 2 years	63—100%	95—100%	86—100%
2—3 years	72—100%	63—100%	63—97%
4—10 years	91—100%	79—100%	79—99%
Adolescents	99—100%	92—100%	82—97%
Adults	91—100%	89—100%	73—92%
Duration of protection			
Children under 5 years of age	1—3 years	3—5 years	
Older children, adolescents and adults	Not yet established	At least 5 years	

§Based on the proportion of vaccine recipients mounting a protective immune response after completion of the recommended vaccination course.

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Table 5: Vaccine brands, costs and recommended vaccine administration schedules

Vaccine brand	Cost	Number of doses required
Bexsero (group B)	$96.50/single[a,b]	**Infants ≥8 weeks to ≤5 months** Option 1 – 2+1 vaccine course[Φ] 2 doses with a minimum interval of 8 weeks between each dose. Booster dose aged 12 months or a minimum of 6 months after second dose, whichever is later. Option 2 – 3+1 vaccine course[Φ] 3 doses with a minimum interval of 4 weeks between each dose. Booster dose aged 12 months or a minimum of 6 months after third dose, whichever is later. **Infants ≥6 months to ≤11 months** 2 doses with a minimum interval of 8 weeks between each dose. Booster dose aged 12 months or a minimum of 2 months after second dose, whichever is later. **Children ≥12 months to ≤23 months** 2 doses with a minimum interval of 8 weeks between each dose. The need for a booster dose has not yet been established. **Children ≥2 years to ≤10 years[‡]** **Adolescents and adults ≥11 years to ≤50 years** 2 doses with a minimum interval of 4 weeks between each dose. The need for a booster dose has not yet been established. [Φ‡]Please refer to the information below this table.
NeisVac-C[#] (group C)	$50.00/single[a,b]	**Infants ≥8 weeks to ≤11 months** 2 doses with a minimum interval of 8 weeks between each dose. Booster dose aged 12 months or a minimum of 6 months after second dose, whichever is later. Booster dose after 2-3 years if at increased risk. **Children ≥12 months to ≤6 years** 1 dose. Booster dose after 2–3 years if at increased risk. **Children ≥7 years, adolescents and adults** 1 dose. Booster dose after 5 years if at increased risk.
Menactra[#] (groups A, C, Y, and W)	$89.95/single[a,b]	**Children ≥9 months to ≤23 months** 2 doses with a minimum interval of 3 months between each dose. Booster dose after 3 years if at increased risk. **Healthy children ≥2 years to ≤6 years** 1 dose. Booster dose after 3 years if at increased risk. **Healthy children, adolescents and adults ≥7 years to ≤55 years** 1 dose. Booster dose after 5 years if at increased risk. **Note**: Menactra and Prevenar 13® MUST be administered at least 4 weeks apart.
Nimenrix (groups A, C, Y, and W)	$80.00/single[a,b]	**Children ≥6 weeks to <12 months** 2 doses with a minimum interval of 8 weeks between each dose. Booster dose aged 12 months or a minimum of 6 months after second dose, whichever is later. **Children ≥12 months, adolescents and adults** 1 dose. **Booster doses children ≥12 months and adults** » Meningococcal group A: Consider a booster dose after 1 year if at increased risk. » Meningococcal groups C, Y and W: Consider a booster dose after 5 years if at increased risk.

[#] Funded vaccines for eligible individuals are ordered from ProPharma.

a. Vaccine prices as at 4 April 2019.

b. Order from Healthcare Logistics. Price excludes small ordering handling fee of $45 for orders of 1–4 (mixed) units or $25 for orders of 5–9 (mixed units), manual order processing fee of $10 per order for faxed or emailed orders and GST. Vaccine administration fee will also need to be added to the vaccine cost.

[Φ]How many Bexsero doses for infants aged ≥8 weeks to ≤5 months?

A small study comparing the 2+1 course in infants receiving their first dose at 3½ months of age with the 3+1 course in infants receiving their first dose at 2½ months of age found similar numbers of infants were expected to be protected from meningococcal group B disease in both groups one month after completing their initial infant dose and also one month after receiving their booster dose.

Parents will need to choose which vaccine course they prefer for their child. Overseas recommendations may assist parents decide:

» The United Kingdom and Australian state of South Australia provide a 2+1 Bexsero vaccine course as part of their routine immunisation schedules (the UK offer Bexsero at 2, 4 and 12–13 months and South Australia at 6 weeks, 4 and 12 months).

» In other parts of Australia, where Bexsero is only available for purchase, the recommended vaccine courses are the 2+1 option for healthy infants or the 3+1 option for infants who have a medical condition that increases their risk of meningococcal disease.

[‡]Interval between Bexsero doses for children aged ≥2 years to ≤10 years

The recommended minimum interval between doses in this age group has recently changed from 8 weeks to 4 weeks. After an 8 week interval between doses 91–100% of children were expected to be protected from meningococcal group B disease compared with 69–100% of children after a 4 week interval.

Parents may choose for their child to have an interval of more than 4 weeks between their two Bexsero doses.