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. Worldwide groups A, B, C, X, Y and W (previously W135) are the most likely to cause disease in humans.
  - In New Zealand, around two-thirds of meningococcal disease is caused by group B. There has been an increase in disease caused by meningococcal group W in 2016 and 2017, including cases caused by a very virulent sequence type of meningococcal group W (ST-11).
    - Other countries, Canada (2014–2016) and Australia and the United Kingdom (2016–2017), have also seen an increase in disease caused by the very virulent sequence type ST-11.
- Meningococcal bacteria are commonly carried in the nose and throat, and do not usually cause disease.
  - Carriage of the bacteria is highest in adolescents and young adults.
  - The bacteria can be transferred from person to person through contact with saliva, e.g. droplets of saliva in the air from people coughing, or intimate kissing.
  - Saliva on shared cigarettes, glasses, drink bottles or pacifiers (dummies) may also have a limited role in passing the bacteria from one person to another.

How serious is it?

- If meningococcal bacteria pass into the blood, disease usually progresses very quickly. A person with meningococcal disease may develop meningitis, septicaemia and/or pneumonia.
- Disease caused by the hypervirulent group W subtype may present with atypical symptoms, including gastrointestinal symptoms, which may contribute to delayed diagnosis and could possibly explain the high fatality rates.
- 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.

What are the risk factors?

- 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, in long-term institutional care.
- Being 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 reduces the immune response to encapsulated bacteria, e.g. functional asplenia, post-splenectomy, HIV infection, taking immunosuppressive medicines.
- Age and ethnicity. Table 1 shows groups in New Zealand with the highest rates of meningococcal disease over 2009–2017.
- Table 2 outlines recommendations for who should be offered immunisation against meningococcal disease.

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.

Two types of meningococcal conjugate vaccines are available in New Zealand. One is to protect against group C only. The other to protect against groups A, C, Y, and W. Table 3 summarises the available meningococcal vaccines and the percentage of meningococcal disease cases covered by the vaccines in New Zealand over 2009–2017.

No vaccines that protect against meningococcal group B are currently available in New Zealand. However, new vaccines are available overseas.

The MeNZB™ vaccine was only available in New Zealand between 2004-2011. Protection from this vaccine was not long lasting, those who received the MeNZB™ vaccine are not expected to still have immune protection against meningococcal B disease.

Table 1: Groups with the highest rates of meningococcal disease in New Zealand by age and ethnicity over 2009–2017

Meningococcal group B disease (no vaccine available in NZ)	Meningococcal groups C, Y and W disease (vaccines available)	By ethnicity
» Infants and children aged under 5 years	» Infants and children aged under 5 years » Adolescents aged 15—19 years » Adults aged 55 years or older	» Pacific peoples » Māori

Table 2: Who should be offered immunisation against meningococcal disease

Recommended and funded from 1 July 2017 for:

- Children and adults pre/post-splenectomy or with functional asplenia.
  - NeisVac-C® is funded for infants and children under 2 years.
  - Menactra® is funded for adults and children from 2 years of age.
- HIV positive individuals.
- Individuals with inherited or acquired (e.g. on monoclonal therapy against C5) complement deficiency.
- Pre/post-solid organ transplantation.
- Following stem cell/bone marrow transplantation.
- Following immunosuppression for longer than 28 days.
- Close contacts of a meningococcal disease case.

Recommended but NOT funded for:

- Adolescents and young adults living in close proximity to each other, e.g. boarding school, university halls of residence, long-term institutional care.
- Travellers to high-risk countries and Hajj pilgrims.
- Laboratory workers regularly exposed to meningococcal cultures.

Other groups to consider but NOT funded:

- Infants and young children.
- Adolescents and young adults.

Table 3: Percentages of meningococcal disease cases covered by vaccines in New Zealand over 2009–2017

Meningococcal group	Vaccines	2009–2017
Group C	NeisVac-C®	10—34%
Groups A, C, Y, W	Menactra®, Nimenrix®	25—46%
Group B	No vaccine available in NZ	

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Vaccine safety

More than 20 years of studies and safety monitoring have shown that the meningococcal conjugate vaccines have an excellent safety profile.

Common vaccine-related side effects are usually at the injection site and include soreness/pain, redness and/or swelling. However, fever, headache, fussiness/irritability, drowsiness, nausea/vomiting or diarrhoea, or dizziness can also occur. The most serious reaction is a severe allergic reaction (anaphylaxis). The risk of this happening after meningococcal vaccination is less than once per million vaccine doses.

How protective are the vaccines?

Protection against meningococcal disease is dependent on existing antibodies circulating in the blood stream. The bacteria cause disease very quickly and the immune system cannot generate further protection quickly enough.

Immunisation generates circulating antibodies but 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 being immunised against, and the age of the individual when the vaccine is received. Table 5 indicates the expected effectiveness of immunisation with the vaccines available in New Zealand.

Table 4: Expected effectiveness and duration of protection against meningococcal disease after immunisation

	Conjugate vaccines		Group B
	Group C disease	Group A, C, Y, or W disease	
Age group	NeisVac-C, Menactra, Nimenrix	Menactra, Nimenrix	No vaccine available in NZ
Under 2 years	95—100%	85—100%	–
2—3 years	65—100%	65—90%	
4—10 years	80—100%	80—100%	
Adolescents	90—100%	80—95%	
Adults		75—90%	
Duration of protection			
Children under 5 years of age	3—5 years		–
Older children, adolescents and adults	At least 5 years		

Table 5: Vaccine brands, costs and number of doses required

Vaccine brand	Cost	Number of doses required
NeisVac-C# (group C only)	$50.00/ single[a,b]	**Infants ≥8 weeks to ≤11 months** 2 doses separated by 8 weeks plus 1 dose after 12 months of age. Booster dose after 2-3 years if at increased risk. **Children ≥12 months to <7 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 separated by 3 months. Booster dose after 3 years if at increased risk. **Healthy children ≥2 years to <7years** 1 dose. Booster dose after 3 years if at increased risk. **Healthy children ≥7 years and adults ≤55 years** 1 dose. Booster doseafter 5 years if at increased risk. **Healthy adults ≥56 years (off-label,[c] no safety concerns expected)** 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 ≥12 months and adults ≤55 years** 1 dose. **Adults ≥56 years (off-label,[c] no safety concerns expected)** 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, 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 30 May 2018

b. Order from Healthcare Logistics. Price excludes manual order processing fee of $10 for faxed or emailed orders, small ordering handling fee of $45 for orders of 1–4 (mixed) units, GST and vaccine administration fee.

c. Section 25 of the Medicines Act 1981 allows off-label use of medicines (including vaccines) when the doctor provides a service of an appropriate standard and obtains informed consent from the patient.

References

A list of references is available in a separate document on the Immunisation Advisory Centre Written Resources webpage.