Meningococcal vaccines

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Immunisation Advisory Centre
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THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

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Vaccines available

- Recombinant B
  - **Bexsero**
- Conjugate Quadrivalent (A,C,W,Y)
  - **Menactra (MCV4-D)**
  - **Nimenrix (MCV4-T)**
- Conjugate C
  - **NeisVac-C (MenCCV)**
- Menactra/NeisVac-C only ones on the National Schedule for:
  - High risk group
  - Outbreak situations
- Others available for private purchase

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NZ Immunisation Handbook 2017

- Chapter 12 Meningococcal disease
  - 12.4 Vaccines

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Table 12.4: Meningococcal group C conjugate (MenCCV) and quadrivalent meningococcal vaccine (MCV4) recommendations

Note: Funded conditions are in the shaded rows. See the Pharmaceutical Schedule (www.pharmac.govt.nz) for any changes to the funding decisions.

Recommended and funded
MenCCV and MCV4-D are recommended and funded for: • patients pre- or post-splenectomy or with functional asplenia[a,b] • patients with HIV, complement deficiency (acquired, including monoclonal antibody therapy against C5, or inherited) or who are pre- or post-solid organ transplant[b] • HSCT (bone marrow transplant) patients[b] • patients following immunosuppression[b,c] • close contacts of meningococcal cases[d]
Recommended but not funded
MenCCV, MCV4-D or MCV4-T are recommended, but not funded, for individuals: • who are laboratory workers regularly handling meningococcal cultures • who are adolescents and young adults living in communal accommodation (eg, in a hostel or at boarding school, in military accommodation, in correctional facilities or in other long-term institutions). MCV4-D or MCV4-T are recommended, but not funded, for individuals: • who are travelling to high-risk countries (see www.who.int/ith/en) or before the Hajj.

a. Pneumococcal, Hib, influenza and varicella vaccines are also recommended for individuals pre- or post-splenectomy or with functional asplenia. See section 4.3.4.

b. See sections 4.2 and 4.3 for more information.

c. The period of immunosuppression due to steroid or other immunosuppressive therapy must be longer than 28 days.

d. Only one dose is funded for close contacts of meningococcal cases.

Table 12.5: Recommended meningococcal vaccine schedule for high-risk individuals (funded)

Note: See the Pharmaceutical Schedule (www.pharmac.govt.nz) for any changes to the funding decisions.

Age at diagnosis	Vaccine (trade name)	Recommended vaccine schedule
Infants aged 6 weeks to under 12 months	MenCCV (NeisVac-C) and MCV4-D (Menactra)	Age-appropriate MenCCV schedule: • if aged under 6 months at diagnosis, give 2 doses 8 weeks apart, with a booster at age 12 months • if aged 6–11 months at diagnosis, give 1 dose, with a further dose at age 12 months. At age 2 years, give 2 doses of MCV4-D[a] 8 weeks apart, then a booster dose after 3 years, then 5-yearly.
Children aged 12 months to under 18 years	MenCCV (NeisVac-C) and MCV4-D (Menactra)	If aged 12–23 months at diagnosis, give 1 dose of MenCCV, followed by MCV4-D[a] at age 2 years, 2 doses 8 weeks apart; then a booster of MCV4-D after 3 years, then 5-yearly. If aged ≥2 years at diagnosis, give 2 doses of MCV4-D[a] 8 weeks apart, and: • if the 1st MCV4-D dose was given at age <7 years, give a booster after 3 years, then 5-yearly, or • if the 1st MCV4-D dose was given at age ≥7 years, give a booster dose every 5 years.
Adults aged 18 years and older	MCV4-D (Menactra)	Give 2 doses of MCV4-D, 8 weeks apart, then 1 dose every 5 years.[a,b]

a. Give MCV4-D at least 4 weeks after PCV13.[26, 27]

b. MCV4-D is registered for individuals aged 9 months to 55 years, but there are not expected to be any safety concerns when administered to adults older than 55 years.

Bexsero: recombinant vaccine against meningococcal B

- Targets proteins (unlike polysaccharide capsule)
- Reverse vaccinology
  - whole genome sequencing of the MenB to identify surface antigens
- Different to MeNZB vaccine
  - designed to target a single specific outbreak strain
- 4 components: including OMV from MeNZB
- Available in NZ from October 2019, PRIVATE market only
- High risk groups expected to be same as for other meningococcal vaccines
- First approved for use in Europe in 2013, on the UK routine schedule since 2015
  - Introduced into South Australia Oct 2018
  - 2+ 1 Schedule from 2mo(can be given from 6 weeks)
  - Adolescent 2 dose

Bexsero and fever

- 50%–60% of infants will develop fever ≥38.5°C when given with other immunisations
- Fever usually peaks after 6 hours and subsides within 24–48 hours
- UK showed increased ED attendance, investigations (including LPs), antibiotic use and admissions

Arch Dis Childhood 2017:102

Prophylactic paracetamol with every dose of Bexsero

- Children under 2 years
- Three doses (15mg/kg) every 6 hours whether child has a fever or not
- First dose half an hour before vaccination

http://www.immune.org.nz/vaccines/available-vaccines/bexsero

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Expected protection

Age group	Bexsero (MenB)	Menactra/ Nimenrix (MenACWY)
<2 years	63-100%	86-100%
2-3 years	97-100%	63-97%
4-10 years	72-100%	79-99%
adolescents	99-100%	82-97%
adults	91-100%	73-92%
Durations of protection		
Under 5 year olds	1-3 years	3-5 years
Older children, adolescents, adults	Not yet established	At least 5 years

- Bexsero 83% (UK data)

- Adapted from IMAC
- http://www.immune.org.nz/sites/default/files/resources/Written%20Resources/DiseaseMeningococcalImac20180912V01Final.pdf

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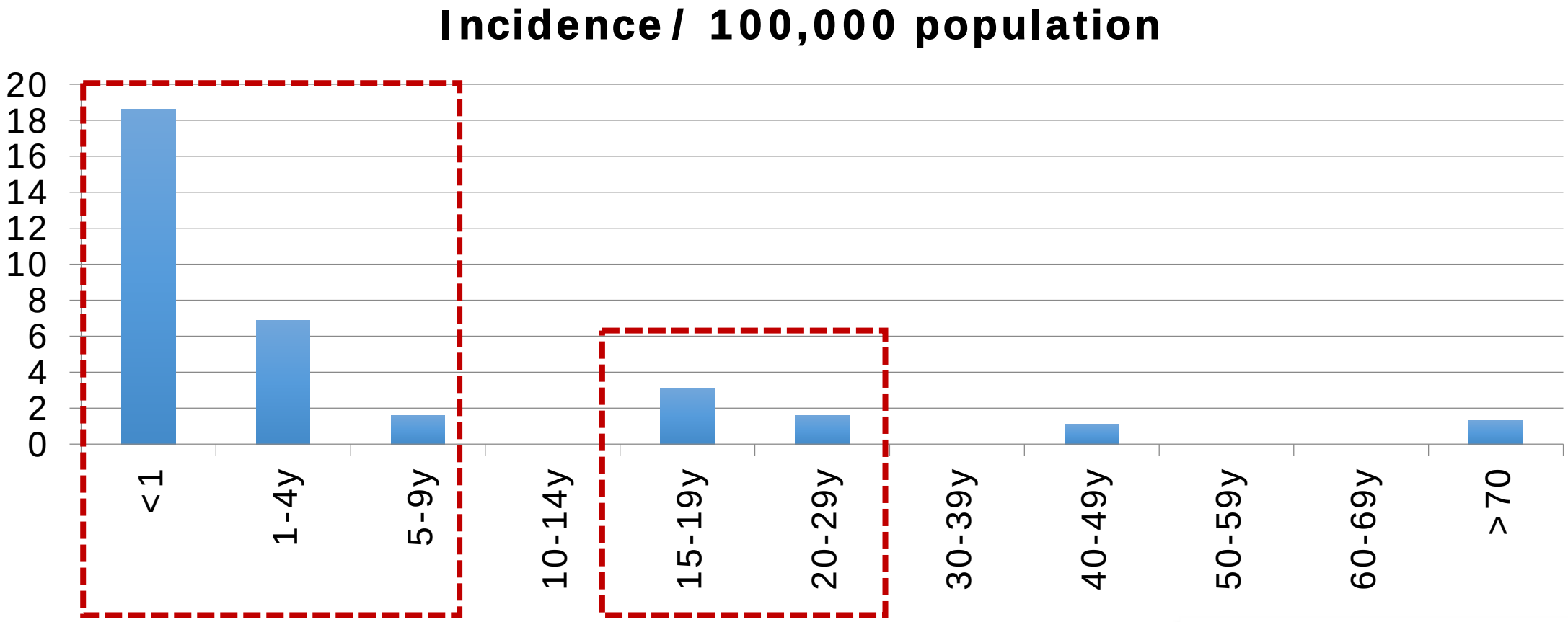
Who is at highest risk?: Meningococcal incidence by age in NZ 2016



- [a]ESR estimates sensitivity of meningococcal surveillance to be "probably in excess of 87%".[1]
- 1. ESR. Annual Report 2016. Wellington: The Institute of Environmental Science and Research; 2017

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Vaccine prices, private market (GST excl.)

Vaccine Brand	Cost (to the practice) per DOSE
Bexsero (B)	$96.50
Menactra (A,C,Y and W)	$89.95
Nimenrix (A,C,Y and W)	$80.00
NeisVac-C (C)	$50.00

- Vaccine prices as at 24 October 2018
- Order form Healthcare Logistics.
- Also need to consider small ordering handling fee of $45 for orders 1-4 (mixed) units, or $25 for orders of 5-9 units
- Need to add on your practice vaccine administration fee

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Suggested vaccine schedule: healthy children

<table>
<tr><th>Age at start of imms</th><th>Bexsero 4CMenB MenB</th><th>Menactra MCV4-D ACWY</th><th>Nimenrix MCV4-T alternative ACWY</th></tr>
<tr><td>2-6 months</td><td>2 or 3 doses (>4/52 apart) + booster at 12m (>6m later)</td><td rowspan="2">No evidence</td><td rowspan="3">Not licensed</td></tr>
<tr><td>6-9 months</td><td rowspan="2">2 doses (>8/52 apart) + booster at 12m (>8 weeks later)</td></tr>
<tr><td>9-12 months</td><td rowspan="2">2 doses (>3m apart)</td></tr>
<tr><td>12 months -2 years</td><td rowspan="2">2 doses (>8/52 apart)</td><td>1 dose</td></tr>
<tr><td>2-10 years</td><td rowspan="2">1 dose + booster aged 16-18</td><td rowspan="2">1 dose + booster aged 16-18</td></tr>
<tr><td>10-16 years</td><td rowspan="2">2 doses (>4/52 apart)</td></tr>
<tr><td>Late adolescence (≥16)</td><td>1 dose</td><td>1 dose</td></tr>
</table>

Boosters and other considerations

Boosters

- Recommend every 3 years for under 7 years,
- Every 5 years for over 7 years

Bexsero Off label considerations

- UK and Australia use 2 dose primary course (+ toddler booster)
- UK 8w, 16w and 1 yr.
- Sth Australia from 6 weeks, suggests 2 doses from 2months (and 2month apart) and booster from 12 month
  - primary course of two and starting at 6w would be off label use in NZ

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Vaccine FAQs

- Should I get my child vaccinated?
  - Yes, if you can afford it
- Which vaccine(s)?
  - B (Bexsero) & Quadrivalent (Menactra or Nimenrix)
- What if they've had MeNZB already?
  - MeNZB was only designed to cover the outbreak strain
  - MeNZB immunity short term only, would have faded by now
  - They need Bexsero for B protection

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IMAC resources

- www.immune.org.nz/meningococcal-disease-information-health-professionals

Purchase of non-funded meningococcal vaccines

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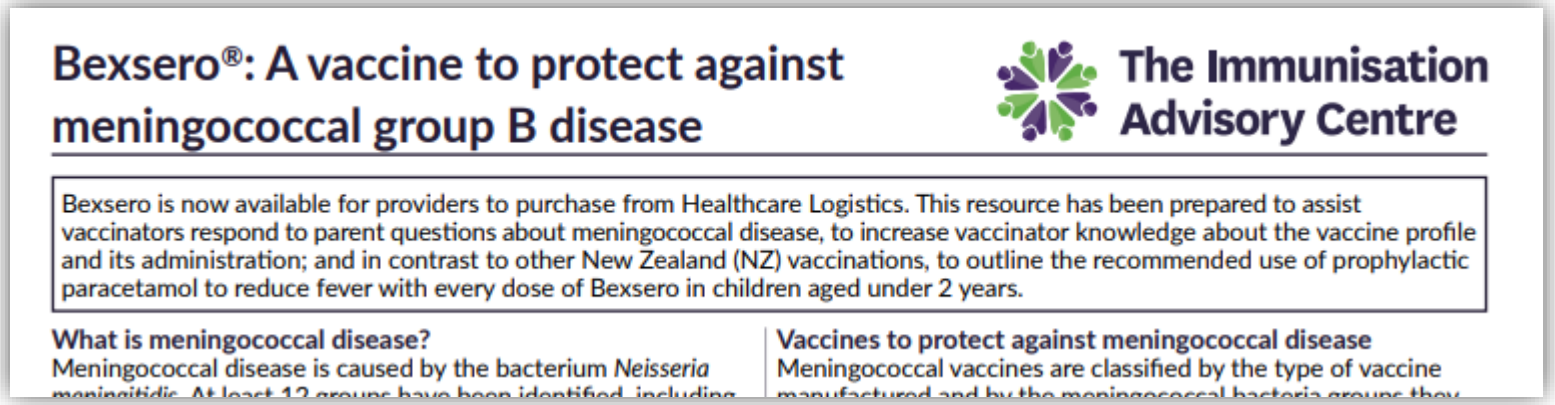
What is meningococcal disease?
Meningococcal disease is caused by the bacterium *Neisseria meningitidis*. At least 12 groups have been identified, including

Vaccines to protect against meningococcal disease
Meningococcal vaccines are classified by the type of vaccine manufactured and by the meningococcal bacteria groups they



Bexsero®: A vaccine to protect against meningococcal group B disease

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Bexsero is now available for providers to purchase from Healthcare Logistics. This resource has been prepared to assist vaccinators respond to parent questions about meningococcal disease, to increase vaccinator knowledge about the vaccine profile and its administration; and in contrast to other New Zealand (NZ) vaccinations, to outline the recommended use of prophylactic paracetamol to reduce fever with every dose of Bexsero in children aged under 2 years.

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Other Qs

- Are we getting any on the Schedule soon?
  - Pharmac decision
- Pharmacy funding?
  - not as yet
- Why not free to VLCA and CSC?
  - Decision to introduce a vaccine needs to consider targeted or universal, probably more sensible to go universal here
- Unfunded and how to advise parents re cost?
  - Yes, very tricky. Significant equity issues
- Why was MeNZB discontinued and was it effective?
  - Epidemic waned, so rates dropped off
  - Vaccine was considered effective

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Other Qs

- Do you recommend it for < 2 years who do not go to daycare?
  - Youngest children are at highest risk
- Nimenrix versus Menactra – is one better?
  - No head to head
- What is the risk to patients immunosuppressed by long term steroids or DMARDS etc?
  - See high risk funded group includes significant immunosuppression
- Any written anticipatory guidance for parents?
  - Suggest IMAC website references
- Should HCW be vaccinated?
  - Good PPE probably adequate, invasion appears to need other factors

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