

## INVASIVE MENINGOCOCCAL DISEASE QUARTERLY REPORT

### January–September 2019

This report summarises invasive meningococcal disease notifications for the period from 1 January to 30 September 2019 (a cumulative summary). The information in this report was extracted from EpiSurv and the ESR Invasive Pathogens Laboratory results on 22 October 2019. Data presented may be further updated and should be regarded as provisional.

### Summary

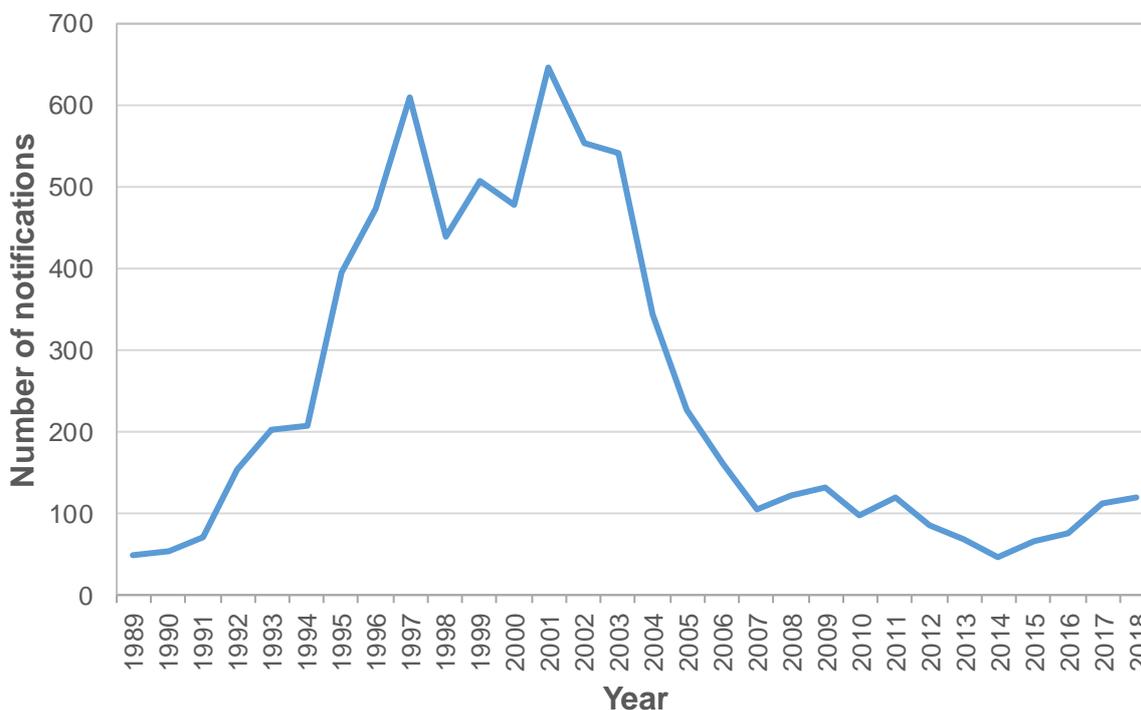
From 1 January to 30 September 2019, 113 cases of invasive meningococcal disease were reported, compared with 72 cases for the same period in 2018.

- 110 cases were laboratory confirmed. The group was identified in 99 of these cases; 51 (52%) were group B, 30 (30%) were group W, 10 (10%) were group Y, seven (7%) were group C and one group E (1%).
- The proportion of cases that were due to group W (28%) and group B (48%) were similar to 2018.
- Seven deaths were reported.

### National trends

In the first three quarters of 2019, there were 113 cases of invasive meningococcal disease and seven deaths reported. For the same period in 2018, there were 72 cases with seven deaths, and in 2017, there were 77 cases with eight deaths. The annual number of cases has been increasing since 2014, however case numbers are significantly lower than during the meningococcal disease epidemic (driven by the B:P1.7-2,4 strain) (Figure 1).

**Figure 1. Meningococcal disease notifications by year, 1989–2018**

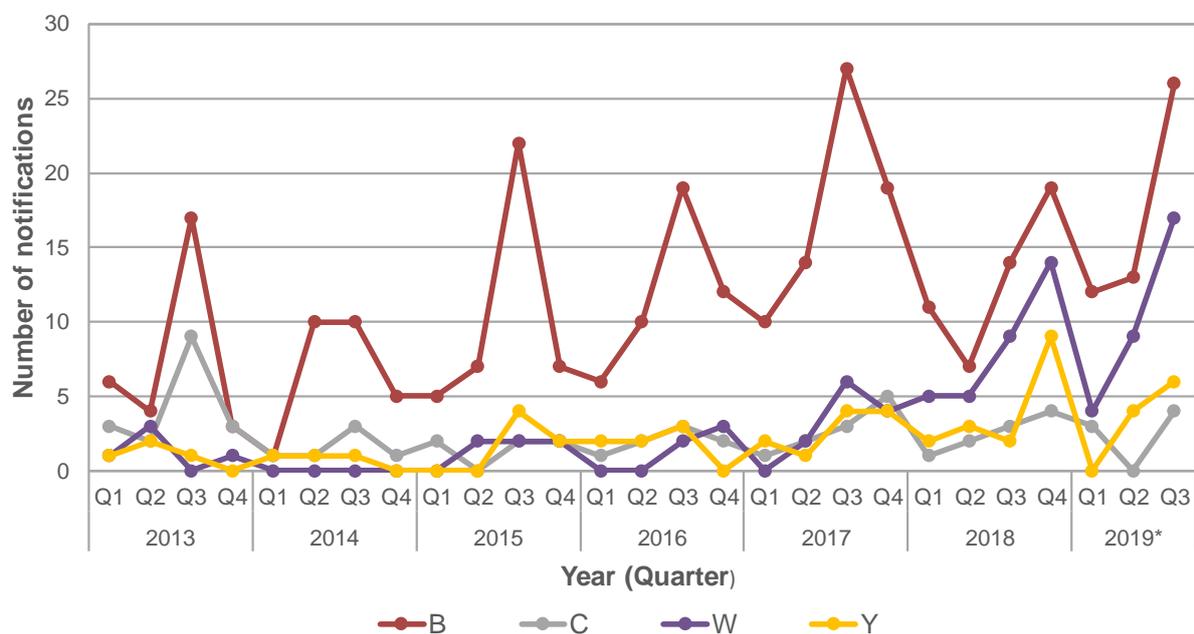


In the first three quarters of 2019, 97.3% (110/113) of cases were laboratory confirmed, with the group determined for 99 cases: group B (51 cases, 51.5%), group W (30 cases, 30.3%), group Y (10 cases, 10.1%), group C (7 cases, 7.1%), and group E (1 case, 1.0%).

For the same period in 2018, 95.8% (69/72) of cases were laboratory confirmed and the group was determined for 65 cases: group B (32 cases, 49.2%), group W (19 cases, 29.2%), group Y (7 cases, 10.8%), group C (6 cases, 9.2%), and group X (1 case, 1.5%).

The number of cases due to group W has been increasing since 2017 (Figure 2).

**Figure 2. Meningococcal disease notifications by group by quarter by year, 2013–2019\***



\*Cases reported up to 30 September 2019 only.

## Geographic distribution

In the first three quarters of 2019, cases were reported from 16 DHBs. Cases by group, and rates for each DHB, are shown in Table 1.

For the third quarter in 2019, there were 63 reported cases. Counties Manukau (13 cases) and Waitemata (10 cases) DHBs had the highest number of reported cases. For Counties Manukau DHB, the group was identified in 12 cases as: group B (6 cases), group W (3 cases), group Y (2 cases) and group E (1 case); while the group was identified in all 10 cases in Waitemata DHB as: group B (6 cases), group W (2 cases) and group Y (2 cases).

**Table 1. Meningococcal disease notifications by group by DHB, 1 January–30 September 2019**

District Health Board	Group						Other lab-confirmed <sup>2</sup>	Probable <sup>3</sup>	Total	Rate per 100,000*
	B	W	Y	C	E	NG <sup>1</sup>				
Northland	3	3	0	0	0	0	2	0	8	4.5
Waitemata	11	5	4	0	0	0	0	0	20	3.2
Auckland	4	2	0	0	0	2	1	0	9	1.7
Counties Manukau	9	5	2	0	1	0	1	0	18	3.2
Waikato	4	1	1	3	0	0	0	0	9	2.2
Lakes	0	1	0	0	0	0	0	1	2	1.8
Bay of Plenty	3	2	1	2	0	0	0	0	8	3.4
Tairāwhiti	1	1	0	0	0	0	0	0	2	4.1
Taranaki	0	0	0	0	0	0	0	0	0	0.0
Hawke's Bay	1	0	0	0	0	0	0	0	1	0.6
Whanganui	1	2	0	0	0	0	0	0	3	4.6
MidCentral	2	2	0	0	0	0	0	1	5	2.8
Hutt Valley	2	0	0	0	0	1	0	0	3	2.0
Capital & Coast	1	3	0	2	0	2	1	0	9	2.8
Wairarapa	1	1	0	0	0	0	0	0	2	4.4
Nelson Marlborough	0	0	0	0	0	0	0	0	0	0.0
West Coast	0	0	0	0	0	0	0	0	0	0.0
Canterbury	8	1	2	0	0	0	0	0	11	2.0
South Canterbury	0	0	0	0	0	0	0	0	0	0.0
Southern	0	1	0	0	0	0	1	1	3	0.9
<b>Total</b>	<b>51</b>	<b>30</b>	<b>10</b>	<b>7</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>113</b>	<b>2.3</b>

\*Rates should be interpreted with caution for DHBs with <5 cases.

<sup>1</sup> Non-groupable – group not determined but other strain characteristics were determined.

<sup>2</sup> Includes DNA laboratory confirmed by PCR where no group or other strain characteristics were determined, and laboratory-confirmed isolates not received by the ESR Invasive Pathogens Laboratory.

<sup>3</sup> Probable – A clinically compatible illness without laboratory confirmation.

## Age group distribution

In the first three quarters of 2019, the highest number of cases were reported in the <1 year (24 cases) and 1–4 years (18 cases) age groups (Table 2). Annualised rates, based on cases reported in the first three quarters, were highest in the <1 year age group (Figure 3).

In 2018, the number of cases of invasive meningococcal disease was highest in those aged <5 years, and 15–29 years, and rates of disease were highest in those aged <1 year.

**Table 2. Meningococcal disease notifications by group by age group, 2018–2019\***

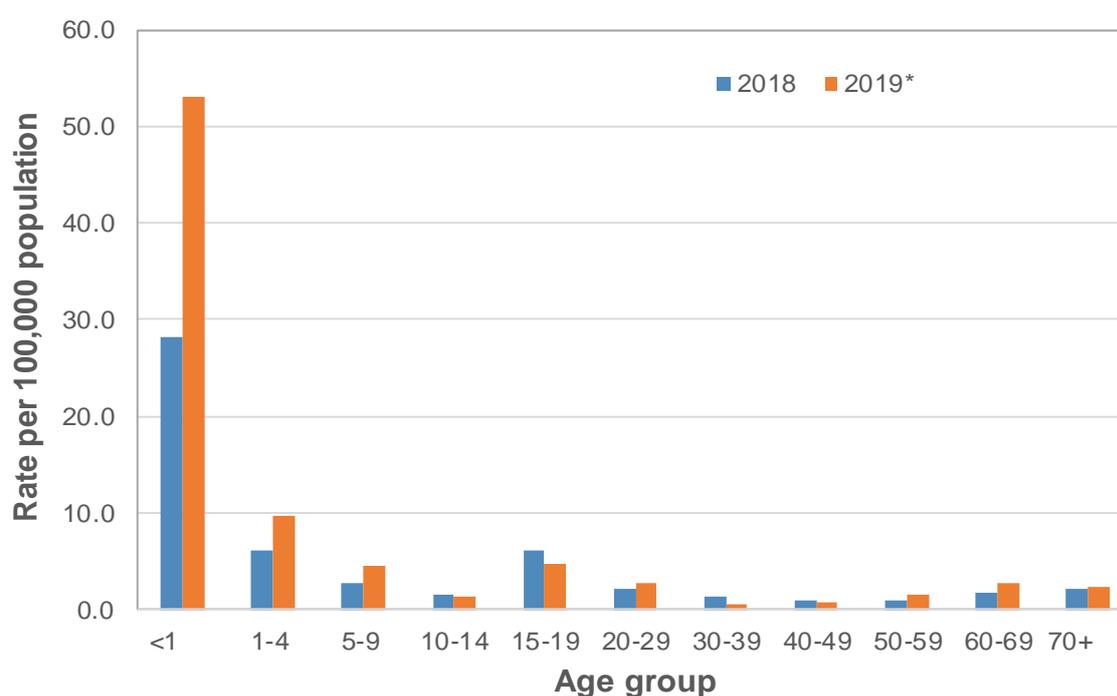
Age group (years)	2018 Group					2018** Total	2019 Group					2019** Total
	B	W	Y	C	X		B	W	Y	C	E	
<1	11	3	1	1	0	17	14	6	0	0	0	24
1 to 4	7	4	1	1	0	15	7	5	1	0	0	18
5 to 9	3	3	1	0	0	9	5	1	1	2	0	11
10 to 14	3	1	0	1	0	5	3	0	0	0	0	3
15 to 19	12	3	0	2	0	19	6	2	0	2	1	11
20 to 29	8	5	1	1	0	15	6	6	1	1	0	15
30 to 39	2	3	1	0	0	8	0	1	0	0	0	2
40 to 49	1	2	0	3	0	6	2	1	0	0	0	3
50 to 59	3	2	0	0	1	6	3	2	1	1	0	7
60 to 69	1	3	5	0	0	9	3	3	3	1	0	10
70+	0	4	6	1	0	11	2	3	3	0	0	9
<b>Total</b>	<b>51</b>	<b>33</b>	<b>16</b>	<b>10</b>	<b>1</b>	<b>120</b>	<b>51</b>	<b>30</b>	<b>10</b>	<b>7</b>	<b>1</b>	<b>113</b>

Note: Non-groupable not shown in table.

\*Cases reported up to 30 September 2019 only.

\*\*2018 and 2019 totals include cases where the group was not identified.

**Figure 3. Meningococcal disease notification rates by age group, 2018 and 2019\***



\*Cases reported up to 30 September 2019 only. Annualised rate.

## Ethnicity<sup>1</sup> distribution

The number of cases by ethnicity and group are shown in Table 3. For both 2018 and the first three quarters of 2019, the highest number of cases for group B were in the Māori ethnic group and the highest number of group W cases were in the European or Other ethnic group.

The annualised rates for 2019, based on cases reported in the first three quarters, were highest for Pacific peoples and Māori (Figure 4). For both these ethnic groups, the rate for 2019 is much higher than in 2018, whereas for the Asian ethnic group it is slightly lower.

**Table 3. Meningococcal disease notifications by group by ethnicity, 2018–2019\***

Prioritised Ethnicity	2018 Group					2018** Total	2019 Group					2019** Total
	B	W	Y	C	X		B	W	Y	C	E	
Māori	19	7	1	2	0	33	18	9	0	4	0	36
Pacific peoples	3	6	2	2	0	15	11	4	2	1	0	24
Asian	5	3	0	0	1	9	4	0	0	0	0	5
MELAA	1	0	0	1	0	2	0	0	0	0	0	0
European or Other	23	17	13	5	0	61	17	17	6	2	1	45
Unknown	0	0	0	0	0	0	1	0	2	0	0	3
<b>Total</b>	<b>51</b>	<b>33</b>	<b>16</b>	<b>10</b>	<b>1</b>	<b>120</b>	<b>51</b>	<b>30</b>	<b>10</b>	<b>7</b>	<b>1</b>	<b>113</b>

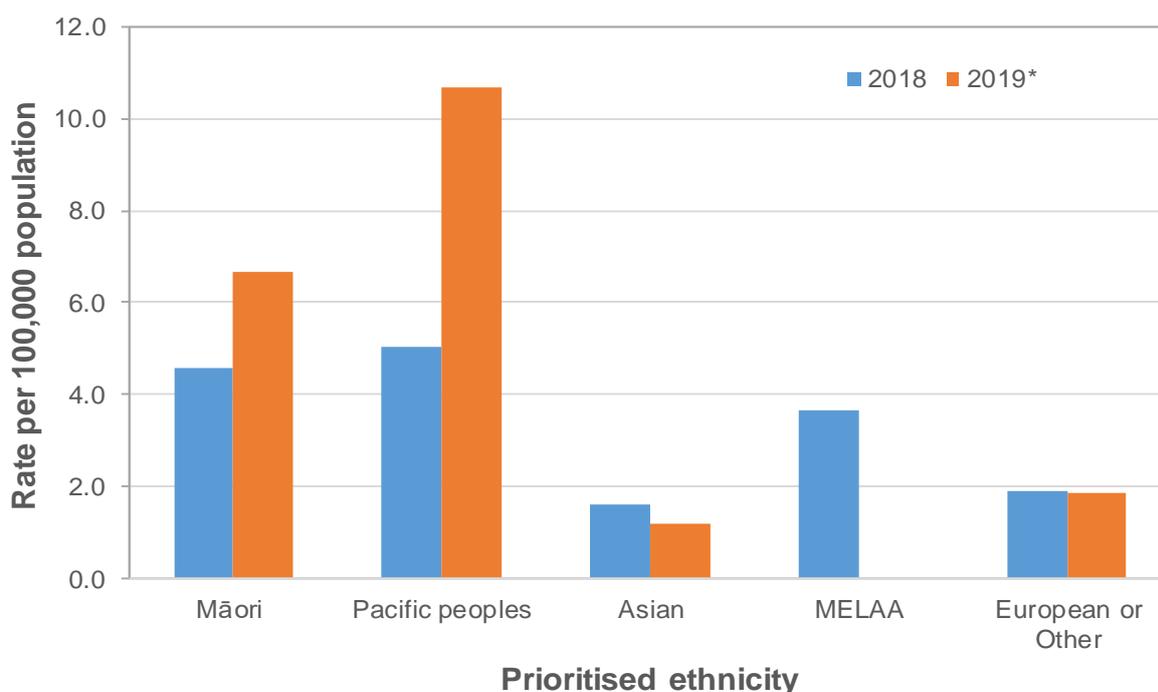
Note: Non-groupable not shown in table.

\*Cases reported up to 30 September 2019 only.

\*\*2018 and 2019 totals include cases where the group was not identified.

MELAA - Middle Eastern/Latin American/African.

**Figure 4. Meningococcal disease notification rates by ethnicity, 2018–2019\***



\*Cases reported up to 30 September 2019 only. Annualised rate using quarter 1–3 notifications.

MELAA - Middle Eastern/Latin American/African.

<sup>1</sup> A prioritised classification of ethnicity is used, with the Māori ethnic group at the top of the hierarchy followed by Pacific peoples, Asian, MELAA, and the European or Other ethnic group at the bottom of the hierarchy. For more detail on classification please refer to Ministry of Health (2004):

<http://www.health.govt.nz/publication/ethnicity-data-protocols-health-and-disability-sector>

## Deaths

In the first three quarters of 2019, seven deaths from invasive meningococcal disease were reported; three due to group B and two due to group W. The group was not identified for two deaths. Of the 10 deaths reported in 2018, six were due to group W. The average case fatality rate for 2014–2019 (up to quarter 3) was highest for group W cases (12.8%), followed by group C (8.3%) and the epidemic strain B:P1.7-2,4 (7.9%) (Table 4).

**Table 4. Meningococcal disease deaths and case fatality rate (CFR) 2014–2019\***

Strain group	Number of deaths due to meningococcal disease						Total fatality (2014–2019*)	Total cases (2014–2019*)	CFR (2014–2019*)
	2014	2015	2016	2017	2018	2019*			
Group B (P1.7-2,4) <sup>1</sup>	0	0	2	3	2	1	8	101	7.9
All other Bs	2	1	0	2	1	2	8	185	4.3
Group C	1	1	0	1	1	0	4	48	8.3
Group W	0	0	0	3	6	2	11	86	12.8
Group Y	0	1	0	0	0	0	1	53	1.9
Group E	0	0	0	0	0	0	0	2	0.0
Group X	0	0	0	0	0	0	0	1	0.0
Non-groupable <sup>2</sup>	0	0	0	0	0	1	1	8	12.5
Other laboratory confirmed <sup>3</sup>	0	0	0	0	0	0	0	21	0.0
Probable <sup>4</sup>	0	1	0	0	0	1	2	24	8.3
<b>Total</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>9</b>	<b>10</b>	<b>7</b>	<b>35</b>	<b>529</b>	<b>6.6</b>

\*Cases reported up to 30 September 2019 only.

<sup>1</sup> New Zealand “epidemic strain”.

<sup>2</sup> Non-groupable – group not determined but other strain characteristics were determined.

<sup>3</sup> Includes DNA laboratory confirmed by PCR where no group or other strain characteristics were determined, and laboratory-confirmed isolates not received by the ESR Invasive Pathogens Laboratory.

<sup>4</sup> Probable – A clinically compatible illness without laboratory confirmation.

## Distribution by group

Since 2014, there has been a change in the groups causing invasive meningococcal disease (Table 5). Among cases where a group was identified, the proportion due to group B decreased from 67% in 2017 to 46% in 2018, followed by an increase in the first three quarters of 2019 to 52%. The proportion of cases due to group W increased from 12% in 2017 to 30% in both 2018 and the first three quarters of 2019.

For group B notifications, half (26/51, 51%) of the cases reported in the first three quarters of 2019 were aged <10 years. The majority of cases (27/51) were from the Auckland and Northland regions, and the highest number of cases were of Māori ethnicity. Three deaths were reported due to group B disease in the first three quarters of 2019, the same as for 2018, one 2019 death was due to the B:P1.7-2,4 (epidemic) strain.

For group W notifications, 40% (12/30) of the cases reported in the first three quarters of 2019 were aged <10 years. Half (15/30) were from the Auckland and Northland regions, and over half (17/30) were of European or Other ethnicity. There were two deaths due to group W in the first three quarters of 2019, compared with six in 2018. Group W had the highest average case fatality rate (12.8%) for the 2014–2019 period.

For group Y notifications, there were 10 cases notified in the first three quarters of 2019. The majority of group Y cases in 2019 were in older adults (50 years and over) and in the European or Other ethnic group. No deaths from group Y have been reported in 2019. There was a gradual increase in group Y cases from 2014 to 2018 (3 to 16 cases).

For group C notifications, there were seven cases reported in the first three quarters of 2019. Most (5/7) cases were in children and young adults and most (4/7) were of Māori ethnicity. No deaths from group C have been reported in 2019, compared with one in 2018.

**Table 5. Meningococcal disease strain group distribution by year, 2014–2019\***

Strain group	Year						Total
	2014	2015	2016	2017	2018	2019*	
<b>Group B</b>	<b>26</b>	<b>41</b>	<b>47</b>	<b>70</b>	<b>51</b>	<b>51</b>	<b>286</b>
B:P1.7-2,4 <sup>1</sup>	13	10	23	27	16	12	<b>101</b>
Other group Bs	13	31	24	43	35	39	<b>185</b>
<b>Group C</b>	<b>6</b>	<b>6</b>	<b>8</b>	<b>11</b>	<b>10</b>	<b>7</b>	<b>48</b>
C:P1.5-1,10-8	5	3	4	8	6	7	<b>33</b>
Other group Cs	1	3	4	3	4	0	<b>15</b>
<b>Other group</b>	<b>4</b>	<b>12</b>	<b>12</b>	<b>23</b>	<b>50</b>	<b>41</b>	<b>142</b>
Group W	0	6	5	12	33	30	<b>86</b>
Group Y	3	6	7	11	16	10	<b>53</b>
Group E	1	0	0	0	0	1	<b>2</b>
Group X	0	0	0	0	1	0	<b>1</b>
<b>Group not identified</b>	<b>9</b>	<b>5</b>	<b>8</b>	<b>8</b>	<b>9</b>	<b>14</b>	<b>53</b>
Non-groupable <sup>2</sup>	0	0	0	1	2	5	<b>8</b>
Other laboratory confirmed <sup>3</sup>	2	2	3	4	4	6	<b>21</b>
Probable <sup>4</sup>	7	3	5	3	3	3	<b>24</b>
<b>Total</b>	<b>45</b>	<b>64</b>	<b>75</b>	<b>112</b>	<b>120</b>	<b>113</b>	<b>529</b>

\*Cases reported up to 30 September 2019 only.

<sup>1</sup> New Zealand “epidemic strain”.

<sup>2</sup> Non-groupable – group not determined but other strain characteristics were determined.

<sup>3</sup> Includes DNA laboratory confirmed by PCR where no group or other strain characteristics were determined, or laboratory-confirmed isolates not received by the ESR Invasive Pathogens Laboratory.

<sup>4</sup> Probable – A clinically compatible illness without laboratory confirmation.

This report is available at: [https://surv.esr.cri.nz/surveillance/Meningococcal\\_disease.php](https://surv.esr.cri.nz/surveillance/Meningococcal_disease.php)