

INVASIVE MENINGOCOCCAL DISEASE REPORT

3 April 2019

This report summarises invasive meningococcal disease notifications for the period from 1 January to 31 March 2019 (a cumulative summary). The information in this report is based on cases reported up to 2 April 2019 (surveillance weeks 1–13) and extracted from EpiSurv and the Invasive Pathogens Laboratory results, ESR, on 2 April 2019. Data presented may be further updated and should be regarded as provisional.

This report will be updated on a quarterly basis.

Summary

Nationally the number of invasive meningococcal disease cases remains low. However, the number of cases reported has been increasing since 2014.

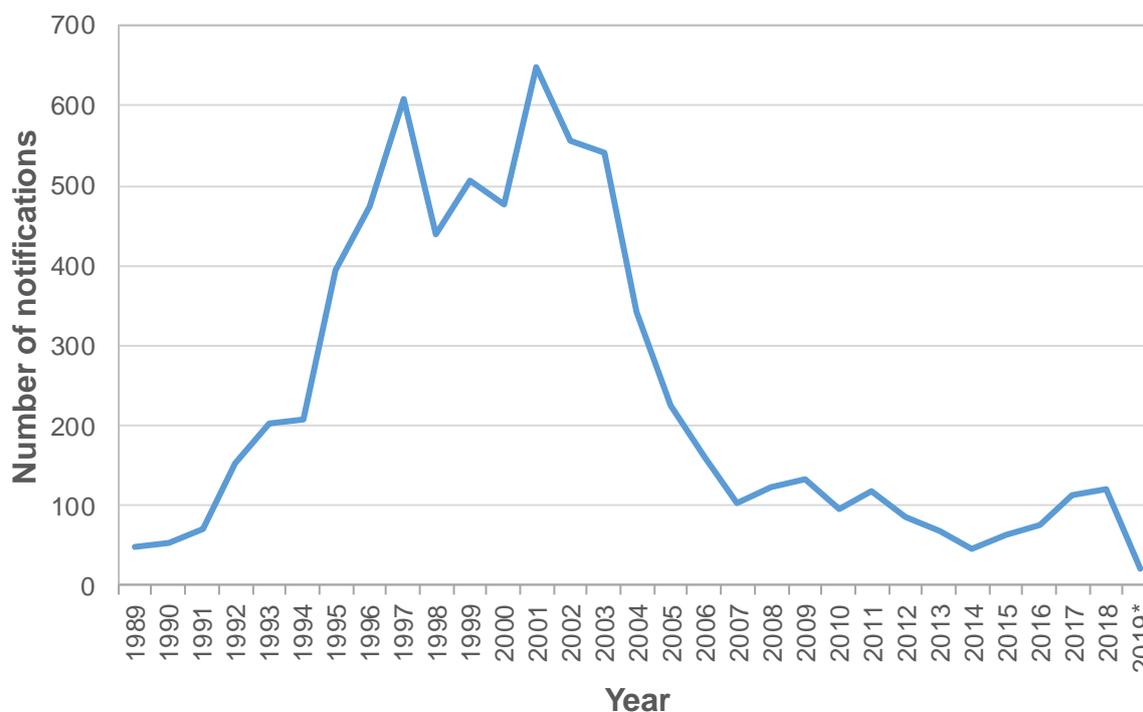
From 1 January to 31 March 2019, 20 cases of invasive meningococcal disease were reported compared with 21 cases for the same quarter in 2018. Of these:

- 19 cases were laboratory-confirmed. The group was identified in all of these cases; 12 (63.2%) were group B, 4 (21.1%) were group W and 3 (15.8%) were group C.
- As compared with first quarter of 2018, the proportion of group W has decreased (from 25.0% to 21.1%) and the proportion of group B cases has increased (from 55.0% to 63.2%).
- Cases have been reported from nine District health boards (DHBs).
- One death was reported.

National trends

In the first quarter of 2019, there have been 20 cases and one death reported. The total number of reported cases for 2018 was 120 cases with 10 deaths. This was higher than the 112 cases and 9 deaths reported in 2017. Although the number of cases in recent years has been increasing since 2014, the annual numbers remain significantly lower than those reported during the meningococcal disease epidemic (driven by the B:P1.7-2,4 strain) (Figure 1).

Figure 1. Meningococcal disease notifications by year, 1989–2019*



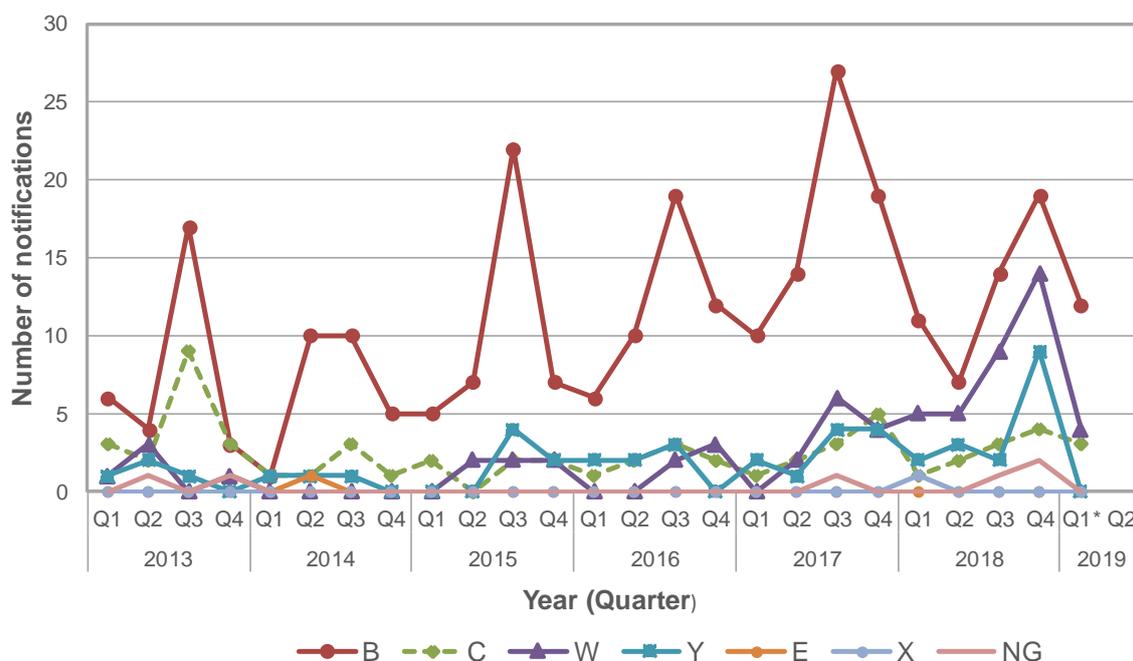
*Cases reported up to 31 March 2019 only.

In the first quarter of 2019, 95.0% (19/20) cases were laboratory-confirmed with the group determined as: group B (12 cases, 63.2%), group W (4 cases, 21.1%) and group C (3 cases, 15.8%).

In 2018, 97.5% (117/120) cases were laboratory-confirmed and the group was determined for 113 cases: group B (51 cases, 45.1%), group W (33 cases, 29.2%), group Y (16 cases, 14.2%), group C (10 cases, 8.8%), non-groupable (NG) (2 cases, 1.8%) and group X (1 case, 0.9%) (Figure 1). The number of cases determined to be group W has shown an increase, starting in 2017, compared with previous years (Figure 2).

Although notifications in 2018 followed the usual seasonal pattern seen in New Zealand, whereby there is an increase in cases reported in winter and spring, the peak was later than in recent years (Figure 2).

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



NG – non-groupable.

*Cases reported up to 31 March 2019 only.

Geographic distribution

In the first quarter of 2019, cases were reported from Bay of Plenty (4 cases), Auckland and Waikato (3 cases each), Waitemata, Counties Manukau, Capital & Coast and Canterbury (2 cases each), Northland and Lakes (1 case each) DHBs.

In 2018, Northland DHB had the highest rate (7.4 per 100,000, 13 cases) followed by Whanganui (4.7 per 100,000, 3 cases), Bay of Plenty (4.3 per 100,000, 10 cases) and Southern (3.7 per 100,000, 12 cases) DHBs. Counties Manukau DHB had the highest group B notifications (9 cases) followed by Southern (8 cases) DHB. Northland DHB had the highest group W notifications (7 cases) (Table 1).

Table 1. Meningococcal disease notifications by group by DHB, 1 Jan–31 Dec 2018

District Health Board	Group						Other lab-confirmed ²	Probable ³	Total	Rate per 100,000*
	B	W	Y	C	X	NG ¹				
Northland	0	7	3	1	0	0	1	1	13	7.4
Waitemata	3	5	2	2	1	0	0	0	13	2.1
Auckland	5	4	1	1	0	0	0	1	12	2.3
Counties Manukau	9	2	1	0	0	0	1	0	13	2.4
Waikato	3	0	0	4	0	1	0	0	8	2.0
Lakes	0	2	1	0	0	0	0	0	3	2.8
Bay of Plenty	5	2	0	1	0	0	1	1	10	4.3
Tairāwhiti	1	0	0	0	0	0	0	0	1	2.1
Taranaki	3	0	0	1	0	0	0	0	4	3.4
Hawke's Bay	0	0	0	0	0	0	0	0	0	0.0
Whanganui	2	1	0	0	0	0	0	0	3	4.7
MidCentral	1	1	2	0	0	0	0	0	4	2.3
Hutt Valley	1	0	0	0	0	1	0	0	2	1.4
Capital & Coast	4	2	0	0	0	0	0	0	6	1.9
Wairarapa	0	0	1	0	0	0	0	0	1	2.2
Nelson Marlborough	2	0	2	0	0	0	0	0	4	2.7
West Coast	0	0	0	0	0	0	0	0	0	0.0
Canterbury	4	3	2	0	0	0	1	0	10	1.8
South Canterbury	0	1	0	0	0	0	0	0	1	1.7
Southern	8	3	1	0	0	0	0	0	12	3.7
Total	51	33	16	10	1	2	4	3	120	2.5

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

¹ Non-groupable – group not determined but other strain characteristics were determined.

² Includes DNA laboratory-confirmed by PCR where no group or other strain characteristics were determined, or laboratory-confirmed isolates not received by the Meningococcal Reference Laboratory.

³ Probable – A clinically compatible illness.

Age group distribution

In the first quarter of 2019, cases were reported in the following age groups: <1, 5–9 and 20–29 (5 cases each), 1–4 (2 cases), 40–49, 60–69 and 70 years and over (1 case each).

Annualised rates of disease, based on cases reported in quarter one, were highest in the <1 and 5–9 years age groups but the small case numbers for all age groups (≤ 5) means these rates should be interpreted with caution (Figure 3).

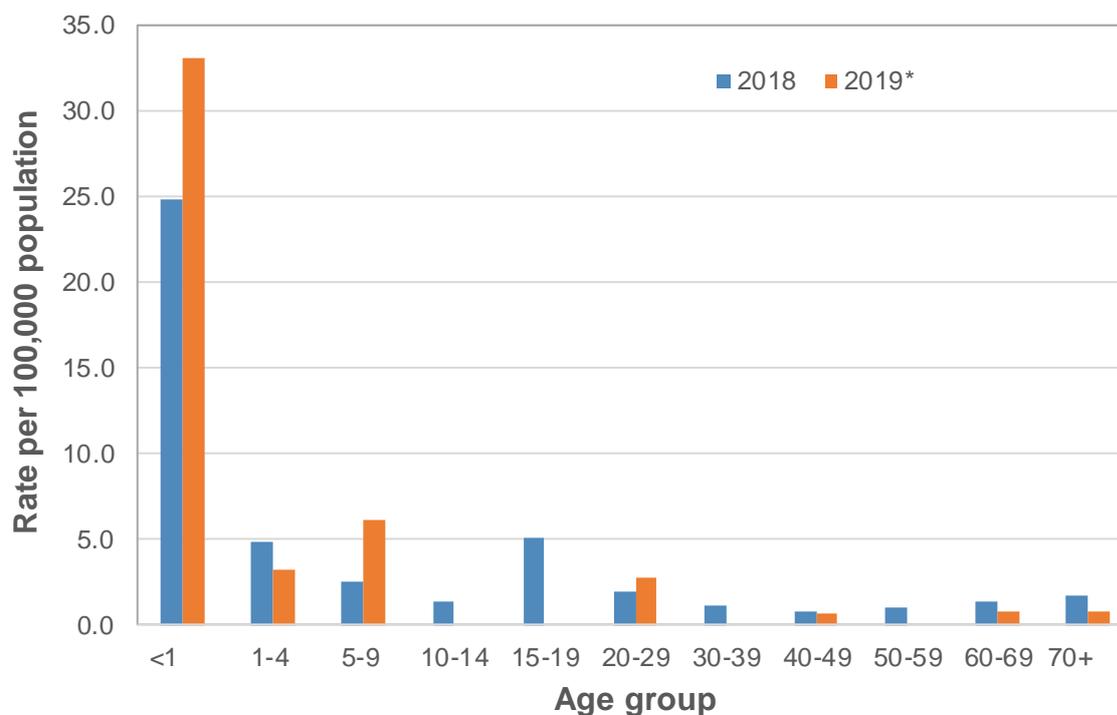
In 2018, there were cases of invasive meningococcal disease reported in all age groups. However, the overall number of cases was highest in children aged <5 years, 15–19 years and 20–29 years age groups (Table 2) and rates of disease were highest in those aged <1 year and in the 1–4 and 15–19 years age groups (Figure 3).

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

Age group	2018					2018 Total	2019			2019* Total
	B	W	Y	C	X		B	W	C	
<1	11	3	1	1	0	16	4	1	0	5
1 to 4	7	4	1	1	0	13	1	1	0	2
5 to 9	3	3	1	0	0	7	2	1	2	5
10 to 14	3	1	0	1	0	5	0	0	0	0
15 to 19	12	3	0	2	0	17	0	0	0	0
20 to 29	8	5	1	1	0	15	2	1	1	4
30 to 39	2	3	1	0	0	6	0	0	0	0
40 to 49	1	2	0	3	0	6	1	0	0	1
50 to 59	3	2	0	0	1	6	0	0	0	0
60 to 69	1	3	5	0	0	9	1	0	0	1
70+	0	4	6	1	0	11	1	0	0	1
Total	51	33	16	10	1	111	12	4	3	19

*Cases reported up to 31 March 2019 only.

Figure 3. Meningococcal disease notifications rate by age group, 2018 and 2019*



*Cases reported up to 31 March 2019 only. Annualised rate using quarter 1 notifications. Note: All 2019 annualised rates based on ≤ 5 cases for each age groups.

Ethnicity¹ distribution

In the first quarter of 2019, cases were reported in the following ethnic groups: Māori (10 cases), Pacific peoples and European or Other (5 cases each) and the annualised rates, based on cases reported in quarter one, were highest in Pacific peoples and Māori ethnic groups (Figure 4). However, as the rates for some groups are based on ≤ 5 cases interpretation of the differences should be done with caution.

In 2018, although the highest number of cases was in the European ethnic group (Table 3), the rates of disease were highest in Pacific peoples and Māori ethnic groups (Figure 4).

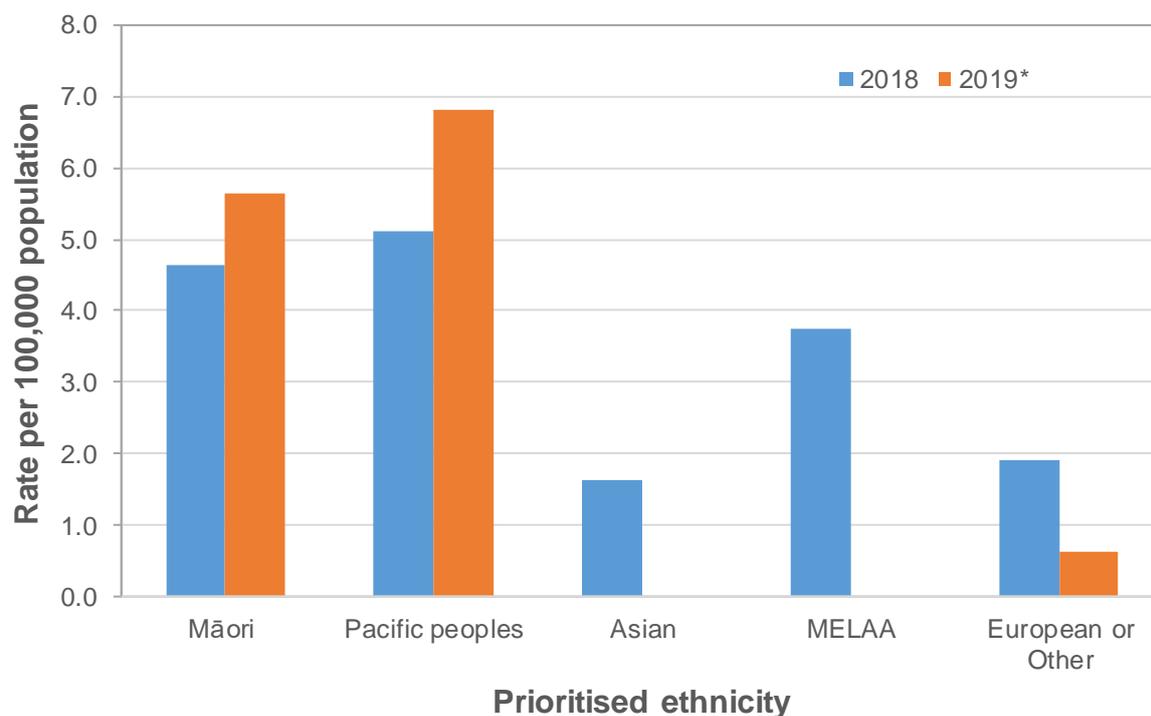
¹ A prioritised classification of ethnicity is used, with the Māori ethnic group at the top of the hierarchy followed by Pacific peoples, Asian, MELAA, and the European or Other ethnic group at the bottom of the hierarchy. For more detail on classification please refer to Ministry of Health (2004): <http://www.health.govt.nz/publication/ethnicity-data-protocols-health-and-disability-sector>

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

Prioritised Ethnicity	2018					2018 Total	2019			2019* Total
	B	W	Y	C	X		B	W	C	
Māori	19	7	1	2	0	29	6	1	2	9
Pacific peoples	3	6	2	2	0	13	3	1	1	5
Asian	5	3	0	0	1	9	0	0	0	0
MELAA	1	0	0	1	0	2	0	0	0	0
European or Other	23	17	13	5	0	58	3	2	0	5
Total	51	33	16	10	1	111	12	4	3	19

*Cases reported up to 31 March 2019 only.
MELAA - Middle Eastern/Latin American/African.

Figure 4. Meningococcal disease notifications rate by ethnicity, 2018–2019*



MELAA - Middle Eastern/Latin American/African.
*Cases reported up to 31 March 2019 only. Annualised rate using quarter 1 notifications.

Deaths

In the first quarter of 2019, one death was reported due to group W invasive meningococcal disease. There were 10 deaths reported in 2018 with six occurring in cases with group W disease. The average case fatality rate from 2014–2019 (up to quarter 1) is highest for cases with group W disease at 16.7%. The next highest rates are for cases with group C (9.1%) and group B:P1.7-2,4 (7.6) (Table 4).

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

Strain group	Number of deaths due to disease						Total fatality (2014-2019*)	Total cases (2014-2019*)	CFR (2014-2019*)
	2014	2015	2016	2017	2018	2019*			
Group B (P1.7-2,4) ¹	0	0	2	3	2	0	7	92	7.6
All other Bs	2	1	0	2	1	0	6	155	3.9
Group C	1	1	0	1	1	0	4	44	9.1
Group W	0	0	0	3	6	1	10	60	16.7
Group Y	0	1	0	0	0	0	1	43	2.3
Group E	0	0	0	0	0	0	0	1	0.0
Group X	0	0	0	0	0	0	0	1	0.0
Non-groupable ²	0	0	0	0	0	0	0	3	0.0
Other laboratory confirmed ³	0	0	0	0	0	0	0	15	0.0
Probable	0	1	0	0	0	0	1	22	4.5
Total	3	4	2	9	10	1	29	436	6.7

*Cases reported up to 31 Mar 2019 only.

¹ New Zealand “epidemic strain”.

² Non-groupable – group not determined but other strain characteristics were determined.

³ Includes DNA laboratory-confirmed by PCR where no group or other strain characteristics were determined, or laboratory-confirmed isolates not received by the Meningococcal Reference Laboratory.

Analyses by group

A review of notifications since 2014 shows a shift in the groups causing invasive disease. The proportion of group B cases of all cases typed decreased from 67% in 2017 to 45% in 2018 followed by a rise in the first quarter of 2019 to 63%, whereas the proportion of group W cases increased from 11% in 2017 to 29% in 2018 followed by a decrease in the first quarter of 2019 to 21%.

For group B notifications, just over half of the cases reported in the first quarter of 2019 were aged under 10 years with the remainder aged over 20 years. In 2018 cases were reported from all age groups except the 70 years and over group but the highest number of cases and the highest rates were reported in those aged under 5 years and adolescents aged 15–19 years. Similar to 2018, for the first quarter of 2019 the rates were highest in the Māori and Pacific peoples ethnic groups. There have been no deaths reported due to group B disease in the first quarter of 2019 compared to three deaths reported in 2018, two of these due to the B:P1.7-2,4 strain.

For group W notifications, three of the four cases reported in the first quarter of 2019 were aged under 10 years, with the remaining case aged in the 20–29 years age group, whereas for 2018, cases were reported from all age groups. There was a notable increase in the number of group W cases reported in Northland in 2018, to seven cases, compared with one case in the previous year. Of the seven Northland cases, five were reported between mid-July and late October. There were six deaths reported due to group W in 2018, all in the

second half of the year, and one in the first quarter of 2019, giving an average case fatality rate of 16.7% for 2014–2019 (up to quarter 1) (Table 4).

For group Y notifications, there have been no cases notified in the first quarter of 2019 after a gradual increase in case numbers from 2014 to 2018 (3 to 16 cases). The majority of group Y cases in 2018 continued to be reported in older adults and in the European or Other ethnic groups. There were no deaths reported in 2018.

For group C notifications, the three cases in reported in the first quarter of 2019 were aged in the 5–9 and 20–29 years age groups and were from the Māori and Pacific peoples ethnic groups. In contrast, for 2018, cases were reported across all age groups and ethnic groups. There was one death reported in 2018.

Annex - Meningococcal disease strain group distribution by year, 2014–2019*

Strain group	Year						Total
	2014	2015	2016	2017	2018	2019*	
Group B	26	41	47	70	51	12	247
B:P1.7-2,4 ¹	13	10	23	27	16	3	92
Other group Bs	13	31	24	43	35	9	155
Group C	6	6	8	11	10	3	44
C:P1.5-1,10-8	5	3	4	8	6	3	29
Other group Cs	1	3	4	3	4	0	15
Other	13	17	20	31	59	5	145
Group W	0	6	5	12	33	4	60
Group Y	3	6	7	11	16	0	43
Group E	1	0	0	0	0	0	1
Group X	0	0	0	0	1	0	1
Non-groupable ²	0	0	0	1	2	0	3
Other laboratory confirmed ³	2	2	3	4	4	0	15
Probable	7	3	5	3	3	1	22
Total	45	64	75	112	120	20	436

*Cases reported up to 31 Mar 2019 only.

¹ New Zealand “epidemic strain”.

² Non-groupable – group not determined but other strain characteristics were determined.

³ Includes DNA laboratory-confirmed by PCR where no group or other strain characteristics were determined, or laboratory-confirmed isolates not received by the Meningococcal Reference Laboratory.

This report is available at: https://surv.esr.cri.nz/surveillance/Meningococcal_disease.php