

Data contained within this fortnightly report is based on information recorded on EpiSurv by public health service staff as at 19 December 2017. Changes made to EpiSurv data after this date will not be reflected in this report. The results presented may be further updated and should be regarded as provisional. Cases still under investigation are not included in this report.

- A national pertussis outbreak is ongoing
- A significant increase in pertussis notifications for the current four weeks (weeks 46–49) compared with the previous four weeks (weeks 42–45) in 2017.
- A significant increase in pertussis notifications for the current four weeks (11 November–8 December 2017) compared with the same four surveillance weeks in 2016.

### Summary

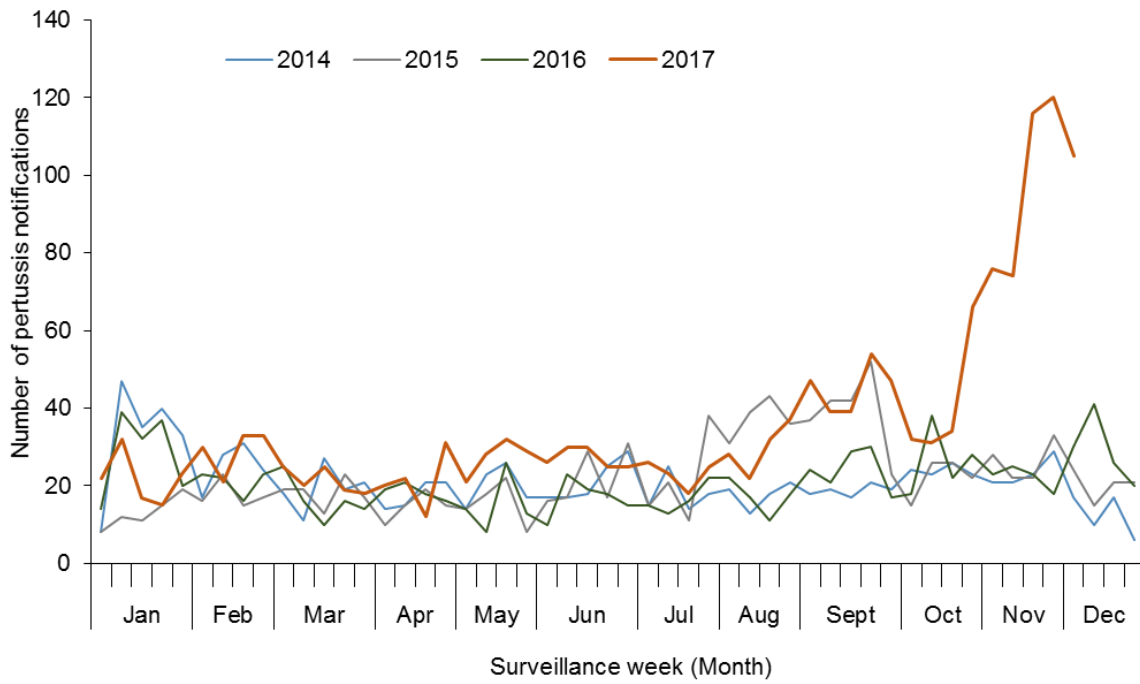
- In the past four surveillance weeks (weeks 46–49, 11 November–8 December 2017), 415 cases of pertussis were notified (74, 116, 120 and 105 cases, consecutively – Figure 1).<sup>1</sup> This included 218 confirmed, 182 probable, and 15 suspect cases. This is significantly higher than the 96 cases reported in the same four surveillance weeks in 2016 (Table 2). In the past four surveillance weeks in 2017, 26 (6.3%) cases were aged less than 1 year and 11 of these cases were hospitalised. Of all 415 cases, 21 cases were hospitalised and no deaths were reported.
- From 1 January–8 December 2017, there were a total of 1755 confirmed, probable and suspect cases of pertussis notified (37.4 cases per 100,000). Of the 1755 cases, 109 cases (6.2%) were aged less than 1 year, of which 53 (48.6%) were hospitalised (Table 1). Of all 1755 cases, 125 cases (7.1%) were hospitalised.
- From 1 January–8 December 2017, the highest reported pertussis rates were among the less than 1 year and 5–9 years age groups (184.0 and 74.5 per 100,000, respectively). The ethnic groups with the highest notification rates were European or Other (41.2 per 100,000) followed by MELAA (40.2 per 100,000, 21 cases) (Figure 4). The highest single number of cases was reported in the European or Other ethnic group (1285 cases).
- From 1 January–8 December 2017, the highest numbers of pertussis cases were reported by Canterbury (208 cases), Southern (198 cases), and Nelson Marlborough (178 cases) DHBs (Table 3). The DHB with the highest rate was Nelson Marlborough DHB (121.6 per 100,000), followed by Southern (62.1 per 100,000), and Hawke’s Bay (57.6 per 100,000, 93 cases) DHBs.
- This report summarises pertussis notifications for the period from 1 January–8 December 2017 (a cumulative summary). It includes the distribution of cases by time, age, prioritised ethnicity and DHB. A summary of the cases from the current four week period (11 November–8 December 2017) is also provided.

<sup>1</sup> Cases still under investigation are not included in this report. Because cases under investigation have still to be classified (as confirmed, probable, suspect or not a case), the total case counts for surveillance weeks may change in future reports.

### Trends in pertussis notifications

Total pertussis notifications by week for 2014–2017 (to week ending 8 December 2017) are shown in Figure 1 below.

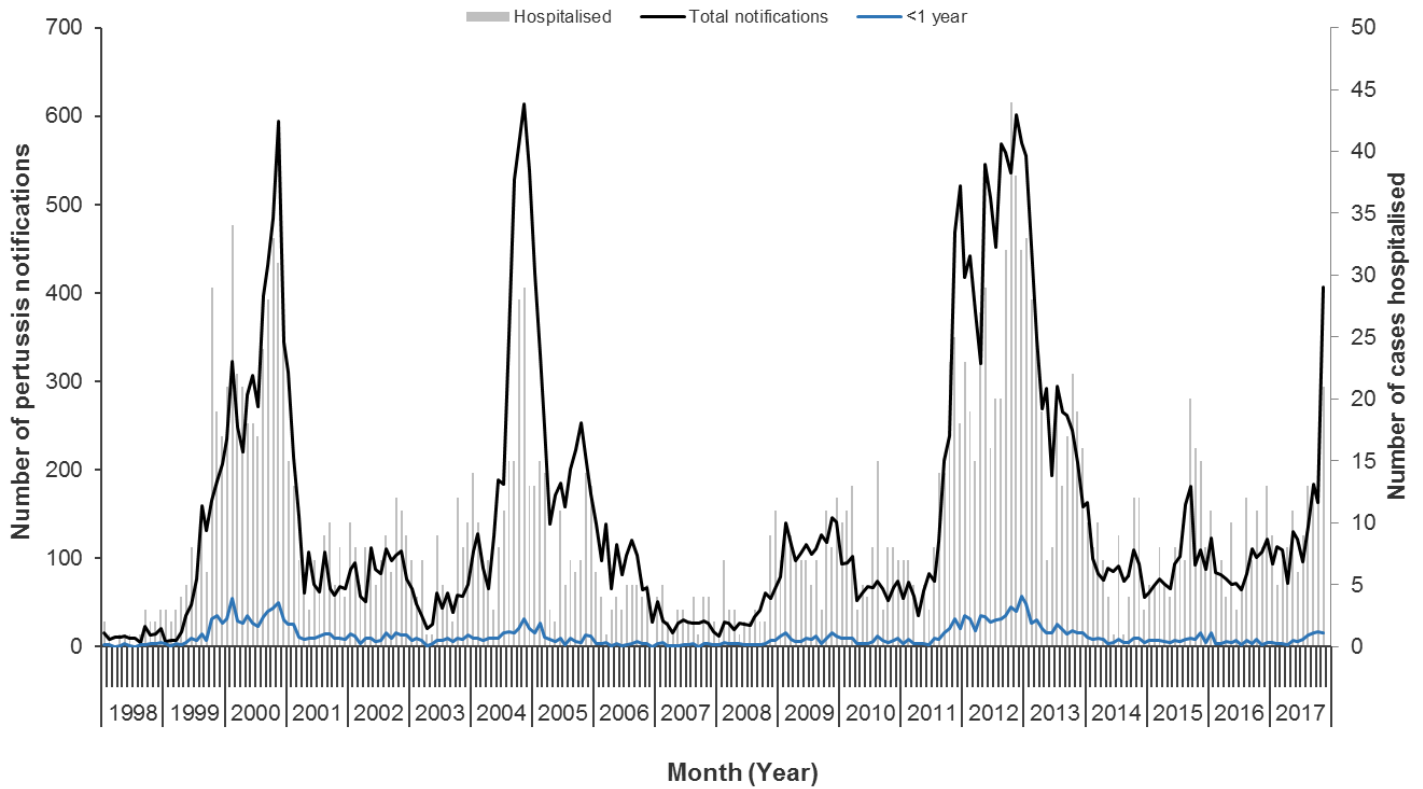
**Figure 1: Number of pertussis notifications by week reported, 2014–2017**



Note: Includes confirmed, probable, and suspect cases only. Cases still under investigation are excluded.

Figure 2 shows pertussis notifications and hospitalisations by calendar month, and notifications in those aged less than 1 year between January 1998 and November 2017. A four-to-five-year cycle can be seen with large peaks in notifications in years 2000 and 2004 and 2011/12.

**Figure 2: Number of pertussis notifications and hospitalisations by month and year, 1998–2017**



Note: Includes confirmed, probable, and suspect cases only. Cases still under investigation are excluded.

## Age

The number of pertussis notifications, rates and hospitalisations by age group are shown below in Table 1 (cumulative total for 2017). Table 2 shows the number of notifications and hospitalisations during the current four surveillance weeks in 2017 compared with the same four surveillance weeks in 2016.

**Table 1: Number of (confirmed, probable and suspect) pertussis notifications, rates (cases per 100,000 population) and hospitalisations by age group, 1 January–8 December 2017**

Age group (years)	Total for 2017 <sup>1</sup>		Hospitalised <sup>1</sup>	
	Number of cases	Rate <sup>2</sup>	Number of cases	Percent (%)
<1	109	184.0	53	48.6
1–4	181	73.8	11	6.1
5–9	240	74.5	4	1.7
10–14	203	69.0	0	0.0
15–19	171	53.7	3	1.8
20+	851	24.6	54	6.3
All ages	1755	37.4	125	7.1

<sup>1</sup> Cumulative total 1 January–8 December 2017

<sup>2</sup> Rate of pertussis cases per 100,000 population calculated using 2016 mid-year population estimates. Where fewer than five cases have been notified a rate has not been calculated.

**Table 2: Number of (confirmed, probable and suspect) pertussis notifications and hospitalisations in surveillance weeks 46–49 in 2017, compared with the same period in 2016**

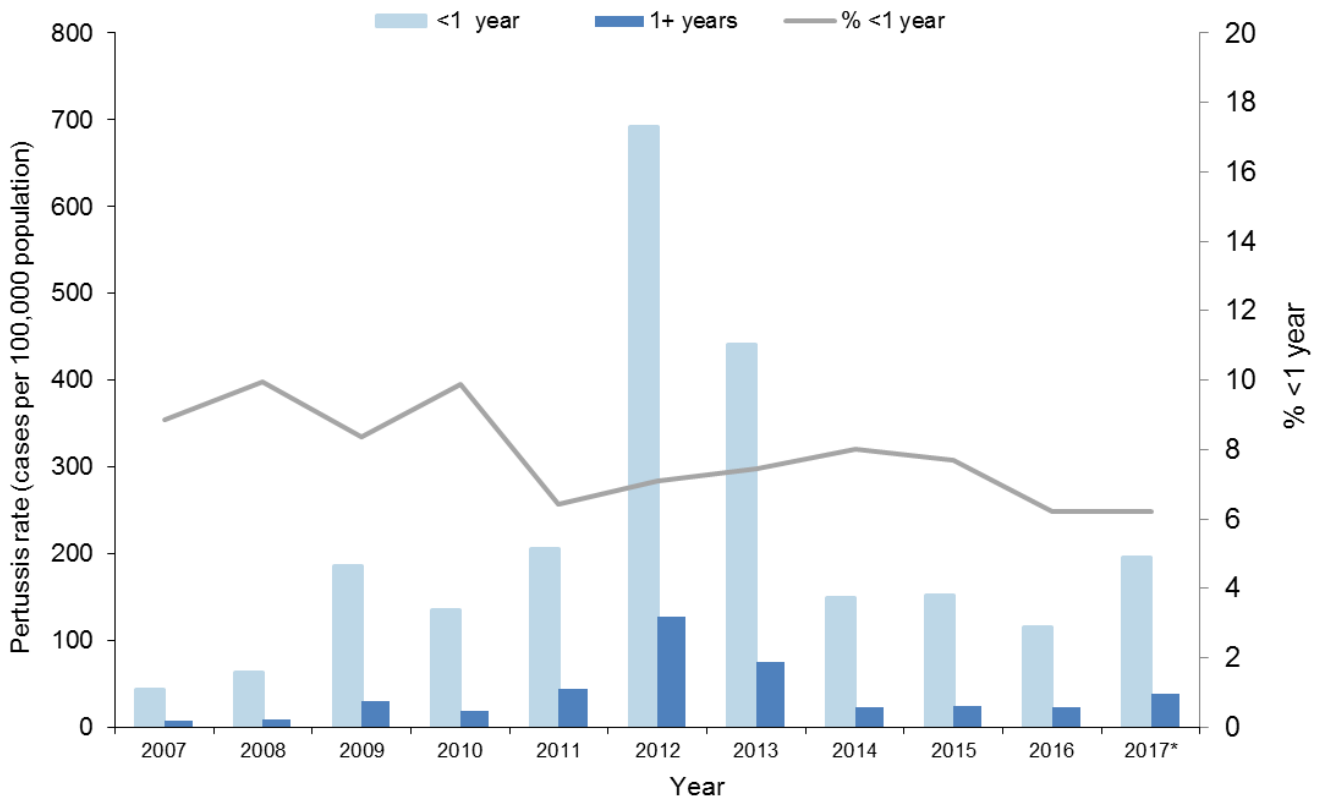
Age group (years)	Recent four surveillance weeks in 2017 (weeks 46–49) <sup>1</sup>		Same four surveillance weeks in 2016 (weeks 46–49) <sup>2</sup>	
	Number of cases	Cases hospitalised	Number of cases	Cases hospitalised
<1	26	11	2	1
1–4	35	2	10	1
5–9	56	0	11	1
10–14	63	0	17	0
15–19	45	0	11	0
20+	190	8	45	6
All ages	415	21	96	9

<sup>1</sup> 11 November–8 December 2017

<sup>2</sup> 12 November–9 December 2016

Pertussis rates by age group (<1 year and 1+ years) are shown in Figure 3.

**Figure 3: Pertussis rate (cases per 100,000 population) by age group (<1 year vs. 1+ years), and % < 1 year olds, 2007–2017**



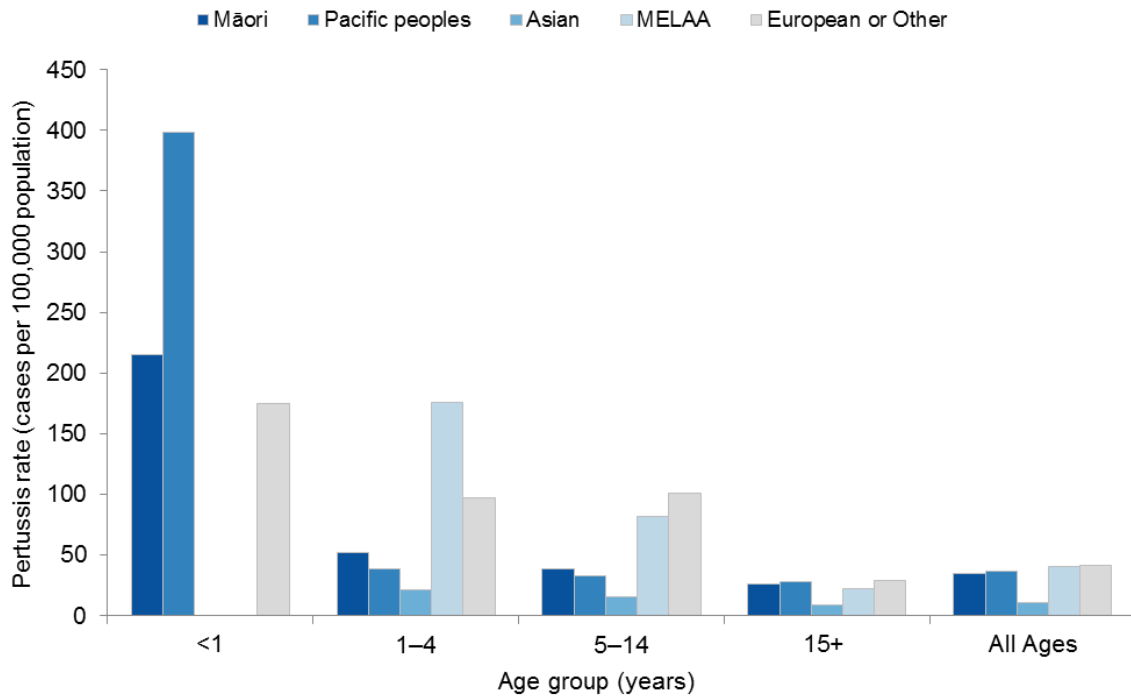
Note: Includes confirmed, probable and suspect cases only. Rate of pertussis cases per 100,000 population calculated using mid-year population estimates.

\*Rate for 2017 is an annualised rate. As this is an estimate for the year based on currently available data, it may differ from non-annualised rates presented elsewhere in this report for these age groups.

## Ethnicity

Pertussis rates by age group and ethnicity are shown in Figure 4.

**Figure 4: Pertussis rate (cases per 100,000 population) by age group and ethnicity, 1 January–8 December 2017**



Note: Notifications 1 January–8 December 2017, includes confirmed, probable and suspect cases only. Ethnicity is prioritised. Denominator data used to determine disease rates for ethnic groups are based on the proportion of people in each ethnic group from the estimated resident 2013 Census population applied to the 2016 mid-year population estimates from Statistics New Zealand.

MELAA: Middle Eastern/Latin American/African.

## District health board

The numbers and rates of pertussis notifications by DHB are shown in Table 3 below.

**Table 3: Number of (confirmed, probable and suspect) pertussis notifications, rate (cases per 100,000 population) and hospitalisations by district health board, 2017**

District health board	Total for 2017 <sup>1</sup>			<1 year old <sup>1</sup>		11 November–8 December 2017		
	Cases	Rate <sup>2</sup>	Hosp <sup>3</sup>	Cases <sup>4</sup>	% <sup>5</sup>	Cases	Hosp <sup>3</sup>	<1 year old <sup>4</sup>
Northland	55	32.1	2	4	7.3	16	2	3
Waitemata	162	27.4	18	14	8.6	30	0	2
Auckland	143	28.2	11	6	4.2	31	1	0
Counties Manukau	92	17.2	27	11	12.0	21	6	4
Waikato	155	38.8	10	10	6.5	38	2	1
Lakes	40	37.5	2	3	7.5	6	0	0
Bay of Plenty	95	41.9	9	8	8.4	37	0	0
Tairāwhiti	16	33.5	4	4	25.0	4	2	1
Taranaki	56	47.9	0	0	0.0	3	0	0
Hawke's Bay	93	57.6	5	5	5.4	15	1	1
Whanganui	14	22.2	3	3	21.4	5	1	0
MidCentral	29	16.6	1	1	3.4	10	1	0
Hutt Valley	55	37.7	2	1	1.8	4	0	1
Capital & Coast	143	46.6	2	7	4.9	13	0	1
Wairarapa	3	6.9	0	0	0.0	0	0	0
Nelson Marlborough	178	121.6	3	13	7.3	108	1	10
West Coast	8	24.6	0	0	0.0	4	0	0
Canterbury	208	38.5	7	6	2.9	47	1	0
South Canterbury	12	20.3	0	0	0.0	5	0	0
Southern	198	62.1	19	13	6.6	18	3	2
Overall	1755	37.4	125	109	6.2	415	21	26

<sup>1</sup> Cumulative notifications 1 January–8 December 2017.

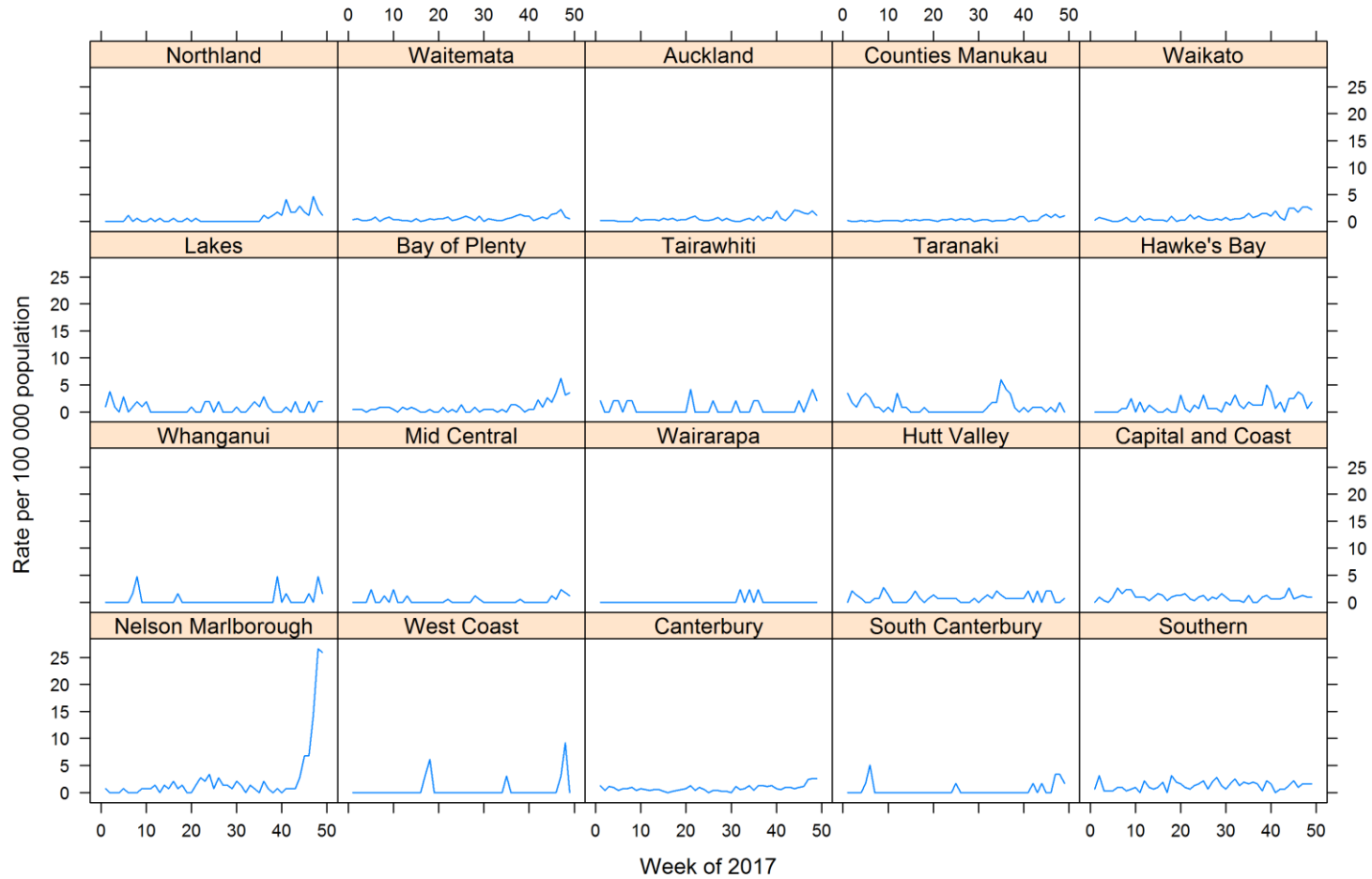
<sup>2</sup> Rate of pertussis cases per 100,000 population calculated using 2016 mid-year population estimates. Rates have not been calculated where fewer than five cases were notified.

<sup>3</sup> Number of notifications that were hospitalised.

<sup>4</sup> Number of notifications in the <1 year age group.

<sup>5</sup> Percentage of notifications that were <1 year age group

**Figure 4: Pertussis rates per 100,000 population by DHB, surveillance weeks 1-49 of 2017**



Note: Notifications 1 January–8 December 2017, includes confirmed, probable and suspect cases only. Rate of pertussis cases per 100,000 population calculated using 2016 mid-year population estimates. Rates have not been calculated where fewer than five cases were notified.

This report is available at: <http://www.surv.esr.cri.nz/surveillance/PertussisRpt.php>