PERTUSSIS REPORT

14 September–11 October 2024

This fortnightly report summarises pertussis notifications for the current four-week period, 14 September–11 October, and cumulative numbers since 01 January 2024. It includes the distribution of cases by time, region, district, age group and prioritised ethnicity. Four-weekly rates are presented to enable comparisons between groups and over time. This report supplements the Pertussis dashboard which is updated weekly.

Data contained within this report is based on information recorded in EpiSurv as at 11am on 16 October 2024. Changes made to EpiSurv after this time will not be reflected here. Data presented may be updated and should be regarded as provisional. Cases still under investigation are not included in this report. Because these cases are still to be classified, case numbers may change in future reports.

This report published 17 October 2024.

Summary

Pertussis activity in New Zealand has returned to pre-COVID-19 pandemic levels in 2024 after four years with very low activity. There is a high risk of a pertussis epidemic occurring this year due to reduced population immunity. Pertussis epidemics historically occur every 3–5 years in New Zealand (with the last epidemic ending in 2019).

In the past four surveillance weeks (weeks 38–41, 14 September–11 October 2024):

- there were 187 cases (157 confirmed, 26 probable and 4 suspect) notified in EpiSurv, compared with 102 cases for the prior four weeks (weeks 34–37). This comprises 56, 59, 38 and 34 cases, respectively in weeks 38-41;
- 17 cases were hospitalised, compared with five cases in weeks 34–37;
- no deaths were reported;
- 11 cases (5.9%) were aged less than 1 year, of which six (54.5%) were hospitalised, including two aged less than 2 months;
- notification rates were highest among infants aged less than 1 year (19.2 per 100,000, 11 cases), followed by children aged 5–9 years (10.8 per 100,000, 35 cases) and 10–14 years (10.8 per 100,000, 37 cases);
- the ethnic group with the highest notification rate was Māori (5.6 per 100,000, 49 cases), followed by European or Other (3.7 per 100,000, 116 cases);
- Central region had the highest rate (7.5 per 100,000, 74 cases), followed by Northern (3.0 per 100,000, 60 cases), Te Waipounamu (2.4 per 100,000, 30 cases), and Te Manawa Taki (2.2 per 100,000, 23 cases);

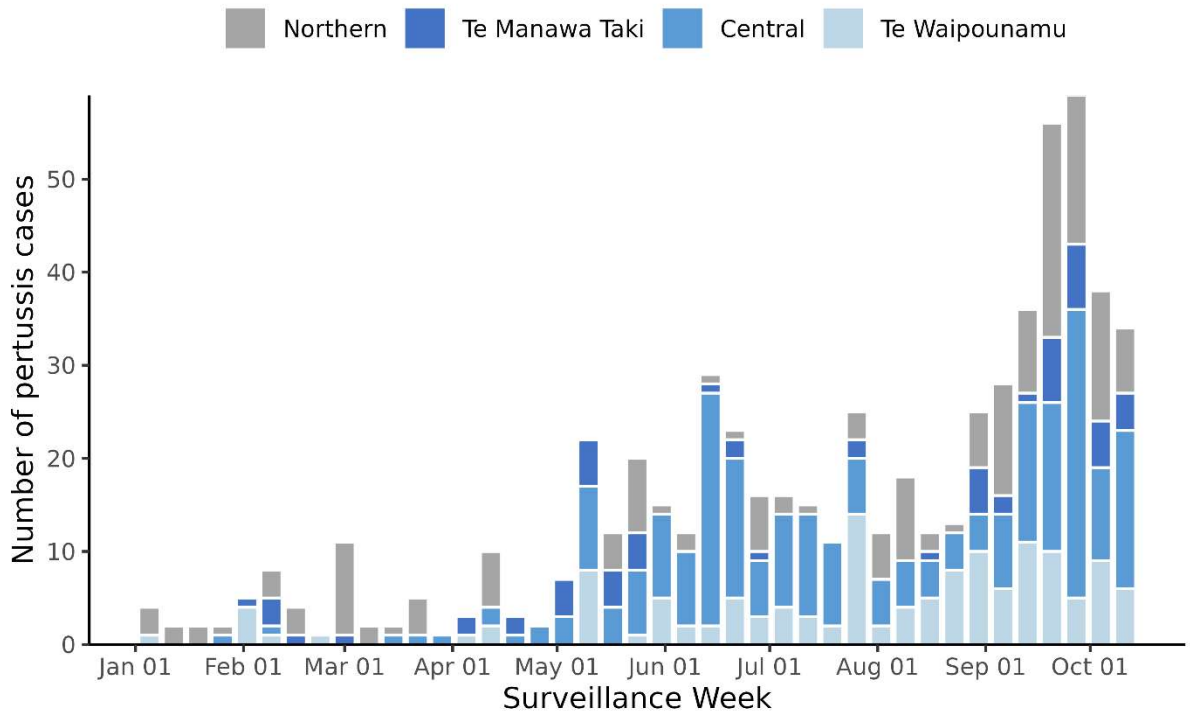
From 01 January to 11 October 2024:

- a total of 621 confirmed, probable and suspect cases of pertussis were notified;
- 68 cases (11.0%) were hospitalised and there have been no deaths;
- of the 43 cases (6.9%) aged less than 1 year, 31 (72.1%) were hospitalised.

Trends in pertussis cases

Since returning to pre-COVID-19 levels in early May, weekly pertussis case numbers were fairly stable until August and increased each week throughout September (Figure 1). Case numbers have decreased in the past two weeks. This likely reflects the impact of the school holidays on transmission and case ascertainment.

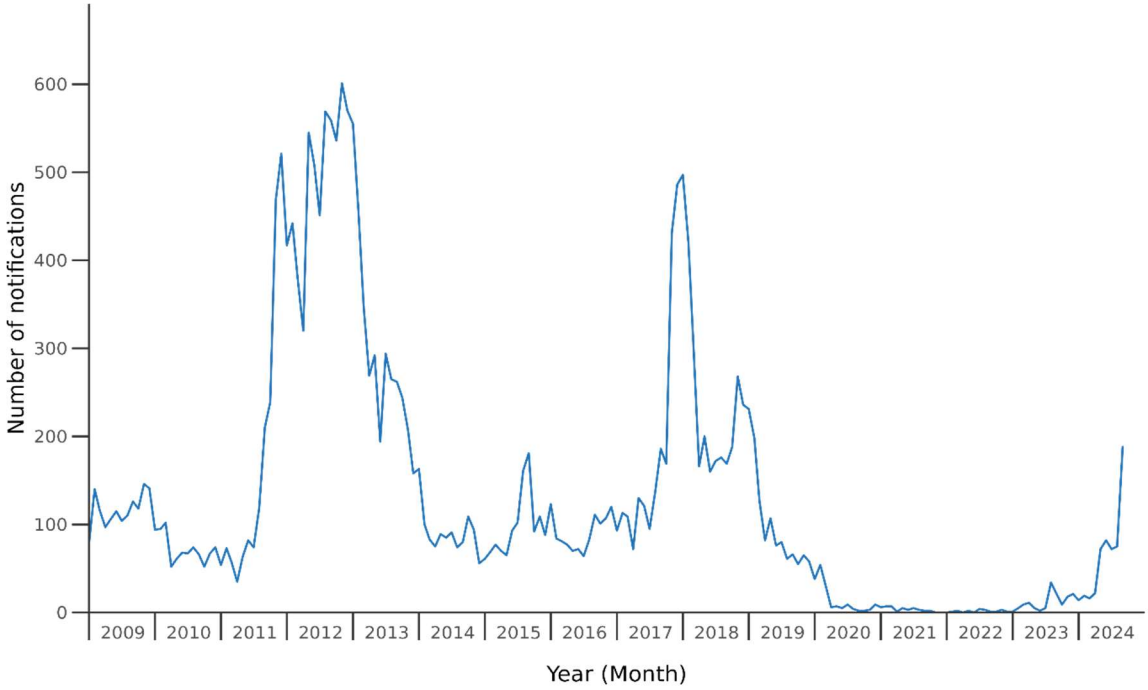
Figure 1. Pertussis cases by week and region, 01 January–11 October 2024



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

Figure 2 shows monthly pertussis cases since 2009. This shows two national outbreaks occurring in 2011–2013, and 2017–2019. National outbreaks have historically occurred every 3–5 years in New Zealand. Pertussis activity reduced as a result of COVID-19 response measures in 2020–2022, returning to pre-pandemic levels in 2024 as seen overseas. Case numbers in September 2024 were high compared to pre-pandemic baseline activity. However, as seen in Figure 1, case numbers have decreased in the first two weeks of October coinciding with the school holidays.

Figure 2. Pertussis cases by month, January 2009–September 2024



Note: Data for October are not yet presented as not yet complete.

Cases by age

In the past four weeks, rates were highest among infants aged less than 1 year followed by children aged 5–9 and 10–14 years (Table 1). Infants aged less than 1 year are most vulnerable to severe disease, with a high proportion requiring hospitalisation. Among infants, those aged less than 2 months are at highest risk of severe disease and death. Further age breakdown of the cases aged less than 1 year is provided in Table 2.

Table 1: Number and rate of pertussis cases and hospitalisations by age group

Age group (years)	14 September–11 October			01 January–11 October 2024	
	Cases[1]	Rate[2]	Hospitalised	Cases[1]	Hospitalised
<1	11	19.2	6 (54.5%)	43	31 (72.1%)
1–4	25	10.2	1 (4.0%)	77	7 (9.1%)
5–9	35	10.8	0 (0.0%)	90	2 (2.2%)
10–14	37	10.8	2 (5.4%)	107	5 (4.7%)
15–19	16	4.9	1 (6.3%)	61	1 (1.6%)
20–64	58	1.9	6 (10.3%)	220	15 (6.8%)
65+	5	0.6	1 (20.0%)	23	7 (30.4%)
Total	**187**	**3.6**	**17 (9.1%)**	**621**	**68 (11.0%)**

[1] Includes confirmed, probable and suspect cases only
[2] Four week rate of pertussis cases per 100,000 population calculated using 2023 mid-year population estimates from Statistics New Zealand. Rate suppressed if fewer than five cases.

Table 2: Number of pertussis cases and hospitalisations aged less than 1 year

Age group	14 September–11 October		01 January–October 2024	
	Cases[1]	Hospitalised	Cases[1]	Hospitalised
<2 months	2	2	11	10 (90.9%)
2–5 months	4	3	15	12 (80.0%)
6–11 months	5	1	17	9 (52.9%)

[1] Includes confirmed, probable and suspect cases only

Cases by Ethnicity

The ethnic group with the highest four-week notification rate was Māori (5.6 per 100,000, 49 cases), followed by European or Other (3.7 per 100,000, 116 cases). Hospitalisation rates since 1 January were highest among Pacific peoples, Asian and Māori. Most pertussis hospitalisations occur in young infants, and the difference in hospitalisations by ethnicity is in part driven by a higher proportion of infant cases in Māori and Pacific peoples. Breakdowns of case numbers by age and ethnicity are available on the ESR Pertussis dashboard.

Table 3: Number and rate of pertussis cases by ethnicity

Ethnicity	14 September–11 October		01 January–11 October 2024	
	Cases[1]	Rate[2]	Cases[1]	Hospitalised
Māori	49	5.6	127	23 (18.1%)
Pacific peoples	10	2.8	60	16 (26.7%)
Asian	3	-	25	6 (24.0%)
Middle Eastern/Latin American/African	4	-	9	1 (11.1%)
European or Other	116	3.7	395	22 (5.6%)
Unknown	5	-	5	0 (0.0%)

Note: Ethnicity is prioritised.
[1] Includes confirmed, probable and suspect cases only
[2] Four week rate of pertussis cases per 100,000 population calculated using 2023 mid-year population estimates from Statistics New Zealand. Rate suppressed if fewer than five cases.

Cases by district

Wairarapa District reported the highest rate (21.5.0 per 100,000) in the past four weeks, followed by Hawkes Bay and Taranaki districts (18.9 and 14.8 per 100,000). The highest number of hospitalisations since 1 January was in Counties Manukau District.

Table 4: Number of pertussis cases, rate and hospitalisations by health district

District	14 September–11 October			01 January–11 October 2024	
	Cases[1]	Rates[2]	Hospitalised	Cases[1]	Hospitalised
Northland	18	8.8	1	22	3
Waitemata	15	2.3	1	31	4
Auckland	21	4.3	2	49	6
Counties Manukau	6	1.0	3	68	15
Waikato	4	-	3	17	8
Lakes	0	-	0	4	0
Bay of Plenty	0	-	0	12	2
Tairawhiti	0	-	0	4	1
Taranaki	19	14.8	1	28	2
Hawke's Bay	35	18.9	0	69	2
Whanganui	3	-	0	3	0
MidCentral	1	-	0	8	1
Hutt Valley	8	4.9	2	32	6
Capital and Coast	16	4.9	2	67	9
Wairarapa	11	21.5	0	72	2
Nelson Marlborough	1	-	0	9	1
West Coast	0	-	0	1	0
Canterbury	23	3.8	2	107	4
South Canterbury	1	-	0	6	1
Southern	5	1.4	0	12	1

[1] Includes confirmed, probable and suspect cases only
[2] Four week rate of pertussis cases per 100,000 population calculated using 2023 mid-year population estimates from Statistics New Zealand. Rate suppressed if fewer than five cases.

Appendix – Definitions

Case definition

An abbreviated version of the case definition in place at the time of preparing this report is provided below. The current case classification used in Aotearoa New Zealand can be found on the Health New Zealand | Te Whatu Ora Communicable Disease Control Manual site.

Clinical description

A clinically compatible case characterised by cough and one or more of: paroxysms of cough, cough ending in vomiting, cyanosis or apnoea, or inspiratory whoop.

Laboratory test for diagnosis

Laboratory definitive evidence for a confirmed case requires isolation of *Bordetella* pertussis or detection of *B. pertussis* nucleic acid, preferably from a nasopharyngeal swab.

Laboratory suggestive evidence for a probable case requires: *B. pertussis* toxin IgG test of >100 IU/ml or a significant increase in antibody levels between paired sera at the same laboratory. Serology should only be requested for public health purposes after consultation between the Medical Officer of Health and the local microbiologist.

Case classification

- **Under investigation:** a case that has been notified, but information is not yet available to classify it as suspect, probable or confirmed.
- **Suspect (in children under 5 years of age):** any paroxysmal cough with whoop, vomit or apnoea for which there is no other known cause.
- **Probable:** a clinically compatible illness where the cough is lasting longer than 2 weeks. However, in situations where serology has been requested after consultation between the Medical Officer of Health and the local microbiologist, a clinically compatible illness with laboratory suggestive evidence will also be considered as probable.
- **Confirmed:** a clinically compatible illness accompanied by laboratory definitive evidence, or is epidemiologically linked to a confirmed case.
- **Not a case:** a case that has been investigated and subsequently found not to meet the case definition.

Definition of hospitalisation

EpiSurv uses the same definition as the Ministry of Health's National Collections: healthcare users who receive assessment and/or treatment for three hours or more (excluding time in a waiting room and triage), or who have a general anaesthetic.