

British Columbia Provincial Pertussis Summary

July 23, 2024

This bulletin provides updated information on pertussis activity in British Columbia (BC) and elsewhere, including recent trends since the last [BC Provincial Pertussis Summary \(March 2024\)](#).

Summary findings and messages

- 1) Elevated pertussis activity following the COVID-19 pandemic continues to be reported in other provinces of Canada and by other countries, including a recent [alert issued for the Americas by the Pan American Health Organization](#). Given 2-5-year cyclical peaks, with the last observed in BC in 2016, increase in pertussis may also be anticipated here.
- 2) Year-to-date (YTD) as of June 27, 2024, pertussis activity in BC remains within historical levels overall and by age group, albeit higher YTD in 2024 (n=72 cases) than full-year totals since the COVID-19 pandemic (n=46, 1, and 2 cases in 2023, 2022, 2021, respectively).
- 3) Since the last bulletin in March 2024, YTD incidence in BC through June 2024 has increased most among infants <1 year (9.2 to 23.0 per 100,000; 2.5-fold) and children 1-4 years (4.4 to 11.6 per 100,000; 2.6-fold). Unlike some reports elsewhere, however, incidence among 10-14-year-olds in BC remains low and relatively stable at 1.8 and 2.1 per 100,000, respectively. In all older age groups, incidence has remained below 1 per 100,000.
- 4) Cyclical increases are more prominent during the summer months in BC such that continued close monitoring is warranted. Milder or atypical presentation among older children and adults may contribute to undiagnosed cases, unrecognized community transmission and surveillance under-ascertainment.
- 5) Proactive measures to mitigate the pertussis risk include reinforcing up-to-date vaccination, notably for the very young and for pregnant people to reduce the risk of severe outcomes in infants and especially newborns, and proactive regional outreach to communities where vaccination coverage may be suboptimal.

Background

In BC, as elsewhere, pertussis is an endemic disease with cyclical peaks occurring every 2-5 years¹. Infants <1 year are at highest risk of severe disease, including hospitalization, intensive care unit admission and death, with the highest risk occurring among infants <3 months of age¹. Because of their more severe presentation, pertussis in infants, compared to other age groups, may be more readily detectable and indicative of community trends overall. In 1997, most Canadian provinces (including BC) replaced the whole cell pertussis vaccine with a more efficacious (and less reactogenic) acellular pertussis vaccine, and in 2004 added a Grade 9 Tdap (tetanus, diphtheria, acellular pertussis) booster dose (generally adolescents 14-15 years of age)¹. In 2020, BC joined other provinces in publicly-funding an additional Tdap dose for pregnant people each pregnancy, ideally between 27-32 weeks of gestation in order to protect newborns before they can receive a first dose directly².

Between 2004 and 2011, BC experienced trough pertussis levels, followed by cyclical peaks in 2012, 2015, and 2016, which subsequently subsided between 2017 and 2019 ([Figure 1A](#))¹. As elsewhere, BC may have been spared an expected cyclical peak during the period that COVID-19 pandemic mitigation measures were in place beginning in March 2020³⁻⁵, with much reduced *B. pertussis* detections thereafter ([Figure 1A](#)). Following the relaxation of pandemic mitigation measures, other areas have experienced resurgent activity. In addition to recent outbreaks in Alberta, Ontario, and New Brunswick, pertussis cases in eastern regions of Newfoundland and Labrador have tripled between February and July 2024⁶⁻¹⁰. From January 1 to July 8 2024, Quebec recorded 6016 cases, half of which were reported in June alone¹¹. In both provinces, 10-14-year-olds were most affected. Increased pertussis activity has also been reported elsewhere internationally (e.g., United States, South America, Europe)¹²⁻¹⁴. In England, China, and Australia, pertussis case counts in 2024 have begun to surpass annual totals from pre-pandemic years, and in France, deaths among <15 year olds in 2024 exceed totals from any previous year since 2015¹⁵⁻¹⁹. Some reports have highlighted lower vaccine coverage as potentially contributing to increased activity^{8,13,18}. The extent to which recent activity may be considered expected or exceptional awaits more detailed examination (e.g., for consistency in case definitions, testing and monitoring periods or approaches over time). Updated national pertussis surveillance data for Canada remain pending²⁰.

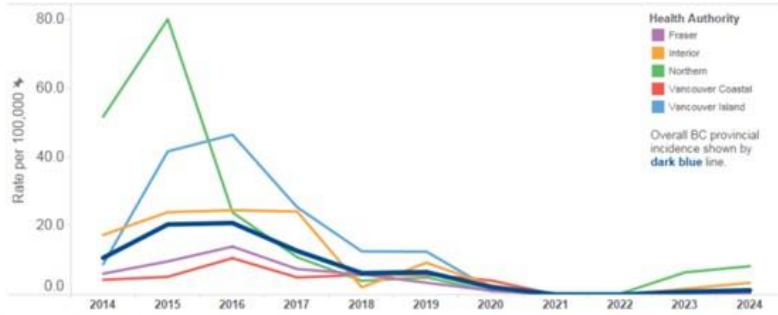
Updated BC observations as of June 27, 2024

As of June 27, 2024 (epi-week 26), BC health authorities have reported 72 laboratory-confirmed or epidemiologically-linked pertussis cases year-to-date (YTD), exceeding full year tallies in 2023 (n=46), 2022 (n=1) and 2021 (n=2) ([Figure 1A](#)). However, the 2024 YTD incidence of 1.3 cases per 100,000 remains lower than incidences during the same ~26-week YTD period of 2014 to 2020, ranging 2.2 to 8.9 per 100,000 ([Figure 1B](#)). In 2024, a typical spring/summer increase has not yet been observed in BC ([Figure 2](#); [Figure 3](#)). Age-specific incidences also remain within the range of YTD historic levels since 2014. Since the [last BCCDC bulletin spanning January 1 to March 11 2024](#), YTD incidence through June 2024 has increased most in infants <1 year (9.2 to 23.0 per 100,000; 2.5-fold) and children 1-4 years (4.4 to 11.6 per 100,000; 2.6-fold) ([Figure 4A](#); [Figure 4B](#)). Unlike elsewhere, incidence among 10-14-year-olds in BC remains low and relatively stable at 1.8 and 2.1 per 100,000, respectively. In all older age groups, incidence remains below 1 per 100,000. Milder or atypical illness among older children and adults may contribute to undiagnosed cases, unrecognized community transmission, and surveillance under-ascertainment.

References

1. Chambers, C. *et al.* Pertussis Surveillance Trends in British Columbia, Canada, over a 20-year Period: 1993-2013. *CCDR* **40**, 31–41 (2014).
2. BC Centre for Disease Control. Communicable Disease Control Manual, Chapter 2: Immunization. <http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/Tdap.pdf> (2024).
3. Matczak, S. *et al.* Association between the COVID-19 pandemic and pertussis derived from multiple nationwide data sources, France, 2013 to 2020. *Eurosurveillance* **27**, (2022).
4. Sandoval, T., Bisht, A. & Maurice, A. de S. The impact of COVID-19 and masking practices on pertussis cases at a large academic medical center (2019-2021). *American Journal of Infection Control* **51**, 844–846 (2023).
5. Tessier, E. *et al.* Impact of the COVID-19 pandemic on Bordetella pertussis infections in England. *BMC Public Health* **22**, 405 (2022).
6. Eastern Ontario Health Unit. *EOHU Reminds of the Importance of Routine Immunizations Amid Increase in Pertussis Cases*. <https://eohu.ca/en/article/2024-06-28> (2024).
7. North Bay Parry Sound District Health Unit. *Whooping Cough Outbreak in Nipissing, Parry Sound Districts*. <https://www.myhealthunit.ca/en/news/whooping-cough-outbreak-in-nipissing-parry-sound-districts.aspx> (2024).
8. Kury de Castillo, C. Whooping cough warnings continue amid low vaccination rates in rural Alberta. *Global News* (2024).
9. Government of New Brunswick. *Whooping cough outbreak on Acadian Peninsula*. https://www2.gnb.ca/content/gnb/en/departments/health/news/news_release.2024.06.0295.html (2024).
10. Newfoundland and Labrador (NL) Health Services. *Update on Whooping Cough Outbreak in the Eastern Zones*. <https://nlhealthservices.ca/news/post/update-on-whooping-cough-outbreak-in-the-eastern-zones/> (2024).
11. Morin-Martel, F. Le Québec a franchi la barre des 6000 cas de coqueluche en 2024. *Le Devoir* (2024).
12. Johnson, M. & Malhi, S. Whooping cough cases double in the U.S., a potential legacy of the pandemic. *Washington Post* (2024).
13. Poeta, M. *et al.* Pertussis outbreak in neonates and young infants across Italy, January to May 2024: implications for vaccination strategies. *Eurosurveillance* **29**, (2024).
14. Pan American Health Organization / World Health Organization. Epidemiological alert: Pertussis (whooping cough) in the Region of the Americas. (2024).
15. Actual News Magazine. Seventeen people have died of whooping cough in France since the beginning of the year. (2024).
16. Santé publique France. *Flambée épidémique de la coqueluche*. <https://www.santepubliquefrance.fr/maladies-et-traumatismes/maladies-a-prevention-vaccinale/coqueluche/documents/bulletin-national/coqueluche-en-france.-point-au-28-juin-2024> (2024).
17. Australian Government. National Communicable Disease Surveillance Dashboard. <https://nindss.health.gov.au/pbi-dashboard/>.
18. UK Health Security Agency. *Confirmed cases of pertussis in England by month*. <https://www.gov.uk/government/publications/pertussis-epidemiology-in-england-2024/confirmed-cases-of-pertussis-in-england-by-month> (2024).
19. Murphy, F. Whooping cough: Doctors urge Chinese authorities to review vaccine strategy as cases surge. *BMJ* q1274 (2024) doi:10.1136/bmj.q1274.
20. Public Health Agency of Canada. Reported cases from 1924 to 2021 in Canada - Notifiable diseases on-line. <https://diseases.canada.ca/notifiable/charts?c=pl>.

Figure 1A. Annual incidence (per 100,000)
BC overall and by Health Authority

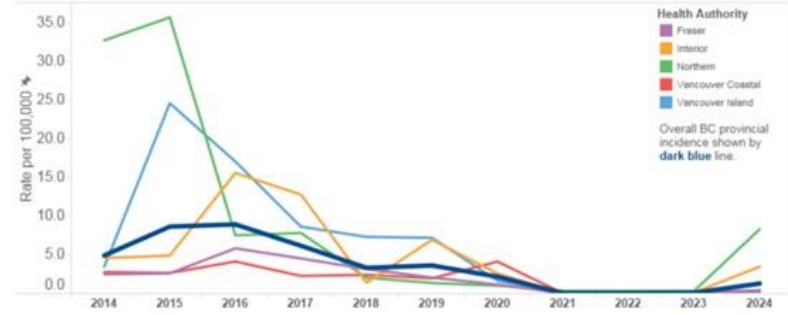


Annual incidence (per 100,000)											
BC	10.9	20.5	20.9	12.7	6.3	6.6	2.2	0.0	0.0	0.8	1.3
Fraser	6.1	9.7	14.0	7.5	5.9	3.5	1.2			0.2	0.4
Interior	17.4	24.0	24.5	24.2	2.1	9.3	2.7			1.7	3.5
Northern	51.7	80.1	23.9	10.9	4.0	5.0	1.0	0.3	0.3	6.5	8.3
Vancouver Coastal	4.3	5.2	10.6	5.0	5.8	5.8	4.1			0.2	0.4
Vancouver Island	8.8	41.7	46.5	25.4	12.6	12.5	1.6	0.1		0.4	0.1

Annual case counts											
BC	513	979	1,015	627	315	335	113	2	1	46	72
Fraser	106	171	252	137	110	66	23			5	9
Interior	129	181	189	189	17	75	22			15	31
Northern	150	233	70	32	12	15	3	1	1	20	26
Vancouver Coastal	50	61	126	60	70	72	51			2	5
Vancouver Island	69	330	376	209	105	106	14	1		4	1

Data Source: VPD Data Mart, current to June 27, 2024

Figure 1B. YTD (Jan 1 – Jun 27) incidence (per 100,000)
BC overall and by Health Authority



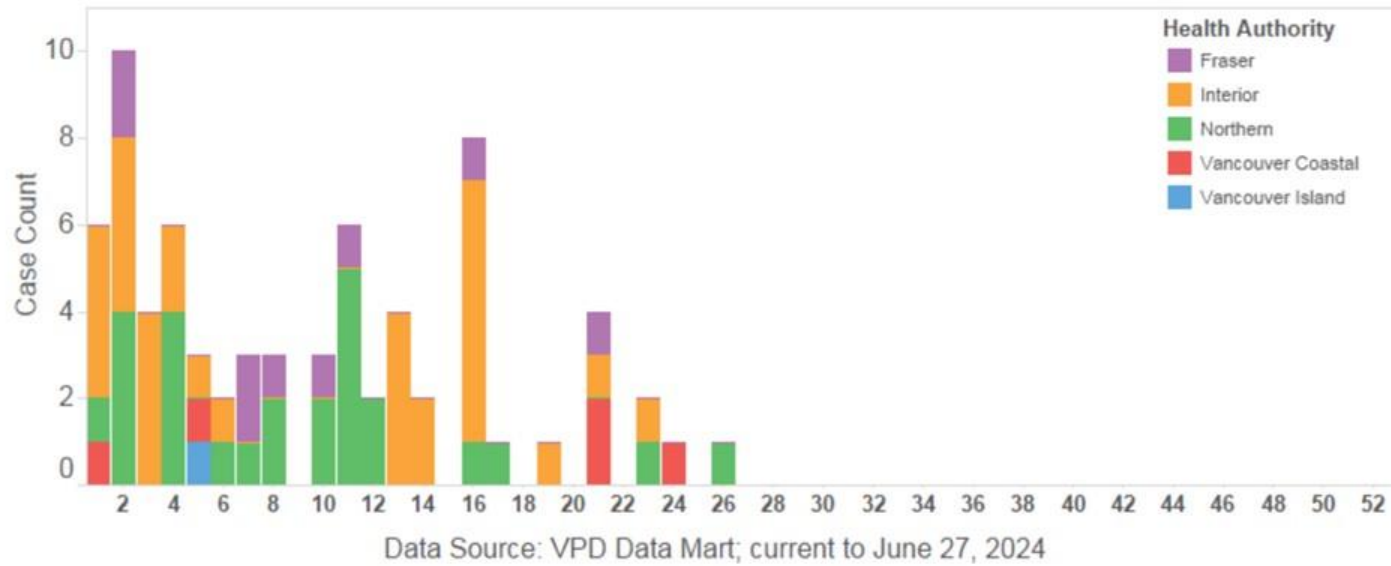
YTD incidence (per 100,000)											
BC	5.1	8.6	8.9	6.2	3.3	3.6	2.2	0.0	0.0	0.1	1.3
Fraser	2.5	2.6	5.8	4.5	3.2	2.0	1.1			0.0	0.4
Interior	4.6	4.4	15.3	12.8	1.4	6.9	2.6			0.1	3.5
Northern	32.8	35.8	7.5	7.8	2.0	1.3	1.0	0.3	0.3	0.3	8.3
Vancouver Coastal	2.8	2.6	4.1	2.3	2.4	1.9	4.1				0.4
Vancouver Island	3.5	24.5	16.9	8.6	7.3	7.2	1.6			0.1	0.1

YTD case counts											
BC	240	410	433	304	166	184	111	1	1	4	72
Fraser	43	46	105	83	59	39	22			1	9
Interior	34	33	118	100	11	56	21			1	31
Northern	95	104	22	23	6	4	3	1	1	1	26
Vancouver Coastal	32	31	49	27	29	24	51				5
Vancouver Island	27	194	137	71	61	61	14			1	1

Data Source: VPD Data Mart, current to June 27, 2024

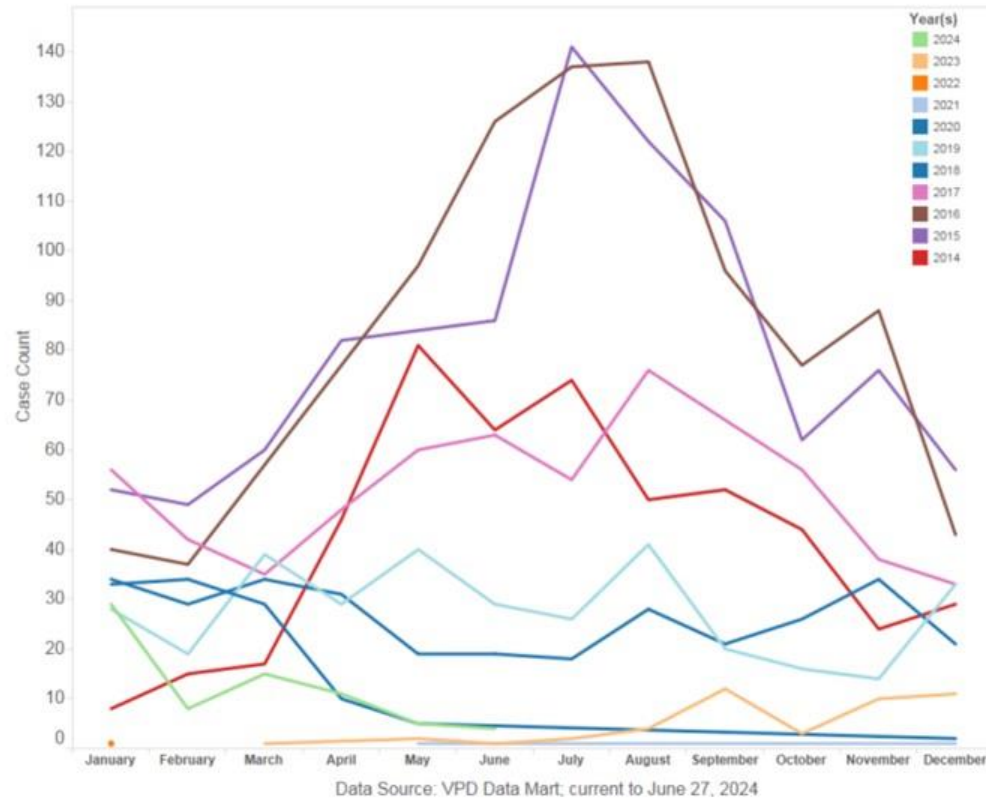
Tallies reflect confirmed cases, including laboratory-confirmed or epidemiologically-linked events.
For 2024, data are for the period between January 1 and June 27th, 2024.

Figure 2. Case counts by epi-week and Health Authority



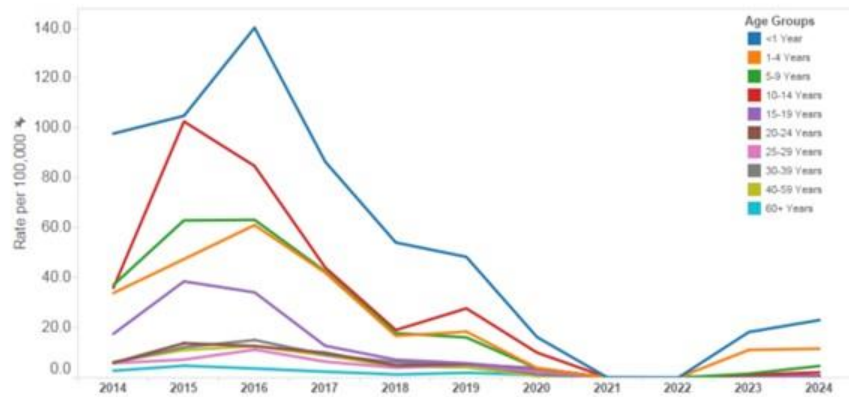
Tallies reflect confirmed cases, including laboratory-confirmed or epidemiologically-linked events. For 2024, data are for the period between January 1 and June 27th, 2024.

Figure 3. Case counts by month and year, BC



Tallies reflect confirmed cases, including laboratory-confirmed or epidemiologically-linked events. For 2024, data are for the period between January 1 and June 27th, 2024.

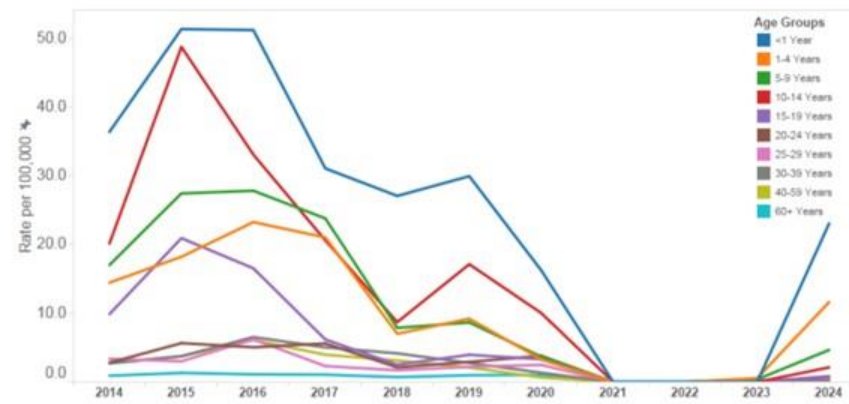
Figure 4A. Annual incidence (per 100,000)
BC overall and by Age Group



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Annual incidence (per 100,000)											
BC	10.9	20.5	20.9	12.7	6.3	6.6	2.2	0.0	0.0	0.8	1.3
<1 Year	97.7	104.9	140.2	86.5	54.1	48.3	16.2			18.3	23.0
1-4 Years	33.9	47.5	60.5	42.0	16.7	18.4	3.8			11.1	11.6
5-9 Years	37.1	62.6	63.2	42.6	17.8	16.1	3.7			1.6	4.7
10-14 Years	36.0	102.2	84.8	44.1	19.1	27.7	10.0			1.1	2.1
15-19 Years	16.8	38.5	33.8	12.7	6.8	5.8	3.3			0.5	0.6
20-24 Years	5.9	13.8	12.6	10.0	4.8	5.3	3.8				0.8
25-29 Years	5.5	7.2	11.2	6.4	4.0	5.0	2.5			0.3	0.8
30-39 Years	5.6	12.0	15.0	9.2	6.2	5.4	1.3	0.1		0.4	0.1
40-59 Years	6.1	11.1	12.6	8.9	4.5	4.1	0.7			0.1	0.4
60+ Years	2.7	4.8	3.7	2.4	1.3	1.9	1.0	0.1	0.1	0.2	0.5

Data Source: VPD Data Mart, current to June 27, 2024

Figure 4B. YTD (Jan 1 – Jun 27) incidence (per 100,000)
BC overall and by Age Group



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
YTD incidence (per 100,000)											
BC	5.1	8.6	8.9	6.2	3.3	3.6	2.2	0.0	0.0	0.1	1.3
<1 Year	36.4	51.3	51.2	31.1	27.1	29.9	16.2				23.0
1-4 Years	14.4	18.2	22.7	21.0	7.0	9.2	3.3			0.6	11.6
5-9 Years	17.0	27.0	27.8	23.8	7.9	8.7	3.7			0.4	4.7
10-14 Years	20.1	48.3	33.1	20.6	8.7	17.1	10.0				2.1
15-19 Years	9.1	20.9	16.2	6.2	2.5	4.0	3.3				0.6
20-24 Years	2.8	5.6	5.0	5.6	2.1	2.9	3.8				0.8
25-29 Years	3.1	3.0	6.2	2.3	1.7	2.2	2.5				0.8
30-39 Years	2.4	3.8	6.5	5.0	4.2	2.8	1.3				0.1
40-59 Years	2.5	3.7	6.1	4.0	3.1	2.1	0.7				0.4
60+ Years	0.8	1.3	1.1	1.1	0.7	1.0	1.0	0.1	0.1		0.5

Data Source: VPD Data Mart, current to June 27, 2024

Tallies reflect confirmed cases, including laboratory-confirmed or epidemiologically-linked events.
For 2024, data are for the period between January 1 and June 27th, 2024.