

Pertussis

As elsewhere, pertussis remains an endemic disease in BC, with cyclical peaks occurring every 3-5 years. In 2015, BC experienced a cyclical peak in pertussis activity, with overall provincial rates of confirmed pertussis exceeding 20 cases per 100,000 (Figure 28.1). After substantial epidemics in the late 1990s and early 2000s, with incidence rates ranging from 20 to 40 per 100,000 overall, BC experienced trough levels of pertussis activity from 2004 to 2011. However, since 2012, pertussis incidence in BC has continued an increasing trend, driven primarily by asynchronous regional peaks in Vancouver Coastal and Fraser Health Authorities (2012), Vancouver Island Health Authority (2013), and Northern Health Authority (2014). This increasing trend in pertussis activity may reflect changes in population-level immunity due in part to recent periods of low-level activity in some regions of BC as well as waning of immunity from acellular vaccine.

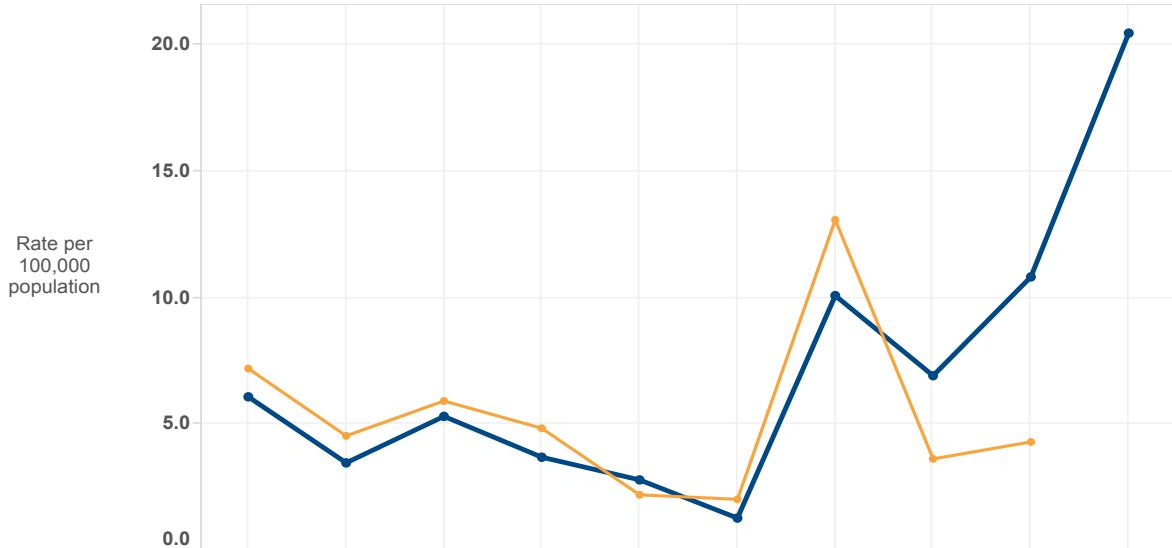
In 2015, pertussis incidence rates were highest in Northern Health Authority, following a large-scale outbreak affecting the Haida Gwaii and Prince Rupert regions in the Northwest HSDA during the spring/summer of 2014, with elevated activity elsewhere in that region continuing into 2015. Incidence rates in Northwest HSDA in 2015 were 119 per 100,000 (Figure 28.2), but were lower by about 25% compared with the outbreak in 2014 when rates in that region reached 164 per 100,000. Elevated rates were also observed in Northeast HSDA (75 per 100,000) and Northern Interior HSDA (67 per 100,000) in 2015. These HSDA-level rates should be interpreted in the context of the small population of the area affected.

A cyclical peak in pertussis activity in 2015 was also observed in all regions of the Vancouver Island Health Authority, but in particular in the South Vancouver Island HSDA where rates were 56 per 100,000 (Figure 28.2), almost three times higher than rates observed during the last cyclical peak in that region in 2013. Heightened pertussis activity was also observed in the Kootenay Boundary HSDA (48 per 100,000), as in 2014, as well as the Okanagan HSDA (29 per 100,000) in 2015.

The highest age-specific incidence rates in 2015 were in infants <1 year old and pre-teens/teens (10-14 years old), both at 102 per 100,000 (Figure 28.3). Lower incidence was observed in pre-school-aged children (1-4 years old) and younger school-aged children (5-9 years old), with incidence around 50 to 60 per 100,000 in these non-infant age groups. Lower age-specific incidence was observed in older teens (15-19 years old) at 38 per 100,000 following the Grade 9 booster dose and in adults ≥ 20 years old at <15 per 100,000. This age distribution is consistent with prior cyclical peaks emphasizing risk in young infants and pre-teens/teens.

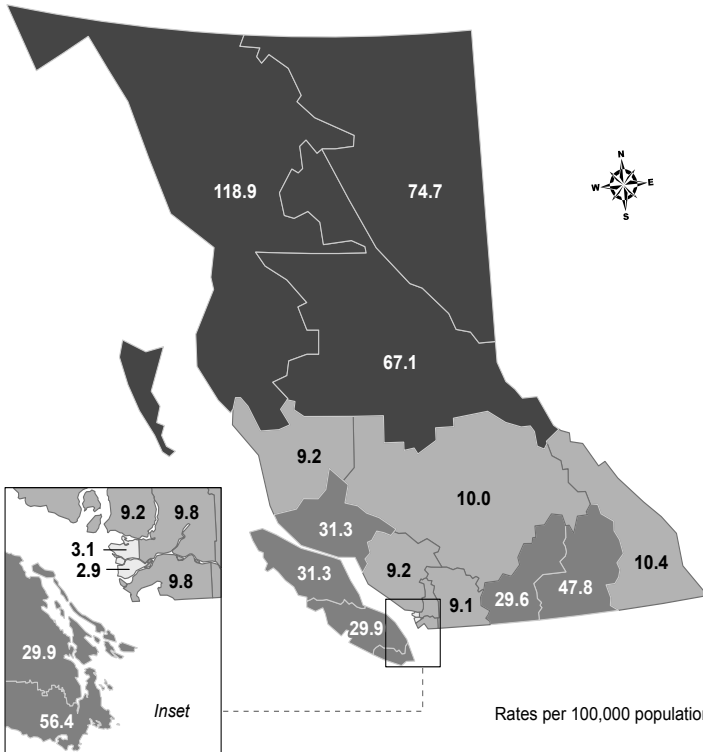


28.1 Pertussis Rates by Year, 2006-2015

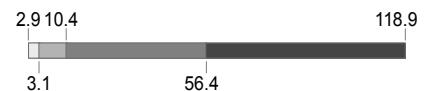


	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Reports	258	149	231	163	125	58	458	317	502	958
BC Rate	6.08	3.47	5.31	3.70	2.80	1.29	10.08	6.92	10.83	20.46
Canadian Rate	7.20	4.54	5.92	4.84	2.21	2.03	13.08	3.63	4.30	

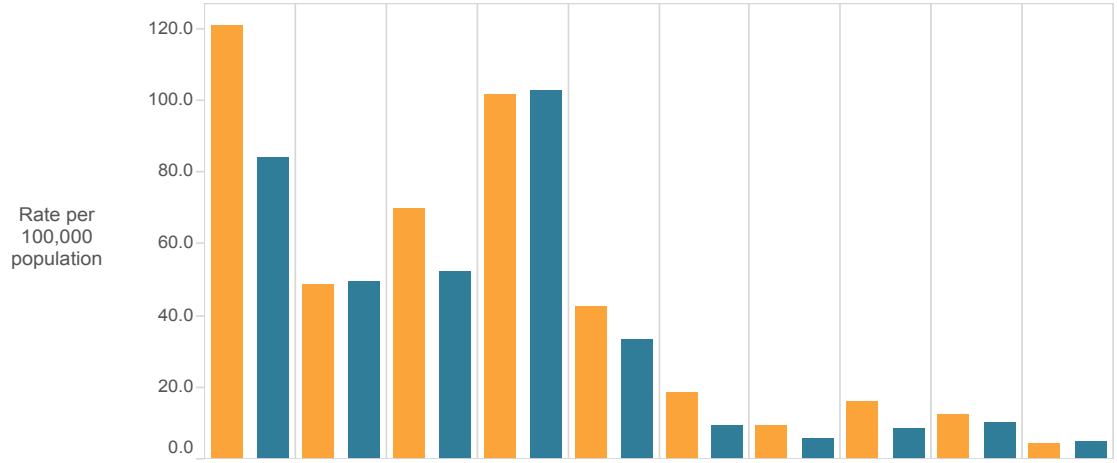
28.2 Pertussis Rates by HSDA 2014



ID	Health Service Delivery Area	Cases	Rate
11	East Kootenay	8	10.4
12	Kootenay Boundary	37	47.8
13	Okanagan	107	29.6
14	Thompson Cariboo Shuswap	22	10.0
21	Fraser East	27	9.1
22	Fraser North	64	9.8
23	Fraser South	78	9.8
31	Richmond	6	2.9
32	Vancouver	21	3.1
33	North Shore/Coast Garibaldi	26	9.2
41	South Vancouver Island	213	56.4
42	Central Vancouver Island	80	29.9
43	North Vancouver Island	38	31.3
51	Northwest	86	118.9
52	Northern Interior	93	67.1
53	Northeast	52	74.7



28.3 Pertussis Rates by Age Group and Sex, 2015



		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Reports	Female	26	42	77	113	55	29	15	51	85	27
	Male	19	45	62	121	46	16	9	26	68	26
	Total	45	87	139	234	101	45	24	77	153	53
BC Rate	Female	120.82	48.66	69.82	101.63	42.58	18.76	9.42	16.09	12.51	4.59
	Male	84.17	49.47	52.12	102.36	33.33	9.43	5.68	8.37	10.30	4.84
	Total	102.06	49.07	60.63	102.01	37.80	13.88	7.55	12.27	11.42	4.71