

Haemophilus influenzae type b in BC 2020-2023

Since 2020, an increase of invasive *Haemophilus influenzae* type b (Hib) has been observed among adults in British Columbia (BC) (Table 1). In the years 2017-2019, only three cases were reported annually in all ages.

Table 1: Reported invasive *Haemophilus influenzae* type b cases in BC 2020-2023, by age group

Year	Number of pediatric cases (<5 years)	Number of adult cases (18+ years)*	All Ages
2020	0	6	6
2021	0	9	9
2022	1	20	21
2023	1	16	17
All Years	2	51	53

*No cases were reported in the 5 to 17 year age group.

Source: Panorama (the public health information system for notifiable disease reporting in BC), data extracted January 16th, 2024.

In 2020 and 2021, the highest incidence rates were observed in Northern Health Authority (0.67 and 1.33 cases per 100,000 population, respectively) (Figure 1). For comparison, the incidence rate in BC for 2020 and 2021 was 0.12 and 0.17 cases per 100,000 population, respectively. In 2022, the highest rate was in Island Health Authority (0.91 cases per 100,000 population) compared with 0.39 cases per 100,000 population in BC overall. In 2023, the rate for Island Health Authority declined to 0.22 cases per 100,000 population, which was below the overall BC rate (0.29 cases per 100,000 population). While the rate in Northern Health Authority also decreased in 2023, it was the highest in BC (0.65 cases per 100,000 population), as observed in three of the four years described in this report.

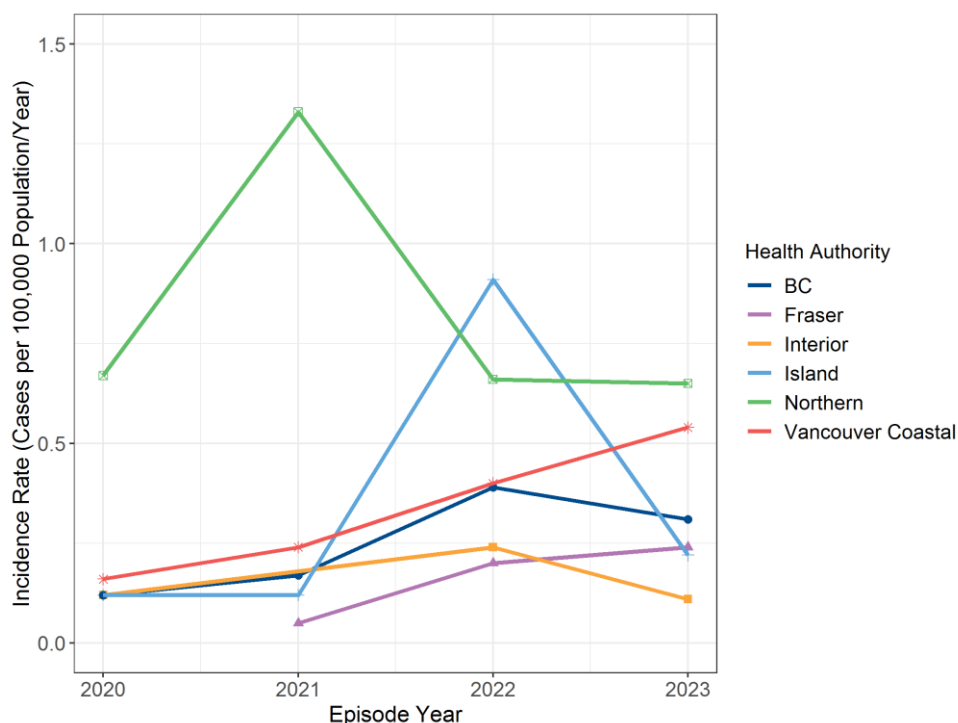


Figure 1: *Haemophilus influenzae* type b incidence rate per 100,000 population 2020-2023 by Health Authority and in BC

Based on typing by the National Microbiology Laboratory, all of the Hib isolates from 2020 through 2023 were biotype I. Assessment of bacterial relatedness through multilocus sequence typing has found that the most common sequence type (ST) in BC since 2011 has been ST231, followed by the closely related ST6. From 2020 to 2023, 73.6% (39/53) of cases were ST231 (Figure 2), including all typed isolates from Vancouver Coastal Health and Island Health. One ST92 case was reported in a child in Interior Health in Q2 of 2022. All Northern Health cases in this 4-year time period have been ST6, including a pediatric case Q2 of 2023. ST6 also accounted for two sporadic adult cases in the Interior and one in Fraser.

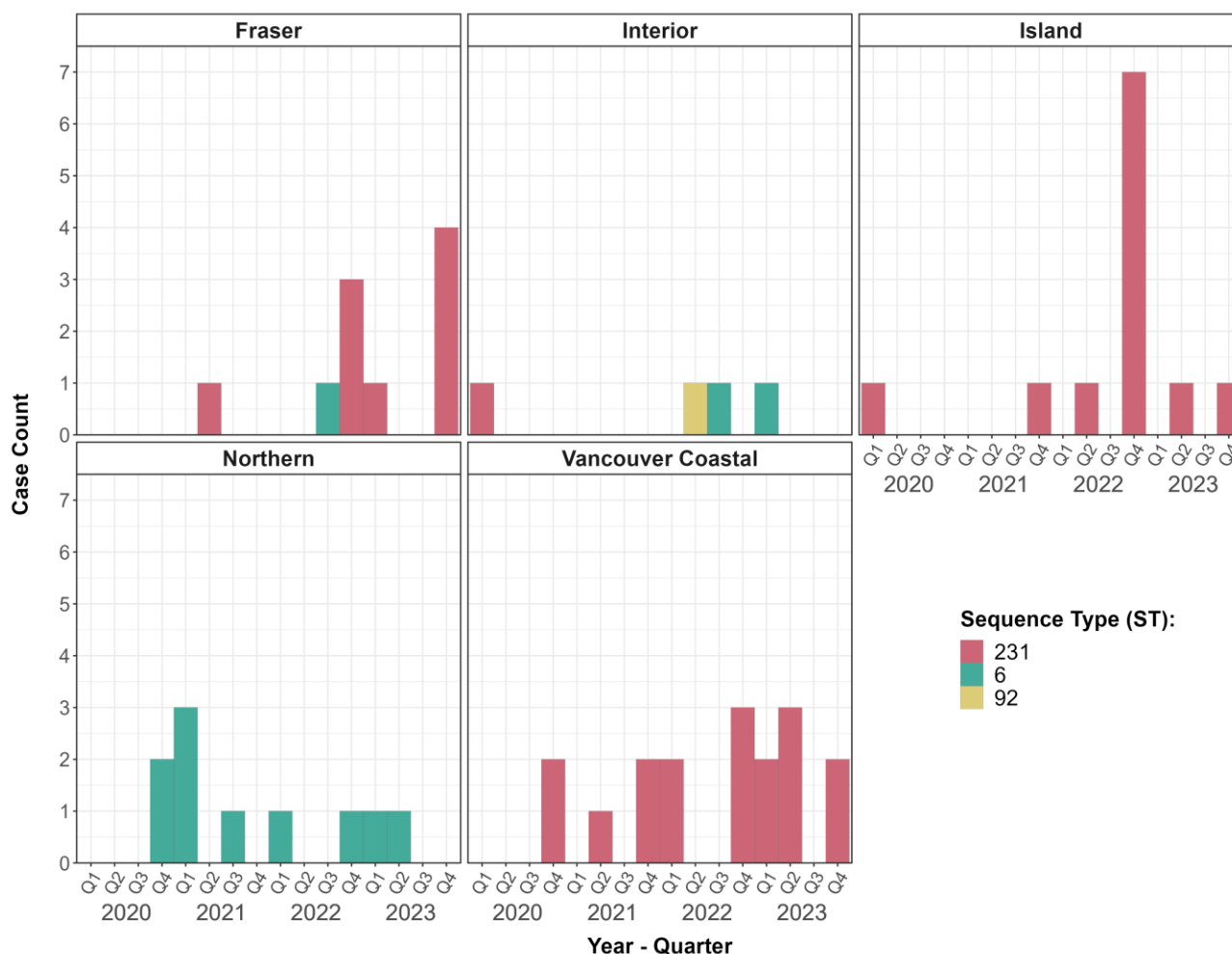


Figure 2: Hib cases by date of onset, sequence type, and health authority, 2020-2023

The majority of adult cases in this 4-year period have been male (67%, 34/51 adult cases), with a median age of 43 years (range 26 – 72). One of the pediatric cases was aged 4 years and unvaccinated, while the other was <3 months old and too young to be fully immunized. In 2020-23, the highest numbers of cases reported at the Health Service Delivery Area (HSDA) level were in Vancouver (n = 17) and Northern Interior (n = 9) (Table 2). In 2023, there were five cases reported in Q1 (two in Vancouver and one in each of Burnaby, Trail, and Prince George) (Figure 3); another five cases in Q2 (three in Vancouver and one in each of Nanaimo and Prince George); no cases reported in Q3; and seven cases reported in Q4 (two in each of Vancouver and Abbotsford, and one in each of Burnaby, New Westminster, Nanaimo). None of the cases in 2023 reported contact with a known Hib case. Furthermore, none were fatal but a total of five cases in 2023 required intensive care.

Housing instability was reported for the majority of adult Hib cases in 2022 (70%, 14/20) and 2023 (75%, 12/16). Unstable housing was reported in a far smaller proportion of cases in prior years but may have been incompletely reported, as enhanced surveillance for Hib was only implemented following outbreak activity in late 2022.

From 2020-2023, more than half of adult cases (67%) were in people who use substances (27% in people with alcohol use disorder; 57% in people that use other substances). This includes two cases in 2023 who did not report housing instability. Additionally, 11% of cases reported living with an HIV infection.

From 2020-2023, the most common presentations for adult invasive Hib infections were shortness of breath, cough or fever (37%, 35% and 29% of all cases, respectively). Bacteremia was reported in 45% and pneumonia in 31% of all cases. Epiglottitis was reported for four cases (8%) in total (2 in 2021, 1 in 2020, 1 in 2023); septic arthritis was reported for one case in each of 2021 and 2023; and meningitis in one case in 2022.

The majority of adult Hib cases were admitted to hospital (84%, 43/51). Of those 43 hospital admissions, 16 were also admitted to an intensive care unit. There were three non-hospitalized cases in 2023 (all of whom received outpatient care) and another three non-hospitalized cases in 2022 (two cases were seen as outpatients and one died prior to receiving care). Throughout these 4 years, there were two fatal cases in 2022, with no fatal outcomes reported in 2020, 2021, or 2023.

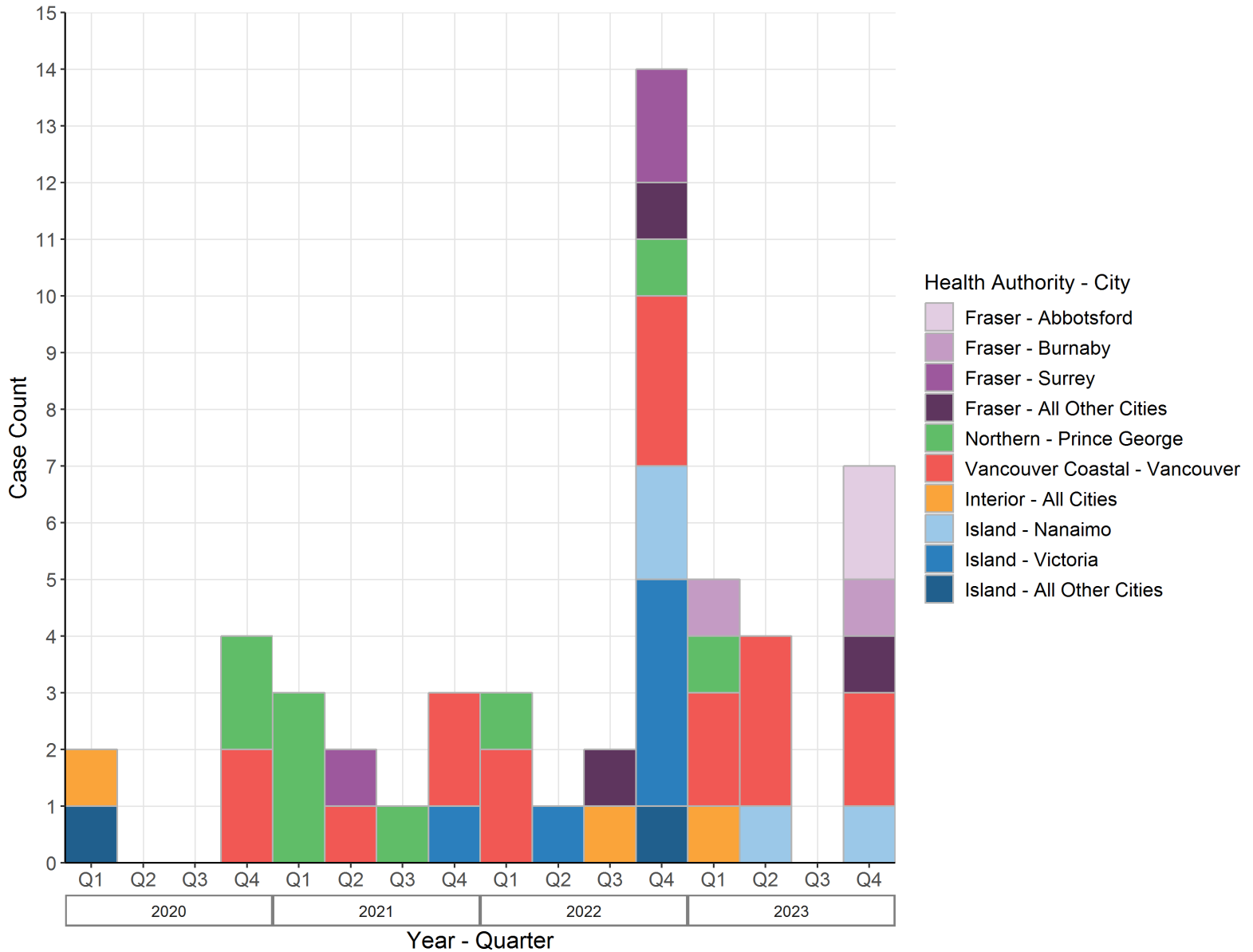
Immunization against Hib in adults is recommended for those with specific immunocompromising or medical conditions outlined in the BCCDC Immunization Manual, Part 2: [Individuals at High Risk for Vaccine Preventable Disease](#). Only one of the 51 reported adult cases was known to have been fully vaccinated as an adult.

Table 2: Characteristics of adult *Haemophilus influenzae* type b cases in BC 2020-2023

	2020	2021	2022	2023	All Years
Total adult cases	6	9	20	16	51
Age (years)					
Median	41.5	39	42.5	47.5	43
Min	36	26	27	27	26
Max	66	72	71	62	72
Sex					
Female	1 (16.7%)	4 (44.4%)	6 (30%)	6 (37.5%)	17 (33.3%)
Male	5 (83.3%)	5 (55.6%)	14 (70%)	10 (62.5%)	34 (66.7%)
Health Service Delivery Area (HSDA)					
Central Vancouver Island	1 (16.7%)	-	3 (15%)	2 (12.5%)	6 (11.8%)
Fraser East	-	-	2 (10%)	2 (12.5%)	4 (7.8%)
Fraser North	-	-	-	3 (18.8%)	3 (5.9%)
Fraser South	-	1 (11.1%)	2 (10%)	-	3 (5.9%)
Kootenay Boundary	-	-	-	1 (6.3%)	1 (2%)
Northern Interior	2 (33.3%)	4 (44.4%)	2 (10%)	1 (6.3%)	9 (17.6%)
Okanagan	1 (16.7%)	-	-	-	1 (2%)
South Vancouver Island	-	1 (11.1%)	5 (25%)	-	6 (11.8%)
Thompson Cariboo Shuswap	-	-	1 (5%)	-	1 (2%)
Vancouver	2 (33.3%)	3 (33.3%)	5 (25%)	7 (43.8%)	17 (33.3%)
Risk factors*					
Experiencing homelessness / unstable housing	1 (16.7%)	3 (33.3%)	14 (70%)	12 (75%)	30 (58.8%)
Substance use - alcohol	2 (33.3%)	2 (22.2%)	3 (15%)	7 (43.8%)	14 (27.5%)
Other substance use (smoking, injection, or inhalation)	3 (50%)	5 (55.6%)	9 (45%)	12 (75%)	29 (56.9%)
HIV infection	2 (33.3%)	1 (11.1%)	2 (10%)	1 (6.3%)	6 (11.8%)
Hospitalization/Death					
Hospitalized	5 (83.3%)	8 (88.9%)	17 (85%)	13 (81.3%)	43 (84.3%)
Admitted to ICU	2 (33.3%)	3 (33.3%)	7 (35%)	4 (25%)	16 (31.4%)
Deceased	-	-	2 (10%)	-	2 (3.9%)

*Risk factors are based on reporting in Panorama and may be incomplete.

Percentages are calculated based on annual counts for each year. Some categories are not mutually exclusive, e.g., risk factors, hospitalization/ death.



Cities with more than one case reported are listed in the legend, all other cities are grouped within their Health Authority. Northern and Vancouver Coastal only reported cases in Prince George and Vancouver, respectively.

Figure 3: Hib cases by date of onset and Health Authority-City: 2020-2023

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