

Summary of *Haemophilus influenzae* type b in BC 2020-2022 (to December 29, 2022)

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 in total had been reported annually.

Table 1: Reported invasive *Haemophilus influenzae* type b cases in BC 2020-2022, by age group (to December 29th 2022)

Year	Number of pediatric cases (<5 years)	Number of adult cases	Total
2020	0	5	5
2021	0	9	9
2022	1	19	20
Total	1	33	34

In 2020 and 2021, the highest case incidence rates were observed in Northern Health Authority (Figure 1). In 2022, the highest rate was in Vancouver Island Health Authority (0.79 cases per 100,000 population compared with 0.38 cases per 100,000 population in BC overall).

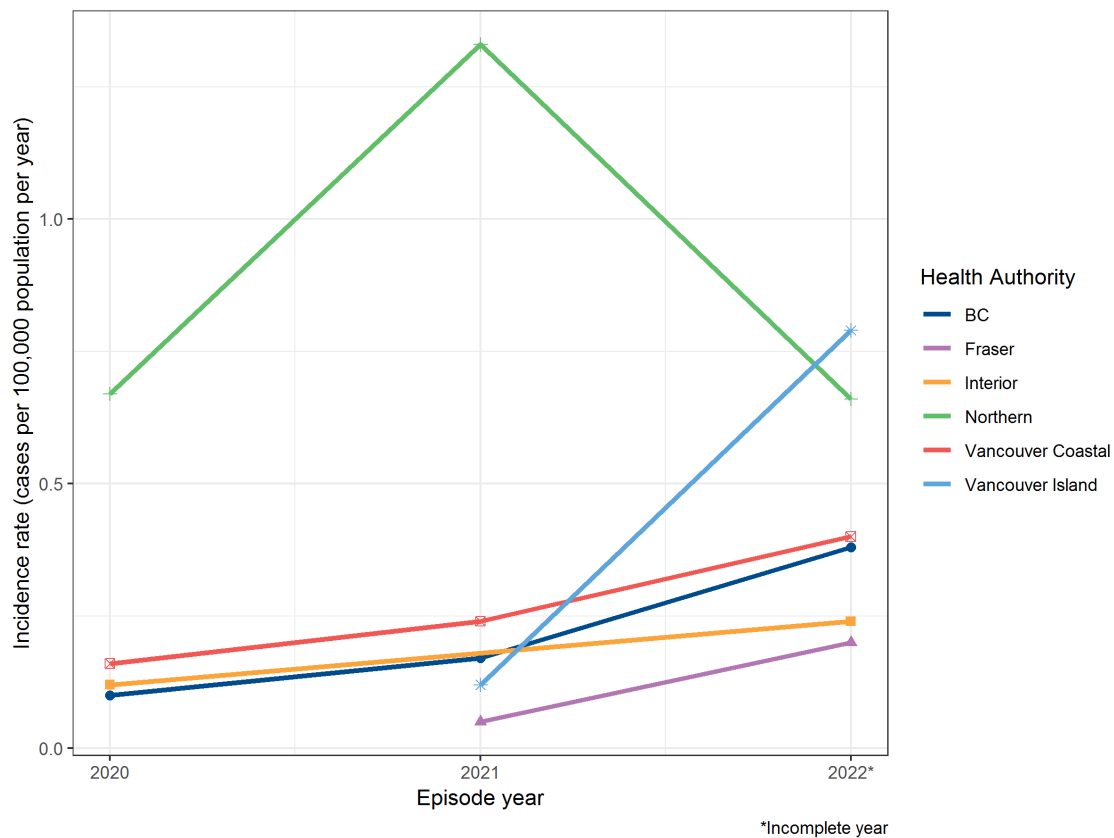


Figure 1: *Haemophilus influenzae* type b incidence rate of per 100,000 population from 2020-2022 by Health Authority and in BC

Based on typing by the National Microbiology Laboratory, all of the Hib isolates from 2020 through December 29 2022 were biotype I. Assessment of bacterial relatedness through multi-locus sequence typing has found that the most common sequence type (ST) in BC since 2011 has been ST-231, followed by the closely related ST-6. For the cases from 2020 to 2022, 69% (22/32) were ST-231 (Figure 2), including all isolates from Vancouver Island and Vancouver Coastal Health and all isolates with available results in Q4 of 2022. ST-6 accounted for the remaining nine adult cases in BC from 2020-2022 and all cases in Northern Health. The pediatric case in 2022 was ST-92. Typing results are unknown for two recent 2022 cases.

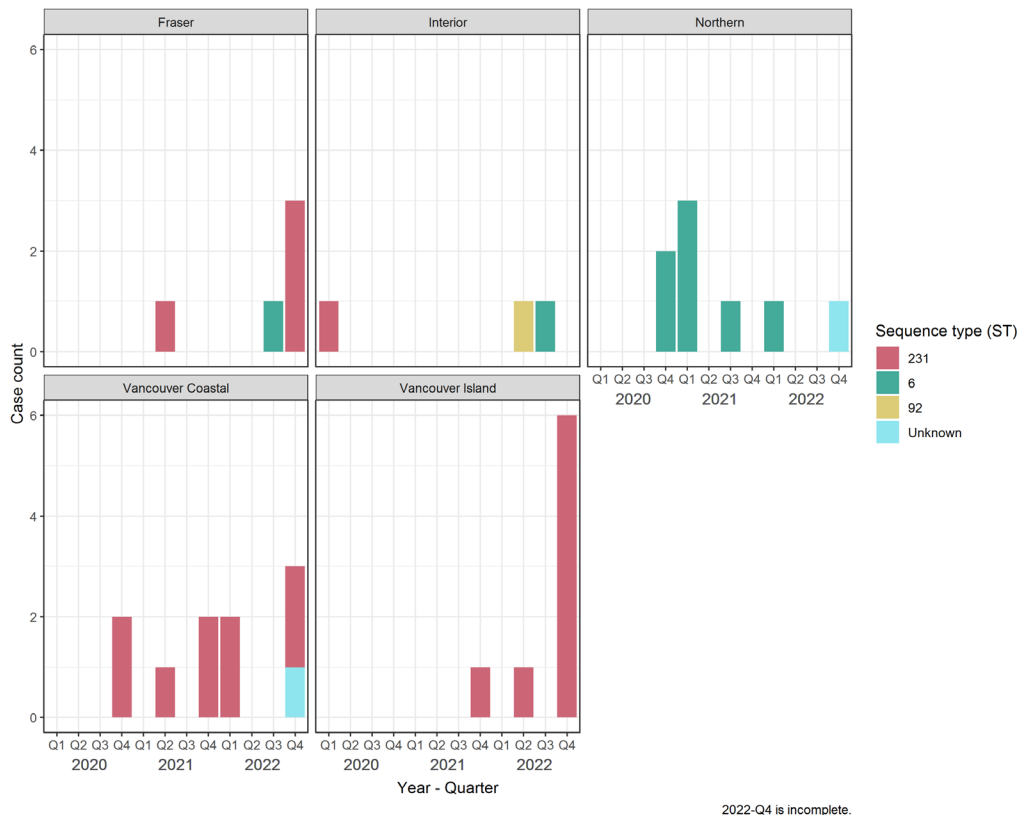


Figure 2: Sequence type data from 2020-2022, by health authority

The majority of adult cases in this 3-year period have been male (67%, 22/33) and the median age of cases was 43 years (range 26 – 72). The one pediatric case in Table 1 was aged 4 years and unvaccinated. In 2020-22, by Health Service Delivery Area (HSDA) the highest number of cases were reported in Vancouver (n = 10) and Northern Interior (n = 8) (Table 2). More recently, six cases were reported in Vancouver Island, including four cases in Victoria and two cases from communities on the east coast of Central Vancouver Island (Figure 3), with episode date range from October 6 to November 23 2022. One of these cases had a fatal outcome, and three required ICU care. Five cases were experiencing homelessness/unstable housing, with no direct epidemiologic links identified between cases, although two of the four Victoria cases utilized settings serving homeless populations.

Housing instability was reported for the majority of adult Hib cases in 2022 (79%, 15/19). Unstable housing was reported in a far smaller proportion of cases in prior years but may have been incompletely reported in the public health information system. From 2020-2022, more than half of cases were in people who use substances (21% in people with alcohol use disorder; 48% in people that use other substances) and about

one-fifth of cases had underlying HIV and/or HCV infections (18% of cases were in people living with HIV infection; 24% of cases were in people living with HCV infection).

From 2020-2022, the most common presentations for adult invasive Hib infections were shortness of breath, cough or fever (42%, 36% and 30% of all cases). Pneumonia was reported as the clinical presentation for seven cases, including five cases in 2022. Epiglottitis was reported for a single case each year from 2020 to 2022, septic arthritis for a single case in each of 2021 and 2022 and meningitis in one case in 2022.

The majority of the adult Hib cases were admitted to hospital (88%, 29/33). Of the three non-hospitalized cases in 2022, two cases were seen as outpatients only and one died prior to receiving care. Two 2022 cases were fatal, with no fatal outcomes reported in 2020 and 2021.

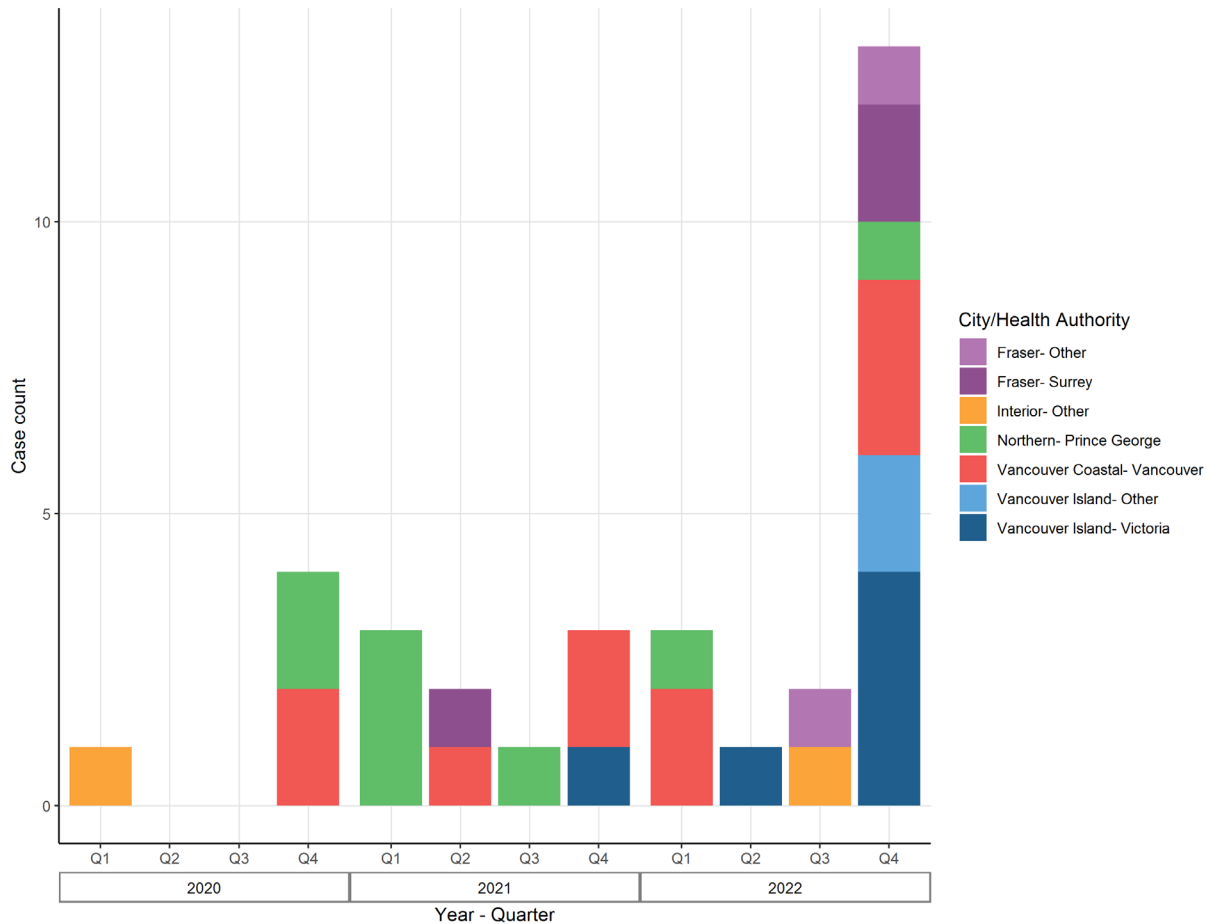
Immunization against Hib in adults is recommended for certain immunocompromising or other medical conditions outlined in the BCCDC Immunization Manual, Part 2: [Individuals at High Risk for Vaccine Preventable Disease](#). Only one of the reported adult cases was known to have been vaccinated as an adult.

Table 2: Characteristics of adult *Haemophilus influenzae* type b cases in BC 2020-2022 (to December 29 2022)

	2020	2021	2022 (to December 29)	Total
Total adult cases	5	9	19	33
Age				
Median	43	39	43	43
Min	36	26	27	26
Max	66	72	71	72
Gender				
Male	4 (80%)	5 (56%)	13 (68%)	22 (67%)
Female	1 (20%)	4 (44%)	6 (31%)	11 (33%)
Health Service Delivery Area (HSDA)				
Fraser East			2 (11%)	2 (6%)
Fraser South		1 (11%)	2 (11%)	3 (9%)
Okanagan	1 (20%)			1 (3%)
Thompson Cariboo Shuswap			1 (5%)	1 (3%)
Northern Interior	2 (40%)	4 (44%)	2 (11%)	8 (24%)
Vancouver	2 (40%)	3 (33%)	5 (26%)	10 (30%)
Central Vancouver Island			2 (11%)	2 (6%)
South Vancouver Island		1 (11%)	5 (26%)	6 (18%)
Risk factors*				
Experiencing homelessness/ unstable housing	1 (20%)	3 (33%)	15 (79%)	19 (58%)
Substance use - alcohol	2 (40%)	2 (22%)	3 (16%)	7 (21%)
Other substance use (smoking, injection or inhalation)	2 (40%)	5 (55%)	9 (53%)	16 (48%)
HIV infection	2 (40%)	1 (11%)	3 (16%)	6 (18%)
Hepatitis C infection	1 (20%)	3 (33%)	4 (21%)	8 (24%)

Outcomes				
Hospitalized	5 (100%)	8 (89%)	16 (84%)	29 (88%)
Admitted to ICU	2 (40%)	3 (33%)	7 (37%)	12 (36%)
Deceased			2 (11%)	2 (6%)

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



2022-Q4 is incomplete.
Cities in which more than one case were reported have been identified, all other were grouped within their HSDA.

Figure 3: Epidemic curve of *Haemophilus influenzae* type b cases by HA or city, 2020-2022. City shown where more than one case reported in the same city over the period.

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