

## Vaccine-Preventable and Invasive Bacterial Diseases Quarterly Report 2018 Quarter 1: January 1 – March 31, 2018

### Invasive Group A Streptococcal Disease

The high rates of invasive group A streptococcal disease (iGAS) observed in 2016-2017<sup>1</sup> continued in the first quarter of 2018. To date, 143 confirmed iGAS cases were reported in British Columbia (BC), with a year-to-date (YTD) incidence rate of 2.9 cases per 100,000 population (Figure 1). This exceeds the numbers of cases (36-103 cases) and incidence rates (0.8-2.1 cases per 100,000 population) observed in the first three months of the previous ten years. Similar trends were observed across all Health Authorities (Figure 2).

No unusual clustering by onset date or age group was identified in the provincial data set.

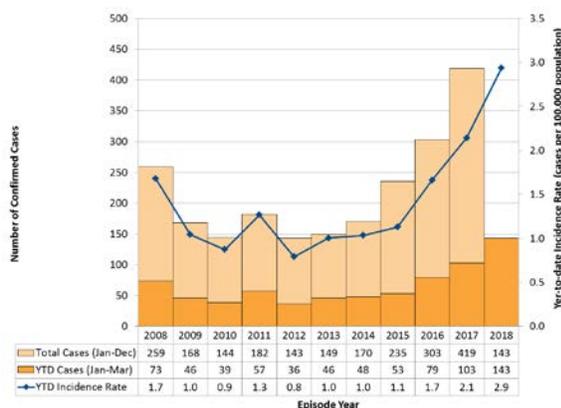


Figure 1. iGAS cases and year-to-date (YTD) incidence rates by year, BC, 2008–2018

The BCCDC Public Health Laboratory provided National Microbiology Laboratory *emm* typing results for 103 of the cases reported to date in 2018. The three most common *emm* types were *emm1* (n=27; 26% of known *emm* types), *emm76* (n=16; 16%) and *emm81* (n=12; 12%). The *emm* distribution varies by Health Authority (Figure 3). No single *emm* type explains the increased incidence.

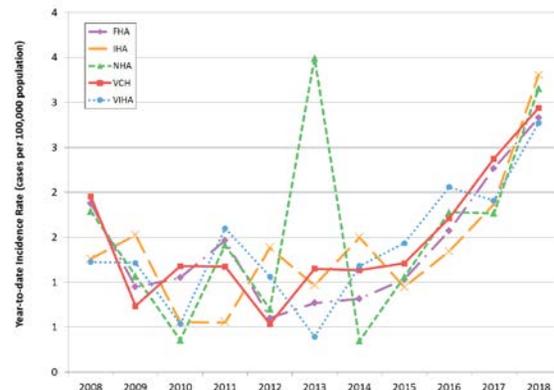


Figure 2. iGAS year-to-date (January 1-March 31) incidence by health authority, BC, 2008-2018

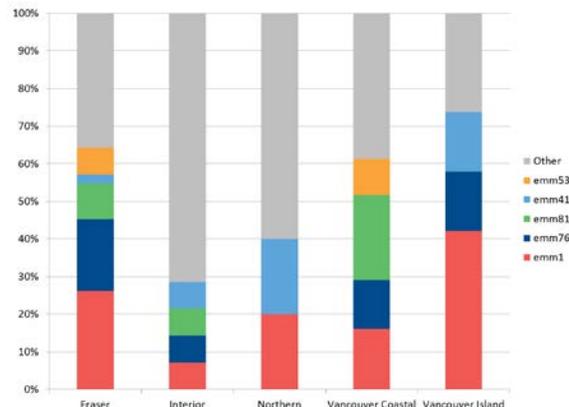


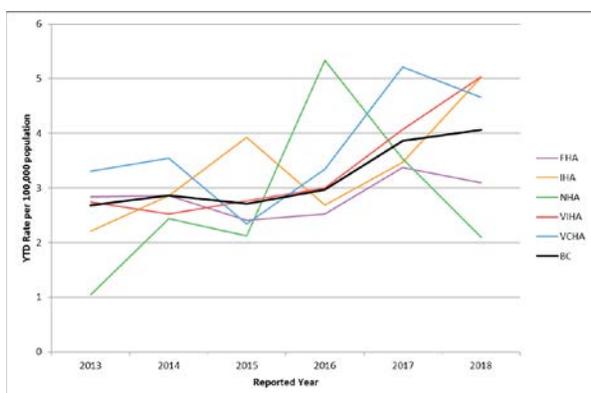
Figure 3. iGAS *emm* type distribution by health authority, BC, January-March 2018

Case characteristics varied by *emm* type. *Emm76* and *Emm81* cases were more likely to report homelessness/under-housing (50% and 58%, respectively) and injection drug use (58% each). *Emm1* cases were more likely to have severe presentations, including toxic shock syndrome and death, with a case fatality rate of 22%.

<sup>1</sup> BC Centre for Disease Control. Invasive Group A Streptococcal Disease (iGAS) in British Columbia, 2017 Annual Summary. Available online at: <http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Immunization/Coverage/BC%20iGas%202017%20Epi%20Summary.pdf> [Accessed: April 20, 2018].

### Invasive Pneumococcal Disease

In British Columbia (BC) an increased count and rate of invasive pneumococcal disease was noted in 2016<sup>2</sup> and continued in 2017 (data not published). During January to March 2018, 198 confirmed cases of invasive pneumococcal disease (IPD) were reported in BC. The year-to-date (YTD) incidence rate for the first quarter of 2018, 4.07 cases per 100,000 population, exceeded that of the YTD incidence rates during the same period in the last 5 years (Figure 4).



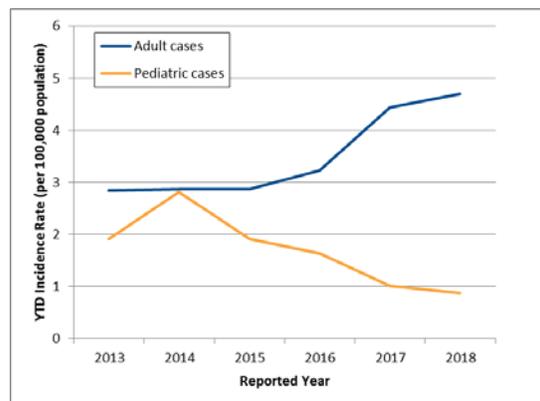
**Figure 4.** First quarter (Jan 1-March 31) year-to-date (YTD) incidence rates of invasive pneumococcal disease, BC, 2013-2018

The number of pediatric (<17 years of age) cases reported during the first three months of 2018 was the lowest reported in the previous five years (8-22, median 15), while the number of adult cases reported was the highest (Table 1, Figure 5).

**Table 1.** Number of confirmed cases of invasive pneumococcal disease by age group, BC, first quarter 2013-2018

	2013	2014	Jan - March			2018
			2015	2016	2017	
<b>Pediatric, &lt;17 years</b>	15	22	15	13	8	7
<b>Adult, ≥17 years</b>	108	111	112	128	178	191
<b>All ages</b>	123	133	127	141	186	198

<sup>2</sup> BC Centre for Disease Control. British Columbia Annual Summary of Reportable Diseases, 2016, Pneumococcal disease (invasive). Available online at: <http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Epid/Annual%20Reports/Pneumococcal%20Disease%20%28invasive%29.pdf> [Accessed May 2, 2018]



**Figure 5.** First quarter (Jan 1-March 31) year-to-date incidence rates of pediatric and adult invasive pneumococcal disease, BC, 2013-2018

BC has had a routine infant pneumococcal vaccine program since 2003. Publicly funded immunization of adults with pneumococcal vaccine in BC is available for those at high risk of pneumococcal disease and those 65 years of age and older.<sup>3</sup>

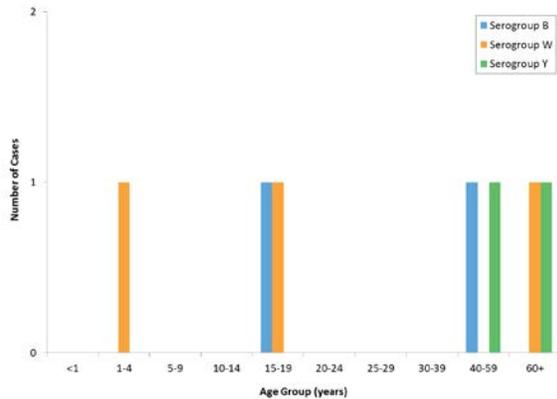
The BCCDC Public Health Laboratory provided National Microbiology Laboratory serotype results for cases. Among adult cases with serotype data available, four serotypes accounted for nearly half of cases during the first three months of 2018: serotype 4 (15.8%), serotype 12F (12%), serotype 7F (12%), and serotype 3 (9.3%). The proportion of disease attributable to serotype 12F has increased from an annual average of 1.9% in the previous 5 years. Serotypes 4, 12F, 7F, and 3 are contained in the pneumococcal 23-valent polysaccharide vaccine indicated for adults 65 years of age and older, or those meeting defined indications.

### Invasive Meningococcal Disease

Six confirmed cases of invasive meningococcal disease (IMD) were reported in the first quarter of 2018; a seventh case was reported prior to the preparation of this report and is included in this summary. None of these cases were fatal. Three cases were serogroup W and two were each of serogroup B and serogroup Y (Figure 6). The serogroup W cases were from the Fraser (2) and Vancouver Coastal (1) Health Authorities, the

<sup>3</sup> <http://www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual/immunization/biological-products>

serogroup B cases from the Fraser and Vancouver Island Health Authorities, and the serogroup Y cases from the Fraser Health Authority.



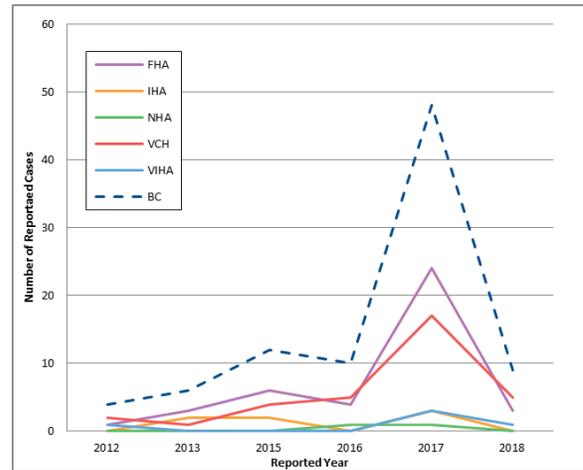
**Figure 6.** IMD cases by age group, BC, January-April 17, 2018

In late 2017, BC experienced an increase in serogroup W invasive meningococcal disease, with an outbreak among adolescents in the Interior Health Authority.<sup>4</sup> The outbreak strain was the ST-11 clonal complex. In addition to the four outbreak cases, there were eleven ST-11 clonal complex cases in three Health Authorities in 2017. Typing for the three serogroup W cases in 2018 is not yet available.

### Mumps

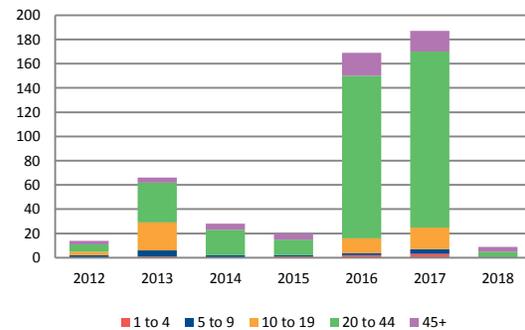
As of April 6, 2018 the year-to-date (YTD) count of mumps cases reported in British Columbia (BC) is nine (eight confirmed, one probable). This represents low incidence of mumps activity, in comparison to 2017 (48 cases reported in quarter 1). The incidence rate of mumps remains low in 2018, below 1.0 per 100,000 persons, with the highest case count occurring in 2017 (incidence rate of 3.9 per 100,000) since mumps resurgence in 2008. December 2017 saw a decline in cases that has continued into the first quarter of 2018. The 2018 cases occurred in Fraser (3), Northern (1), Vancouver Coastal (4), and Vancouver Island (1) (Figure 7). There was no significant clustering of cases.

<sup>4</sup> BC Centre for Disease Control. Three cases of meningococcal disease among adolescents in Interior Health. Available online at: <http://www.bccdc.ca/about/news-stories/news-releases/2017/meningococcal-disease> [Accessed: April 20, 2018].



**Figure 7.** Mumps cases by Health Authority, January-March, 2018

The characteristics of the nine cases follow past trends, with the majority of cases being in the age group eligible for one MMR dose (23-48 years old). All nine cases presented with parotitis (eight with bilateral parotitis), with no further complications or hospitalizations reported.



**Figure 8.** Mumps cases by age category, 2012-2018

One case received one documented dose of the MMR vaccine; the remaining cases had a verbal history of childhood vaccination or an unknown vaccination history. Three cases reported travel outside of Canada and two cases had a travel history within Canada, during their exposure period. BCCDC Public Health Laboratory provided National Microbiology Laboratory genotyping results for seven of the 2018 reported cases. Genotype G was reported for all seven cases, the predominant strain in Canada.

### Summary Table of Select Reportable Diseases

**Table 2.** Number and incidence of confirmed cases of select diseases by health authority, BC, January 1-March 31, 2018

Disease		Quarter 1 (January 1-March 31, 2018)					
		FHA	IHA	NHA	VCHA	VIHA	BC
<i>Haemophilus influenzae</i> , type a	Count	0	0	1	0	0	1
	Incidence*	0.0	0.0	0.4	0.0	0.0	0.0
<i>Haemophilus influenzae</i> , type b	Count	0	0	0	1	0	1
	Incidence*	0.0	0.0	0.0	0.1	0.0	0.0
<i>Haemophilus influenzae</i> , type e	Count	2	0	0	1	0	3
	Incidence*	0.1	0.0	0.0	0.1	0.0	0.1
<i>Haemophilus influenzae</i> , type f	Count	3	0	1	0	0	4
	Incidence*	0.2	0.0	0.4	0.0	0.0	0.1
<i>Haemophilus influenzae</i> , non-typeable	Count	4	1	0	2	1	8
	Incidence*	0.2	0.1	0.0	0.2	0.1	0.2
Invasive group A streptococcal disease	Count	52	25	9	35	22	143
	Incidence*	2.9	3.3	3.2	3.0	2.8	3.0
Invasive pneumococcal disease	Count	57	38	6	60	37	198
	Incidence*	3.2	5.0	2.1	5.1	4.7	4.1
Invasive meningococcal disease	Count	4	0	0	0	2	6
	Incidence*	0.2	0.0	0.0	0.0	0.3	0.1
Mumps	Count	3	0	1	4	1	9
	Incidence*	0.2	0.0	0.4	0.3	0.1	0.2
Pertussis	Count	30	5	1	20	43	99
	Incidence*	1.6	0.7	0.4	1.7	5.4	2.0

\* Incidence rate is calculated as the number of cases per 100,000 population.

**Note:** No cases were reported for the following diseases: diphtheria, tetanus, poliomyelitis, rubella and measles. Influenza surveillance data are provided in the British Columbia [Influenza Surveillance Reports](#).

### Additional BCCDC Reports

Influenza Surveillance Reports: <http://www.bccdc.ca/health-professionals/data-reports/communicable-diseases/influenza-surveillance-reports>

Influenza Infographics: <http://www.bccdc.ca/health-professionals/data-reports/communicable-diseases/influenza-infographics>

Invasive Group A Streptococcal Disease (iGAS) in British Columbia, 2017 Annual

Summary: <http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Immunization/Coverage/BC%20iGas%202017%20Epi%20Summary.pdf>

Mumps Epidemiological Summary, 2017: <http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Immunization/Coverage/Mumps%20Epidemiologic%20Summary%20BC%20202017%20Final%20May%202011%202018.pdf>

Reportable Diseases Dashboard: <http://www.bccdc.ca/health-info/disease-system-statistics/reportable-disease-dashboard>

Additional data and reports: <http://www.bccdc.ca/health-professionals/data-reports/communicable-diseases>

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