

## Streptococcal Disease (invasive) Group A

In 2017, BC experienced the highest rate of invasive group A streptococcal disease (iGAS) since the disease became reportable in 1997. This increasing incidence began in 2015. In 2017, 420 confirmed iGAS cases were reported, with an incidence rate of 8.7 cases per 100,000 population. In the previous ten years, annual incidence rates ranged from 3.1 to 6.4 (median=3.9) cases per 100,000 population.

Fifty-eight percent of cases were male. Cases ranged in age from 0 to 95 years (median 49 years). In the previous ten years, the age range of cases was 0-104 years (median 46 years). The highest incidence rates were in the 40-59 year age group, followed by the 30-39 and 60+ year age groups.

Cases occurred in all Health Service Delivery Areas, with incidence rates by these 16 geographic areas ranging from 4.0 to 19.7 cases per 100,000 population. The highest incidence rate was in the Northwest HSDA with 14 cases aged 15-67 years and seven different *emm* types identified. The second highest incidence rate, and the largest number of cases, was in Vancouver HSDA, with 101 cases aged 0-90 years and 16 different *emm* types identified.

One in three cases had homelessness/under-housing and/or injection drug use as a risk factor. Over half had predisposing wounds or skin infections.

A large proportion of cases (35%) had severe clinical presentations (streptococcal toxic shock syndrome, soft tissue necrosis, meningitis, pneumonia or death). In the previous ten years, 18-35% (median 28%) of cases were severe. While more than 70% of the severe cases were over 40 years of age, there were eight severe cases in children under 5 years old.

Despite a high proportion of severe cases, the 2017 case fatality rate (4.0%) was low compared to the previous ten years (range 6.0-13.5%, median 7.4%). Fifteen of the 17 deaths in 2017 were in adults over 40 years old; the remaining 2 fatal cases were in children under 5.

Three cases of puerperal fever were reported in 2017. All three pregnancies resulted in live births and the infants were not affected.

Isolates from 360 of the 420 confirmed cases were typed by the National Microbiology Laboratory. The most common *emm* types were types 1 (21%), 76 (13%) and 101 (10%). This is a slight shift from 2017, when the most common *emm* types were types 82 (20%), 101 (17%) and 1 (12%).

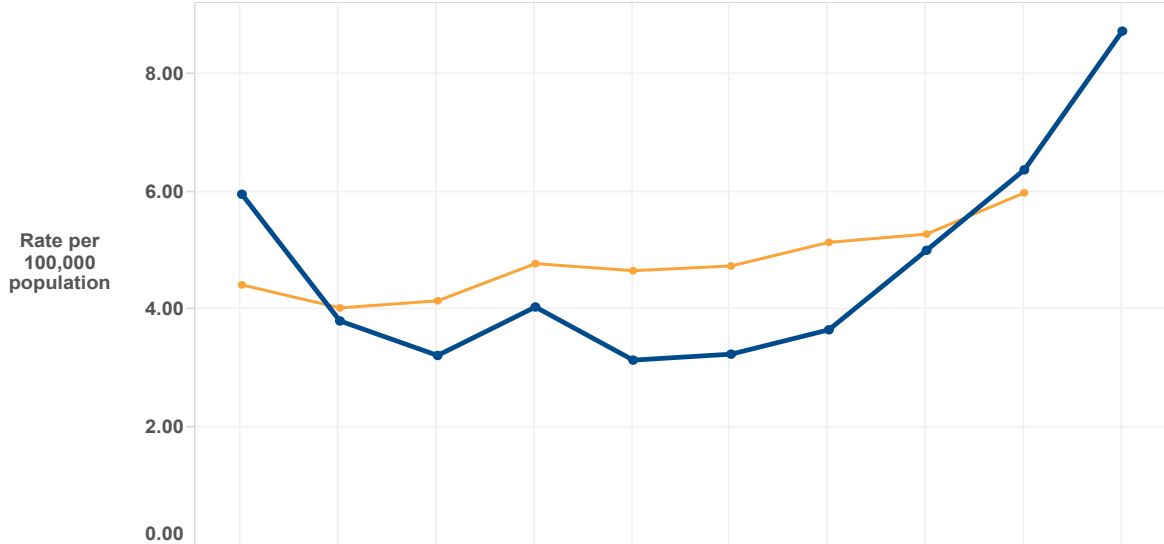
Two iGAS clusters were investigated in 2017. The Interior Health Authority investigated increased iGAS rates between November 2016 and January 2017. While a large proportion of cases reported homelessness or contact with shelters in Kelowna or Kamloops, multiple *emm* types were detected among cases, indicating that the cases were not related. Two pediatric cases of iGAS were identified in children from the same elementary school classroom in Vancouver Coastal Health. Isolates from both cases were typed as *emm* 1 and were determined to be related by whole genome sequence analysis.

The *emm* type distribution varied by Health Authority. Case risk factor profiles varied by *emm* type. Large proportions of *emm* 101 and *emm* 76 cases reported homelessness/under-housing, injection drug use, skin infections and wounds. The highest case fatality rate was in those with *emm* 76. Sixteen of the 28 cases aged 0-14 years with known *emm* types were *emm* 1. Cases with *emm* 1 were more likely to have severe presentations than other *emm* types.

Additional detail is available in the Invasive Group A Streptococcal Disease (iGAS) in British Columbia 2017 Annual Summary report available at <http://www.bccdc.ca/health-professionals/data-reports/communicable-diseases>.

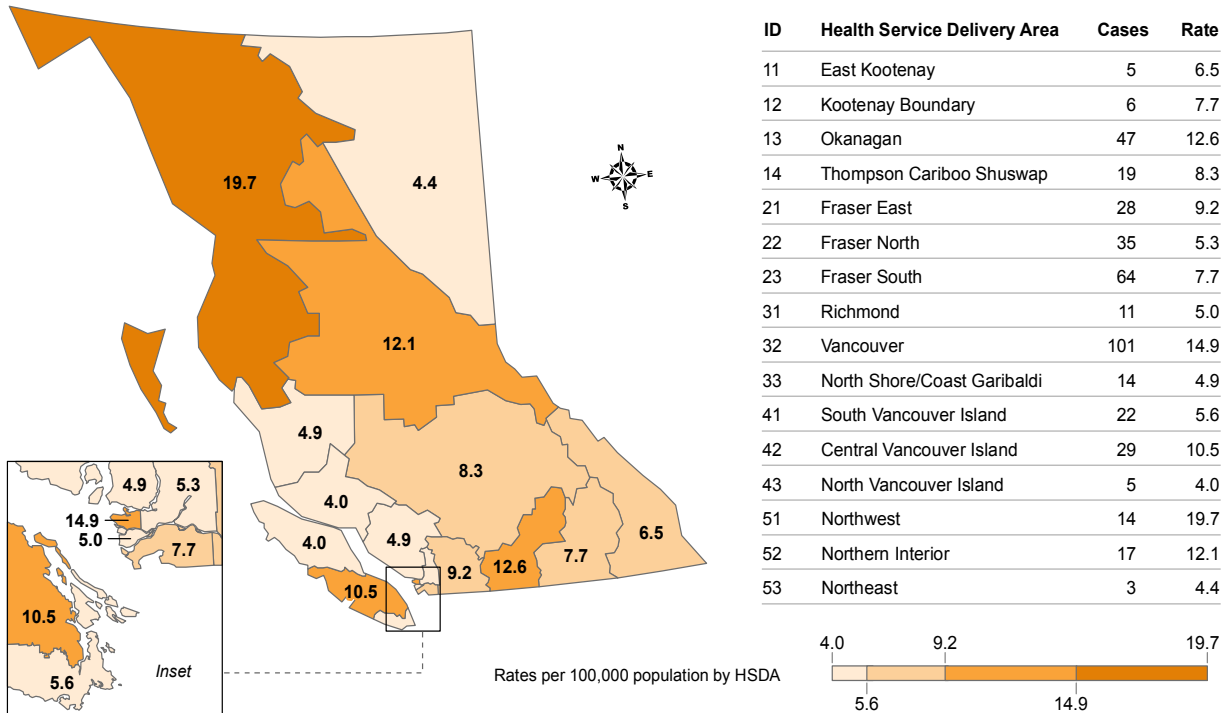


### 3.1 Streptococcal Disease (invasive) Group A Rates by Year, 2008-2017

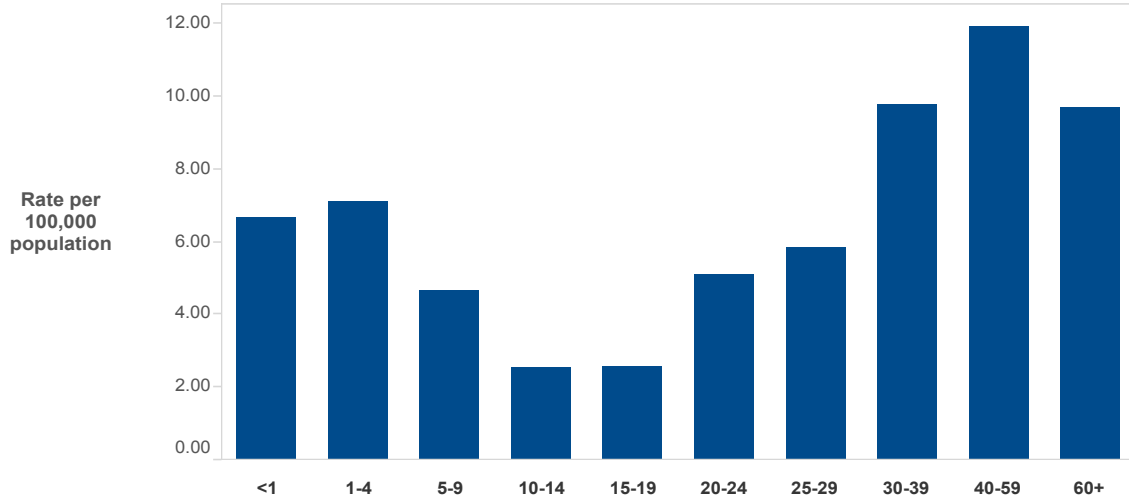


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Reports	259	168	144	182	143	149	170	235	303	420
BC Rate	5.95	3.81	3.22	4.05	3.15	3.25	3.66	5.01	6.37	8.72
Canada Rate	4.42	4.03	4.15	4.78	4.66	4.74	5.14	5.28	5.98	

### 3.2 Streptococcal Disease (invasive) Group A Rates by HSDA, 2017



### 3.3 Streptococcal Disease (invasive) Group A Rates by Age Group, 2017



		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
<b>Reports</b>	<b>Female</b>	3	4	3	3	1	12	9	27	63	49
	<b>Male</b>	0	9	8	3	6	5	10	37	96	68
	<b>Total</b>	3	13	11	6	7	17	19	65	161	118
<b>BC Rate</b>	<b>Female</b>	13.77	4.49	2.64	2.64	0.76	7.57	5.57	8.17	9.32	7.77
	<b>Male</b>	0.00	9.59	6.56	2.47	4.30	2.89	6.10	11.43	14.66	11.83
	<b>Total</b>	6.69	7.11	4.67	2.55	2.58	5.13	5.84	9.94	12.10	9.79