E.coli (shigatoxigenic)

Shigatoxigenic *E. coli* (STEC), also known as verotoxigenic *E. coli* and enterohemorrhagic *E. coli*, causes the most serious *E. coli* infections which can lead to hemolytic uremic syndrome (or kidney failure) and death.

In 2017, 176 cases of STEC infection were reported of which 24.1% were associated with international travel. The incidence rate (3.65/100,000) has increased since 2015. Annual peaks in STEC incidence are usually associated with large or multiple outbreaks, of which four occurred in 2017. In addition, changes in laboratory tests used in BC in the last few years have led to an increase in the rate of *E. coli* non-O157 which has also contributed to the overall increased incidence.

Two *E. coli* O121 outbreaks in 2017 were associated with contaminated flour; one was a national outbreak (PHAC 2017) which included 13 BC cases and the other was a provincial outbreak (BCCDC 2017) which included 5 BC cases. An *E. coli* O103 outbreak affecting 5 BC cases was believed to be foodborne but the specific source was not identified. An *E. coli* O157 outbreak affecting 2 cases was linked to an agricultural facility.

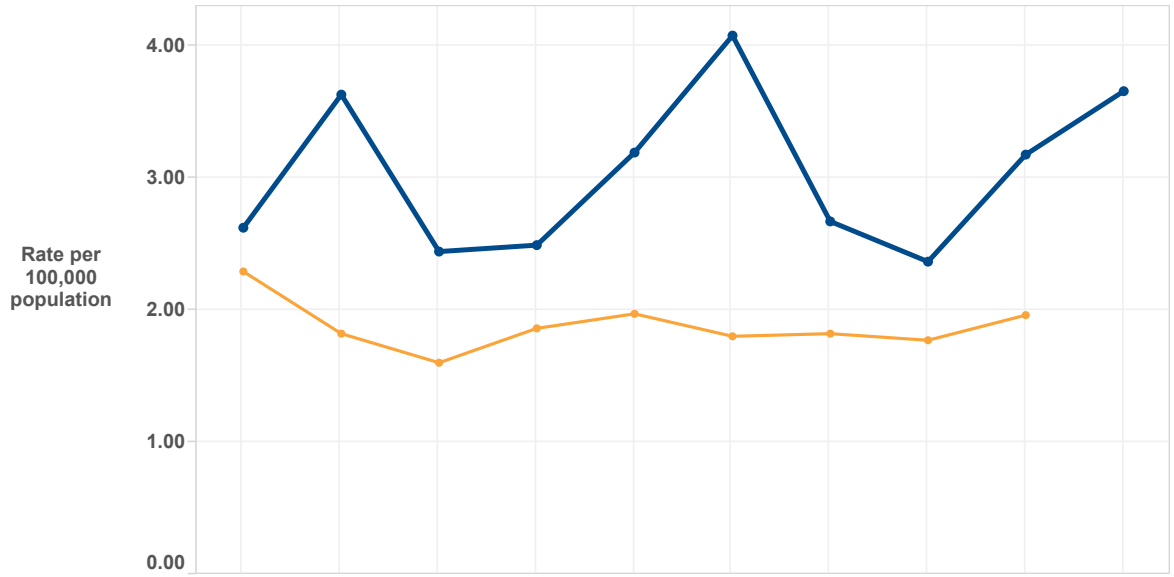
The incidence was highest among children 1-4 years of age. This is similar to other enteric diseases and is likely due to lower immunity in young children as well as behaviours that increase the risk of infection (e.g., use of diapers). Cases were reported in all health authorities with the highest rate in North Vancouver Island at 7.3/100,000. Island Health reported 51 cases in 2017, higher than any other Health Authority. This may be associated with the introduction of a new nucleic acid test in Island Health in 2017. Although cases were reported throughout the year, peaks in the fall and early winter were associated with 2 of the outbreaks.

For the first time, *E. coli* O121, a non-O157 serogroup, was the most commonly reported serogroup in BC. This may in part be due to the 2 outbreaks caused by *E. coli* O121 in 2017 as well as the increasing use of nucleic acid tests to detect *E. coli* and other enteric pathogens in BC private and hospital laboratories. These tests are more sensitive in their detection of non-O157 serogroups. It is unclear why the number of *E. coli* O157 cases decreased by 41.7% to only 28 cases reported in 2017.

BCCDC. BCCDC advises British Columbians about a new outbreak of *E. coli* O121 associated with flour. 2017. Accessed on Aug 29 2018 from: http://www.bccdc.ca/about/news-stories/news-releases/2017/bccdc-advises-british-columbians-about-a-new-outbreak-of-e-coli-o121-associated-with-flour

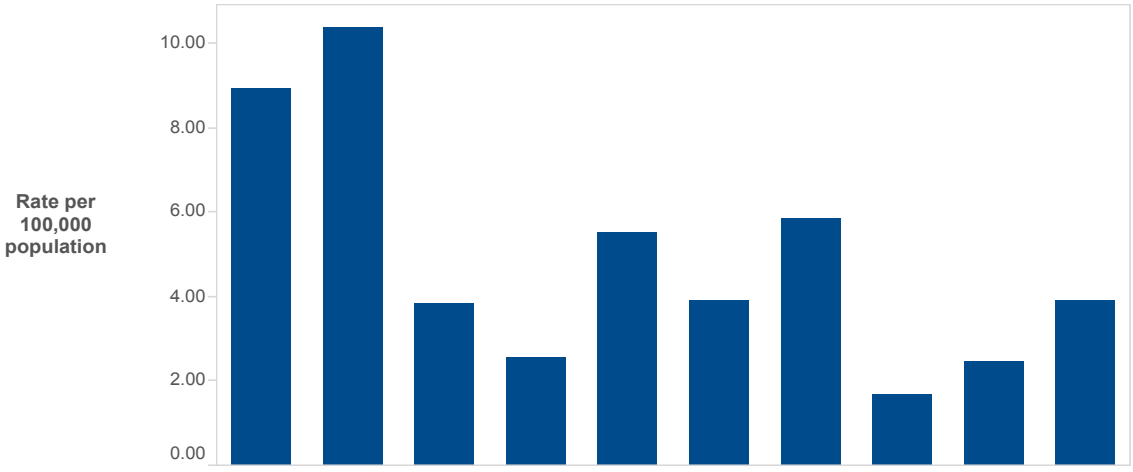
PHAC. Public Health Notice - Outbreak of *E. coli* infections linked to various flours and flour products. 2017. Accessed on Aug 29 2018 from: https://www.canada.ca/en/public-health/services/public-health-notices/2017/public-health-notice-outbreak-e-coli-infections-linked-various-flours-flour-products.html

7.1 Shigatoxigenic E. coli by Year, 2008-2017



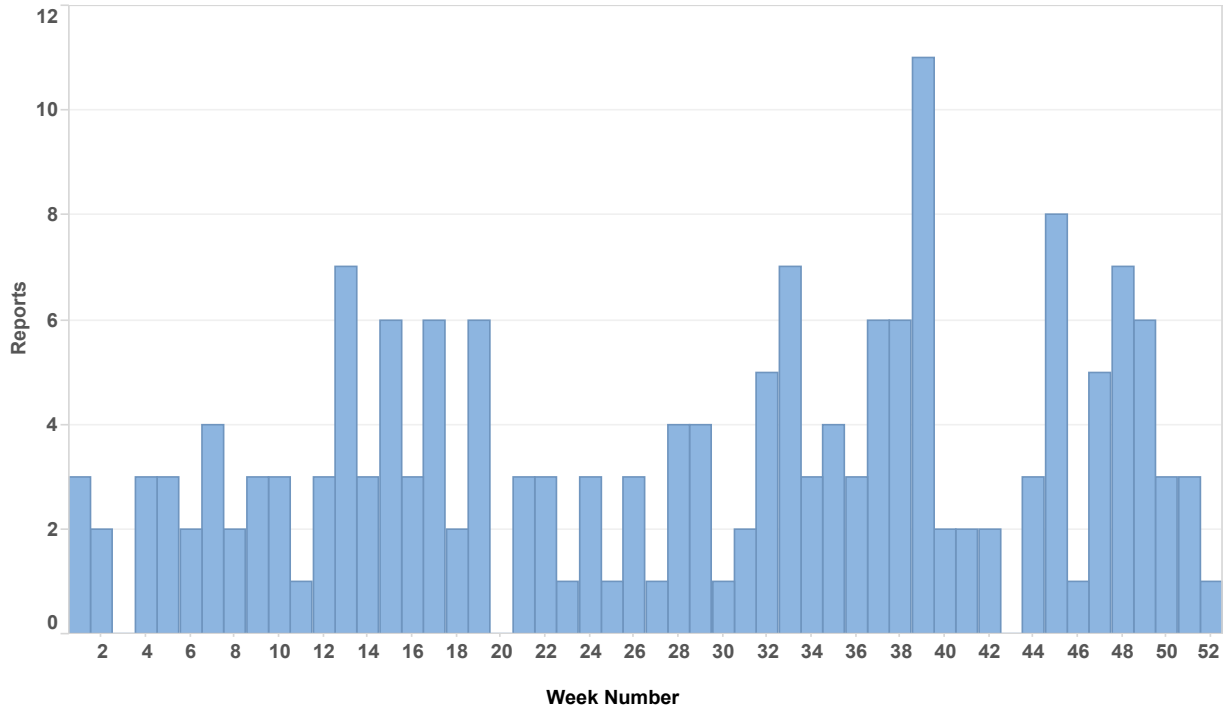
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Reports	114	160	109	112	145	187	124	111	151	176
BC Rate	2.62	3.63	2.44	2.49	3.19	4.07	2.67	2.36	3.17	3.65
Canada Rate	2.29	1.82	1.60	1.86	1.97	1.80	1.82	1.77	1.96	

7.2 Shigatoxigenic E. coli Rates by Age Group, 2017



		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Reports	Female	2	6	4	2	8	7	9	8	19	33
	Male	2	13	5	4	7	6	10	3	14	14
	Total	4	19	9	6	15	13	19	11	33	47
BC Rate	Female	9.18	6.74	3.52	1.76	6.04	4.42	5.57	2.42	2.81	5.23
	Male	8.68	13.85	4.10	3.30	5.02	3.47	6.10	0.93	2.14	2.44
	Total	8.92	10.39	3.82	2.55	5.52	3.92	5.84	1.68	2.48	3.90

7.3 Shigatoxigenic E. coli Reports by Week, 2017



7.4 Shigatoxigenic E. coli Serogroup Distribution, 2017

Rank	Serogroup	Number of Isolates	Proportion
1	O121	31	19.9%
2	O157	28	17.9%
3	O26	20	12.8%
4	O103	17	10.9%
5	O117	14	9.0%
	Other	46	29.5%
	Total	156	100.0%

Note: Serogroup distribution is based on BCCDC PHL data. Numbers may vary from those reported in Panorama.