Clostridioides difficile Infections (CDI) Update, Quarter 1 & 2 of 2020/21

February 2021

Summary Table

	Current quarters		Previous quarter	Same quarter of previous year	
	Q1 2020/21	**Q2 2020/21**	Q4 2019/20	Q1 2019/20	Q2 2019/20
Total CDI cases identified*	**382**	**446**	516	430	423
Number of new CDI cases associated with the reporting facility	**216**	**220**	266	244	220
Total inpatient days	**554,159**	**620,684**	888,639	732,731	691,274
Rate of CDI associated with the reporting facility per 10,000 inpatient days (95% CI)	**3.9 (3.4-4.5)**	**3.5 (3.1-4.0)**	3.0 (2.7-3.4)	3.3 (2.9-3.8)	3.2 (2.8-3.6)

Highlights for Q1 & Q2 of 2020/21

- The provincial rate of CDI cases associated with the reporting facility in Q1 and Q2 of 2020/21 was 3.9 and 3.5 per 10,000 inpatient days, respectively.
- The CDI rate in Q1 of 2020/21 (3.9 per 10,000 inpatient days) increased significantly compared to the previous quarter (3.0 in Q4 of 2019/20), but was not significantly higher than the same quarter of the previous year (3.3 in Q1 of 2019/20).
- The CDI rate in Q2 of 2020/21 (3.5 per 10,000 inpatient days) decreased slightly compared to previous quarter (3.9 in Q1 of 2020/21), but was higher than the same quarter of previous year (3.2 in Q2 of 2019/20), though the differences were not statistically significant.
- High CDI rates in Q1 and Q2 of 2020/21 coincide with the COVID-19 pandemic response in BC acute care facilities. Factors that may contribute to the increase include:
  - the total volume of inpatients notably decreased in Q1 and Q2 of 2020/21 resulting in a smaller denominator for the rate of CDI in acute care
  - fewer admissions and delayed access to non-urgent care services among patients may have changed the patient population in acute care, such that the patients who were admitted may be more ill at time of admission and administered stronger treatments including broad-spectrum antibiotics, which are associated with an increased risk of CDI
  - redistribution of environmental services and shortage of environmental cleaning and hand hygiene products may have altered CDI control measures in hospitals
- There is a significant downward trend in the quarterly provincial rates of CDI from Q1 of 2016/17 to Q2 of 2020/21 (see Figure 1).

* A health authority modified reporting of CDI surveillance data to PICNet from Q1 of 2019/20 onwards, such that only the CDI cases that were associated with the facility in their health authority were reported to PICNet. The changes have no effect on the number and rate of CDI associated with the reporting facility, however, it may affect the total CDI cases reported.

What is *Clostridioides difficile* infection (CDI)*?*

Clostridioides (formerly known as Clostridium) difficile, often called C. diff, is a bacterium that can be part of the normal bacterial flora in some people's bowels, without causing harm. For healthy people, *C. diff* does not pose a health risk. However, for people taking antibiotics or with weakened immune systems (e.g. patients who are elderly or undergoing chemotherapy), the normal balance of healthy bacteria in the digestive system can be altered, allowing *C. diff* to grow to unusually high levels and produce toxins that can damage the bowel and lead to a variety of symptoms including diarrhea, fever, abdominal cramping, dehydration, and even death.

How is *Clostridioides difficile* transmitted?

C. diff germs and their spores are shed in feces and can spread from person to person through hands. When someone with *C. diff* or someone caring for a person with *C. diff* doesn't clean their hands thoroughly, they can contaminate every item and surface they touch. Then, when someone else touches that person's hands, or the items or surfaces that have been contaminated, they can pick up the germs on their hands. *C. diff* germs when outside the body become spores, an inactive form of the germ with a protective coating allowing them to live for months on surfaces and in the soil. The germs become active again when these spores are swallowed and reach the intestines. Most healthy adults who come in contact with *C. diff* won't get sick but can carry *C. diff* and infect others.

How can *Clostridioides difficile* transmission be prevented?

C. diff transmission can be prevented by good hand washing practices, thorough environmental cleaning and disinfection, and careful use of antibiotics. It is important to wash your hands with plain soap and water when caring for or touching someone with *C. diff*, prior to eating, and after using the washroom. Use disinfectant with a sporicidal agent (e.g. chlorine-based disinfectants) for environmental surface disinfection after cleaning. Only use antibiotics as directed and when necessary.

Why is *Clostridioides difficile* infections being monitored in BC hospitals?

Monitoring CDI in acute care facilities helps identify patients who have *C. diff* so they can receive appropriate treatment and infection prevention and control precautions can be implemented to protect both patients and healthcare providers from acquiring *C. diff*. It also provides an opportunity to increase awareness and understanding of CDI among health care professionals and the public.

Where can I find information about CDI in BC?

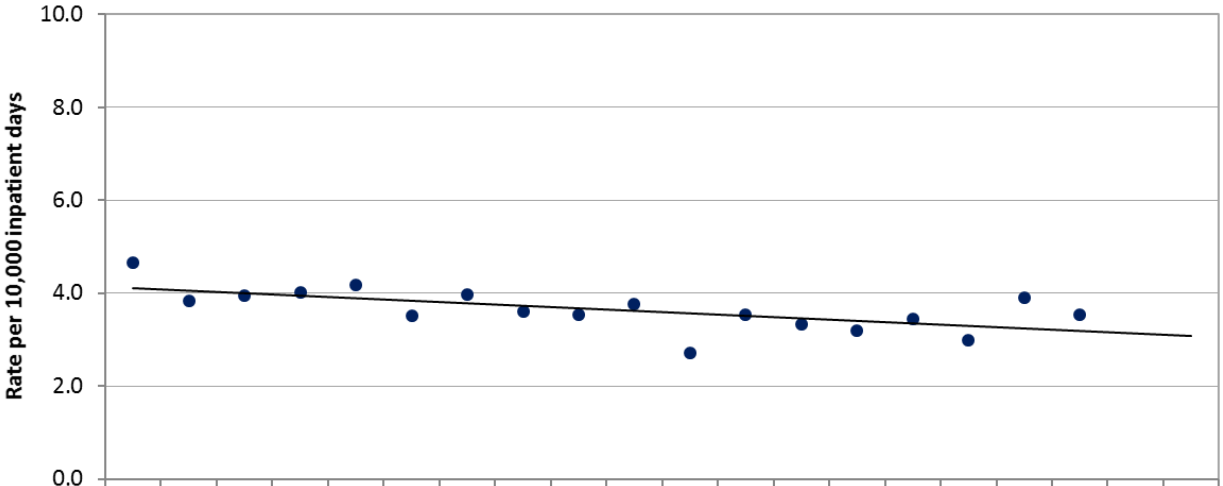
The PICNet website (www.picnet.ca) offers provincial guidance, toolkits, and related resources about CDI prevention and control, as well as the surveillance protocol and reports on CDI in BC. If you have questions or suspect that you have CDI, please contact your doctor or healthcare provider.

About this report

This quarterly update presents the latest data on incidence and trends of new cases of CDI that were healthcare-associated (HCA) with the reporting facility among inpatients in the last five years. In the following graphs,

1) Relapses of CDI and new cases that were associated with another healthcare facility, community-associated, or of unknown origin were not included.
2) The data were aggregated by fiscal quarter for each health authority except Provincial Health Services Authority (PHSA), which aggregated the data by calendar quarter.
3) The time frame of each fiscal quarter varied by fiscal year. Generally, there were more days in the fourth fiscal quarter (Q4) than in the other three quarters (Q1, Q2, and Q3) of each fiscal year.
4) The line in each graph represents the overall linear trend over time.
5) Direct comparison of the number of cases or the rate between health authorities is not recommended due to variations in laboratory testing for confirmation of CDI diagnosis and in the application of CDI case definition.

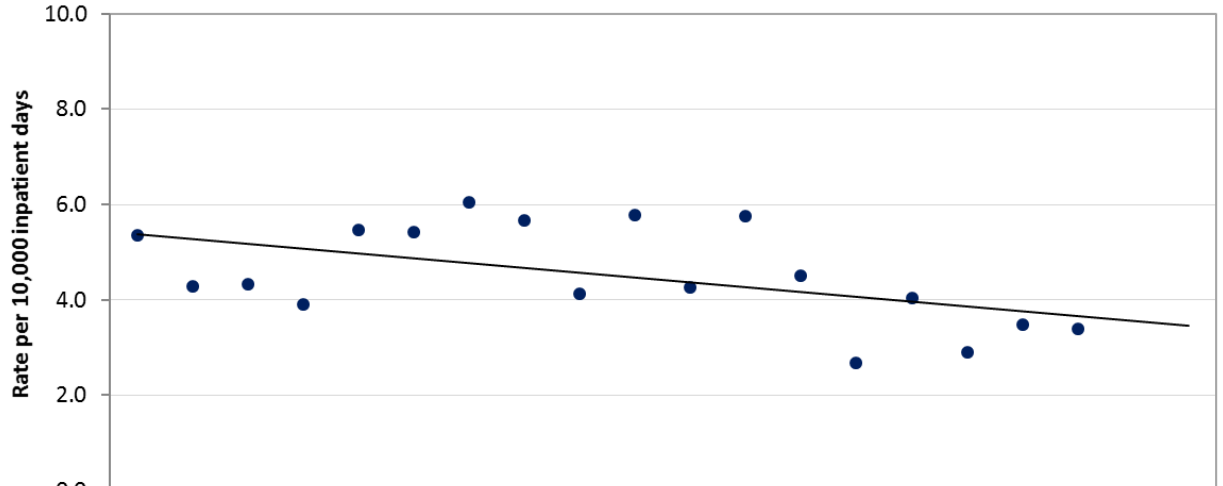
Figure 1. Provincial rate and number of new cases of CDI associated with the reporting facility, by fiscal year and quarter, 2016/17 - 2020/21, British Columbia



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	4.7	3.8	3.9	4.0	4.2	3.5	4.0	3.6	3.5	3.8	2.7	3.5	3.3	3.2	3.4	3.0	3.9	3.5		
Number of new HCA cases	285	248	263	394	250	227	269	358	255	251	185	321	244	220	242	266	216	220		

Fiscal year and quarter

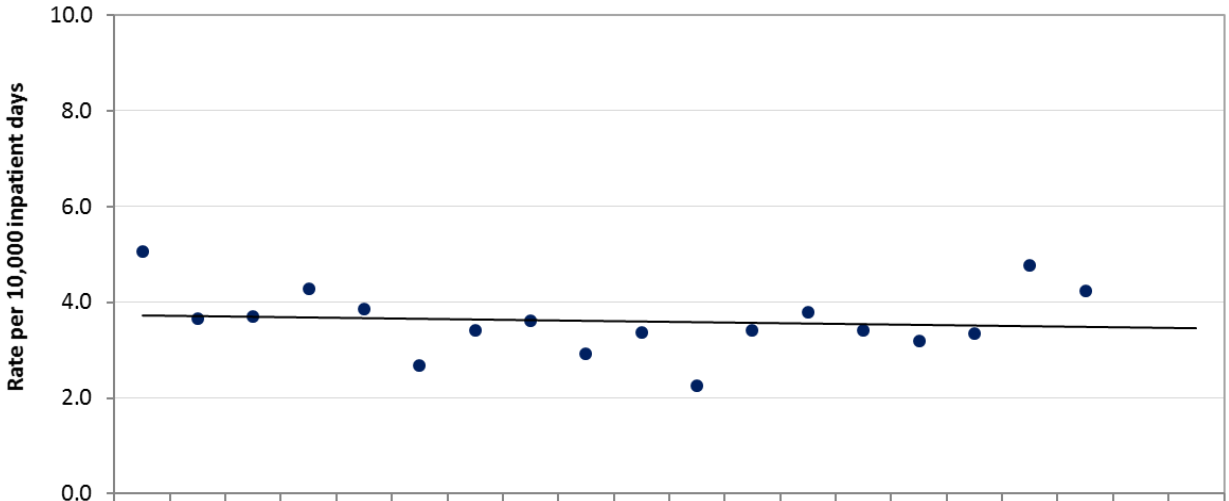
Figure 2. Rate and number of new cases of CDI associated with the reporting facility, by fiscal year and quarter, 2016/17 - 2020/21, Interior Health



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	5.4	4.3	4.3	3.9	5.5	5.4	6.1	5.7	4.1	5.8	4.3	5.8	4.5	2.7	4.0	2.9	3.5	3.4		
Number of new HCA cases	49	41	45	63	50	53	62	86	46	57	43	83	52	29	45	41	29	34		

Fiscal year and quarter

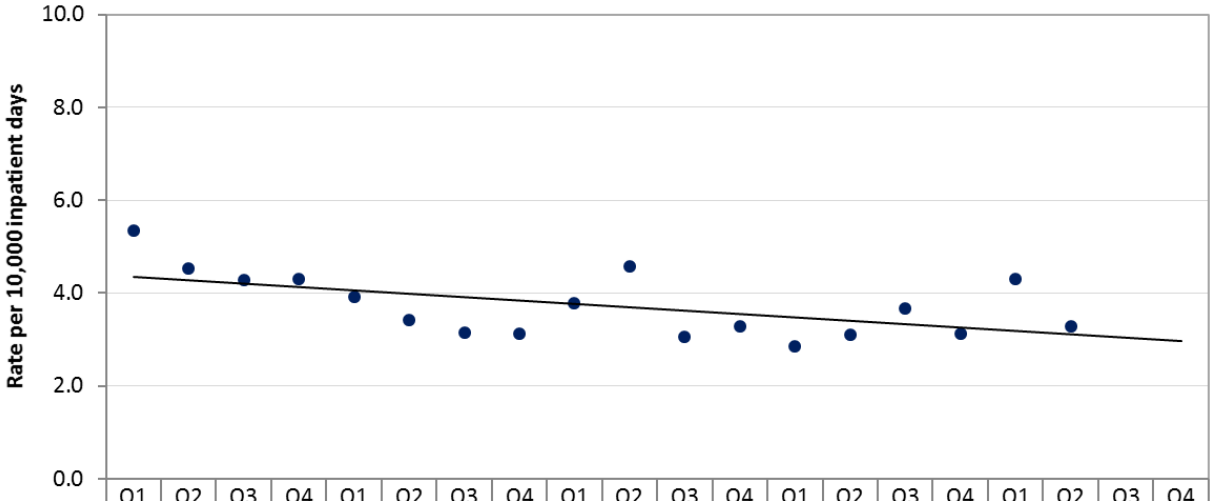
Figure 3. Rate and number of new cases of CDI associated with the reporting facility, by fiscal year and quarter, 2016/17 - 2020/21, Fraser Health[1]



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	5.1	3.7	3.7	4.3	3.9	2.7	3.4	3.6	2.9	3.4	2.3	3.4	3.8	3.4	3.2	3.4	4.8	4.2		
Number of new HCA cases	110	83	87	146	80	61	80	125	72	77	53	106	94	81	76	102	92	90		

Fiscal year and quarter

Figure 4. Rate and number of new cases of CDI associated with the reporting facility, by fiscal year and quarter, 2016/17 - 2020/21, Vancouver Coastal Health[2]



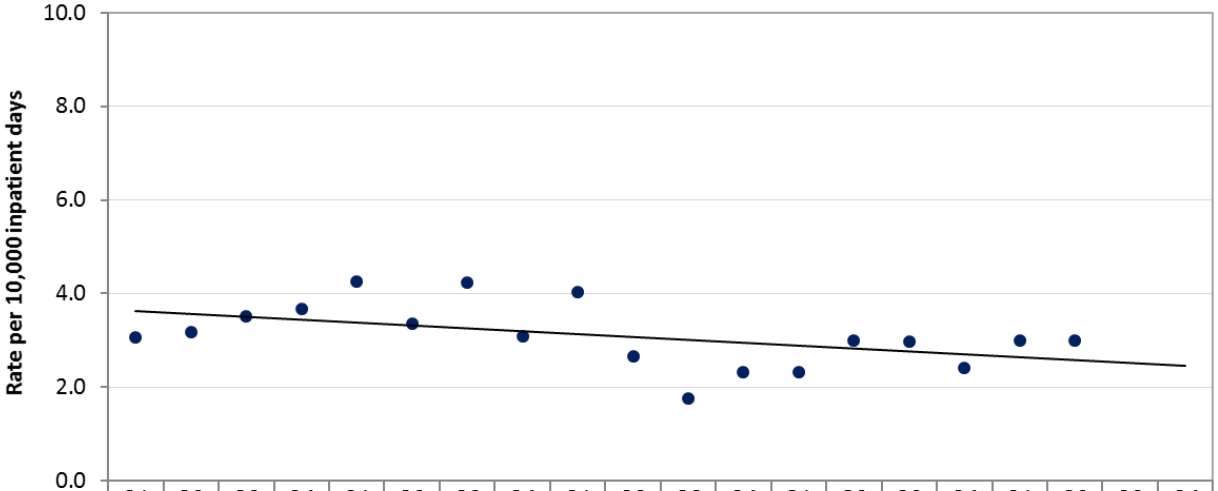
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	5.4	4.5	4.3	4.3	3.9	3.4	3.2	3.1	3.8	4.6	3.1	3.3	2.8	3.1	3.7	3.1	4.3	3.3		
Number of new HCA cases	74	66	64	94	52	48	46	68	59	66	45	64	44	45	54	59	49	42		

Fiscal year and quarter

[1] Fraser Health expanded its CDI surveillance program to a new acute care site from Q4 of 2017/18 and another new acute care site during Q4 2018/19.

[2] Data from acute care facilities of Providence Health Care (PHC) were included

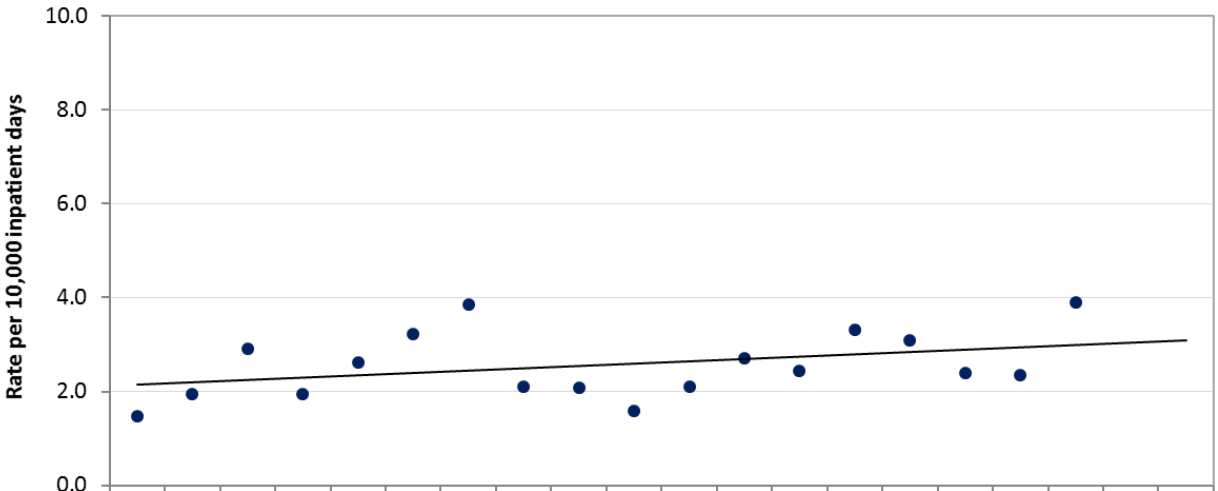
Figure 5. Rate and number of new cases of CDI associated with the reporting facility, by fiscal year and quarter, 2016/17 - 2020/21, Island Health[3]



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	3.1	3.2	3.5	3.7	4.3	3.3	4.2	3.1	4.0	2.6	1.8	2.3	2.3	3.0	3.0	2.4	3.0	3.0		
Number of new HCA cases	34	38	43	67	48	41	56	59	57	35	24	42	34	41	42	42	33	36		

Fiscal year and quarter

Figure 6. Rate and number of new cases of CDI associated with the reporting facility, by fiscal year and quarter, 2016/17 - 2020/21, Northern Health

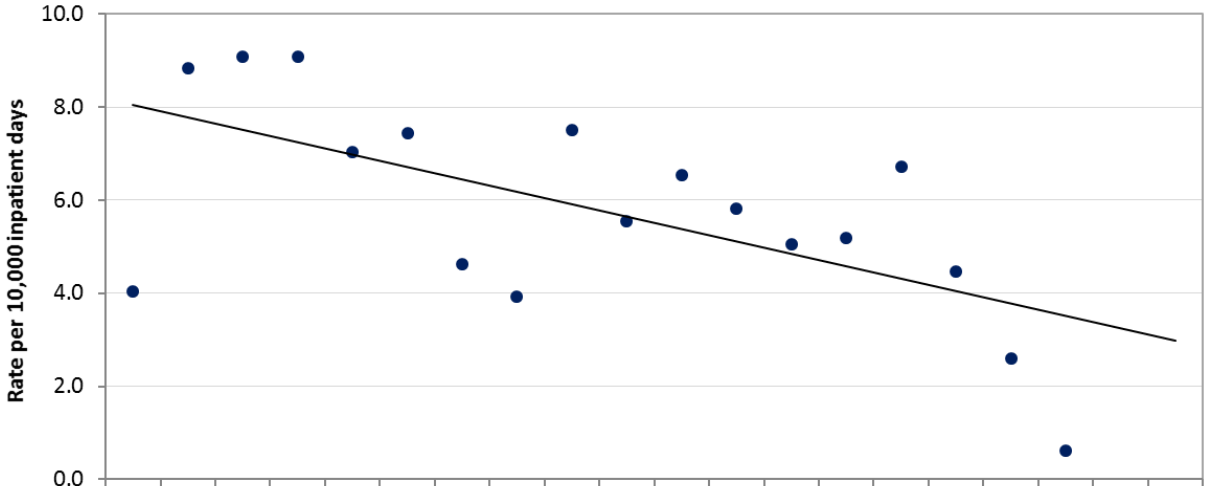


	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	1.5	2.0	2.9	1.9	2.6	3.2	3.8	2.1	2.1	1.6	2.1	2.7	2.4	3.3	3.1	2.4	2.4	3.9		
Number of new HCA cases	13	9	13	13	11	15	19	15	11	8	11	18	13	17	16	16	9	17		

Fiscal year and quarter

[3] Data include two new hospitals opened during Q3 of 2017/18 and historical data from two closed hospitals. A new and more sensitive multiplex testing for *C. difficile* was introduced during Q3 of 2017/18 and onwards.

Figure 7. Rate and number of new cases of CDI associated with the reporting facility, by fiscal year and calendar quarter, 2016/17 - 2020/21, Provincial Health Services Authority[4]



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2016/17				2017/18				2018/19				2019/20				2020/21			
● Rate per 10,000 inpatient days	4.0	8.8	9.1	9.1	7.0	7.4	4.6	3.9	7.5	5.6	6.5	5.8	5.1	5.2	6.7	4.5	2.6	0.6		
Number of new HCA cases	5	11	11	11	9	9	6	5	10	8	9	8	7	7	9	6	4	1		

Fiscal year and calendar quarter

[4] Data from BC Cancer - Vancouver were included starting from Q1 of 2018/19. The laboratory testing algorithm for *C. difficile* among children was modified from Q1 of 2020/21.

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