PICNet
PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA
A program of the Provincial Health Services Authority

Healthcare-associated infections surveillance report

Methicillin-resistant *Staphylococcus aureus* (MRSA) Update, Q1 2018/19

November 2018

Summary Table

	Q1 2018/19‡	Previous quarter (Q4 2017/18)*	Same quarter of previous year (Q1 2017/18)‡	Year-to-date 2018/19
Total new MRSA cases identified	**686**	1,082	610	686
Number of new MRSA cases associated with the reporting facility	**319**	481	277	319
Total inpatient days	**768,851**	1,052,295	643,955	768,851
Rate of MRSA associated with the reporting facility per 10,000 inpatient days (95% CI)	**4.1 (3.7-4.6)**	**4.6 (4.2-5.0)**	**4.3 (3.8-4.8)**	**4.1 (3.7-4.6)**

* There were more days in fiscal quarter Q4 than in Q1, Q2, and Q3

‡ There were more days in Q1 2018/19 (89 days) than Q1 2017/18 (79 days)

Highlights for Q1 2018/19

- The provincial rate of new MRSA cases associated with the reporting facility in Q1 2018/19 was 4.1 per 10,000 inpatient days. This was not significantly different from the previous quarter (4.6 per 10,000 inpatient days in Q4 2017/18).
- The MRSA rate in Q1 2018/19 was not significantly different from the same quarter of the previous year (4.3 per 10,000 inpatient days in Q1 2017/18).
- There is a downward trend in the provincial rate of MRSA from Q1 2014/15 to Q1 2018/19, which is statistically significant.

What is Methicillin-resistant *Staphylococcus aureus* (MRSA)?

MRSA is a type of *Staph* bacteria that has become resistant to many antibiotics, including methicillin, penicillin, and amoxicillin, and is thus more difficult to treat. MRSA often lives on the skin or in the nose of healthy people without causing symptoms (this is called colonization). It can, however, cause skin and other infections. Most infections are minor, such as pimples and boils. Serious infections — such as severe wound infections, pneumonia, or septicaemia (infection in the bloodstream) — can result in life-threatening illness or, if left untreated, death. Those with weakened immune systems and chronic illnesses are more susceptible to developing an infection.

How is MRSA transmitted?

MRSA is primarily spread by skin-to-skin contact or through contact with surfaces contaminated with the bacteria. About 2 in 100 people in the community carry MRSA. People who carry MRSA but do not have signs of infection can spread the bacteria to others. It has shown to spread easily in healthcare settings; therefore hospital patients and residents in residential care facilities are at a higher risk of acquiring MRSA.

How can MRSA *transmission* be prevented?

Clean your hands often with soap and water or use an alcohol-based hand rub (sanitizer); do not share personal items; cover your wounds or cuts with clean, dry bandages until healed; and wash used sheets, towels, and clothes with warm water and laundry detergent. The spread of MRSA can be prevented in healthcare settings through adherence to infection control measures such as contact precautions, careful

cleaning of patient rooms and medical equipment, and good hand hygiene on the part of physicians, nursing staff, and other healthcare providers.

Why is MRSA being monitored in BC hospitals?

MRSA bacteria have many virulence factors that enable them to cause disease. For example, MRSA is a cause of healthcare-associated bloodstream and catheter-related infections. MRSA is also a common cause of community-associated infections, especially skin and soft tissue infections, and can also cause necrotizing pneumonia. Active surveillance (e.g., screening of high-risk individuals) can identify patients colonized with MRSA so that precautions can be taken to prevent transmission to other patients.

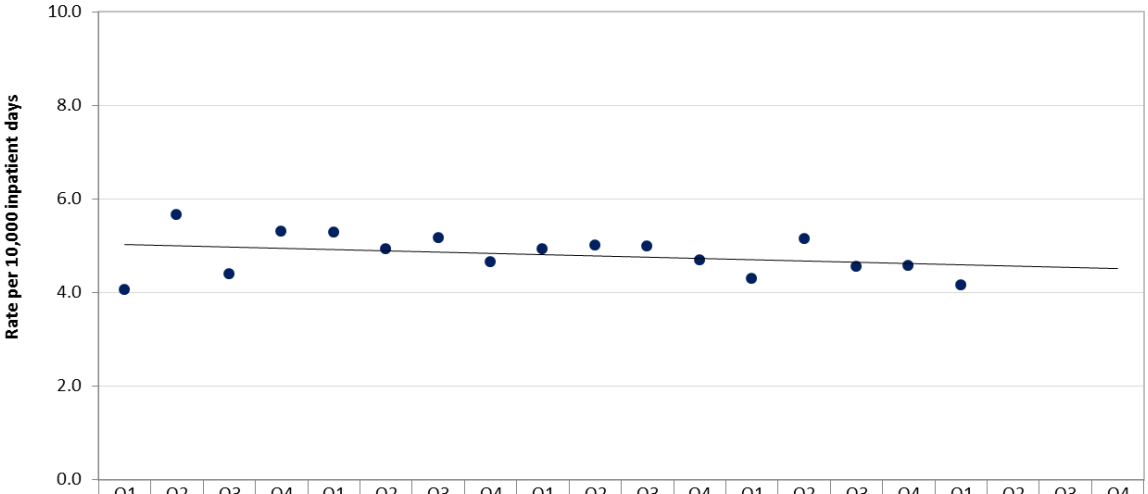
Where can I find information about MRSA in BC?

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

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

1) MRSA 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 and there were more days in the fourth 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 case finding strategies and the application of MRSA case classification for surveillance among the health authorities.

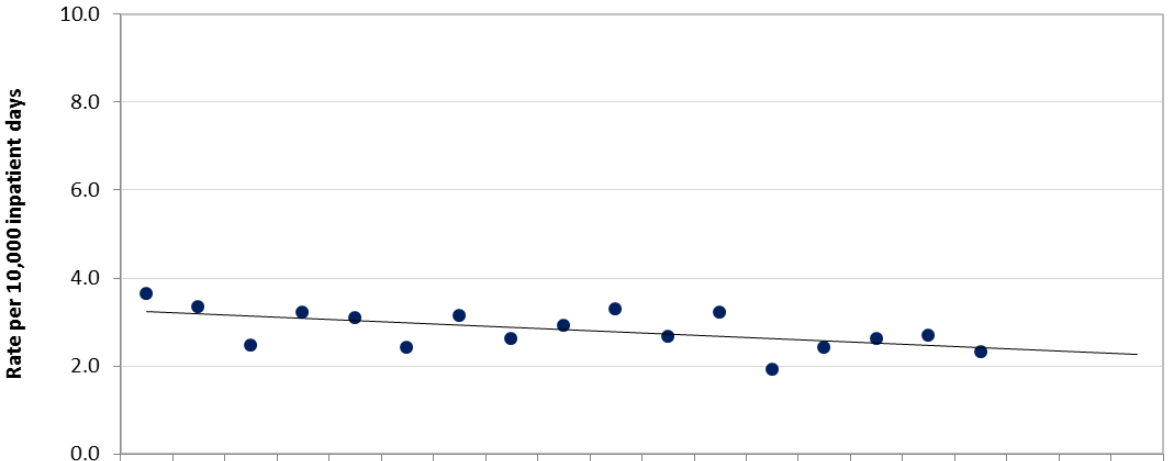
Figure 1. Provincial rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and quarter, 2014/15 - 2018/19, British Columbia



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
● Rate per 10,000 inpatient days	4.1	5.7	4.4	5.3	5.3	4.9	5.2	4.6	4.9	5.0	5.0	4.7	4.3	5.1	4.6	4.6	4.1			
Number of new HCA cases	283	396	333	537	357	345	382	481	323	347	357	486	277	358	331	481	319			

Fiscal year and quarter

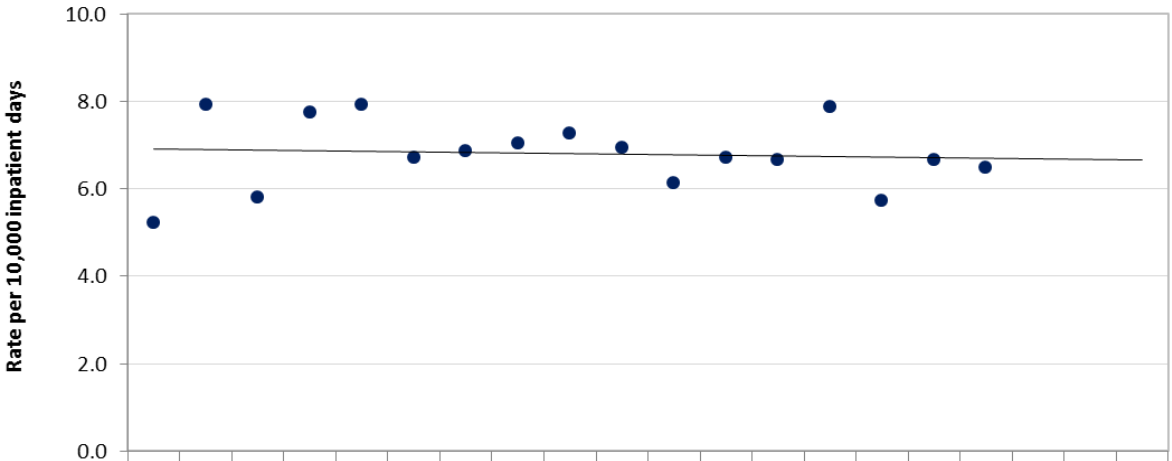
Figure 2. Rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and quarter, 2014/15 - 2018/19, Interior Health



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
Rate per 10,000 inpatient days	3.6	3.3	2.5	3.2	3.1	2.4	3.1	2.6	2.9	3.3	2.7	3.2	1.9	2.4	2.6	2.7	2.3			
Number of new HCA cases	40	38	37	55	33	27	34	44	29	34	30	52	19	26	29	44	28			

Fiscal year and quarter

Figure 3. Rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and quarter, 2014/15 - 2018/19, Fraser Health[1]

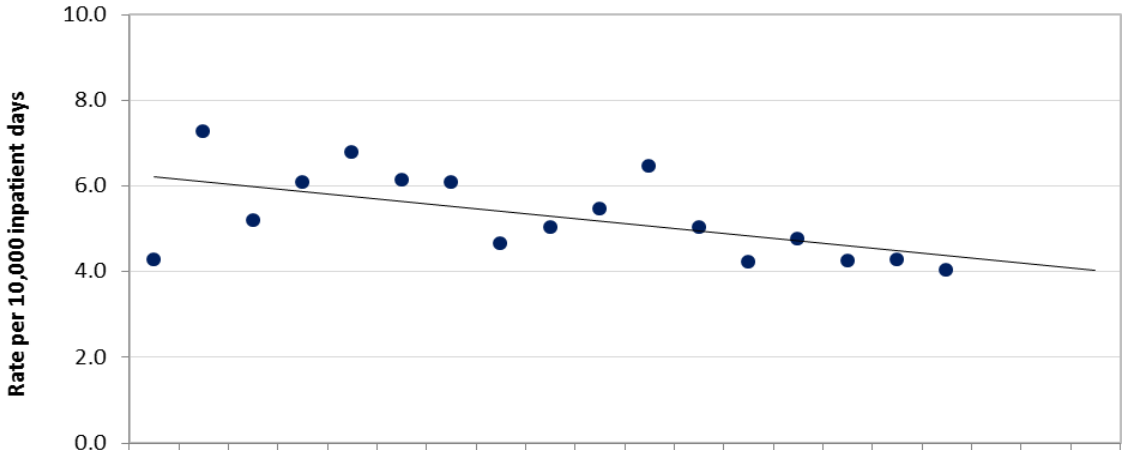


	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
Rate per 10,000 inpatient days	5.2	7.9	5.8	7.7	7.9	6.7	6.9	7.0	7.3	6.9	6.1	6.7	6.6	7.9	5.7	6.6	6.5			
Number of new HCA cases	125	194	147	276	188	167	189	257	165	165	151	240	145	188	140	241	167			

Fiscal year and quarter

[1] Fraser Health expanded provincial surveillance program for MRSA to a new acute care site during Q4 2017/18

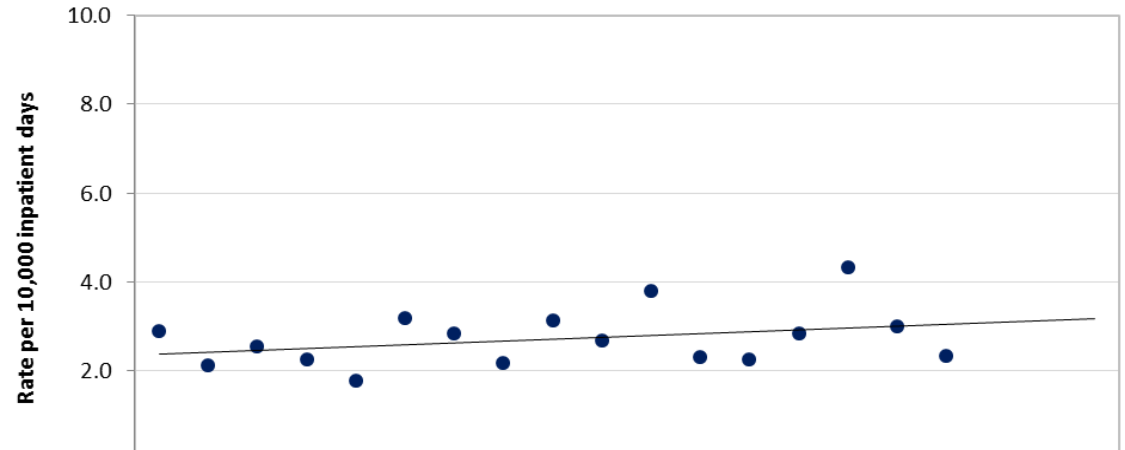
Figure 4. Rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and quarter, 2014/15 - 2018/19, Vancouver Coastal Health[2]



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
● Rate per 10,000 inpatient days	4.3	7.3	5.2	6.1	6.8	6.1	6.1	4.7	5.0	5.5	6.5	5.0	4.2	4.8	4.2	4.3	4.0			
Number of new HCA cases	62	107	80	130	96	89	92	101	70	80	97	110	56	67	62	93	63			

Fiscal year and quarter

Figure 5. Rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and quarter, 2014/15 - 2018/19, Island Health[3]



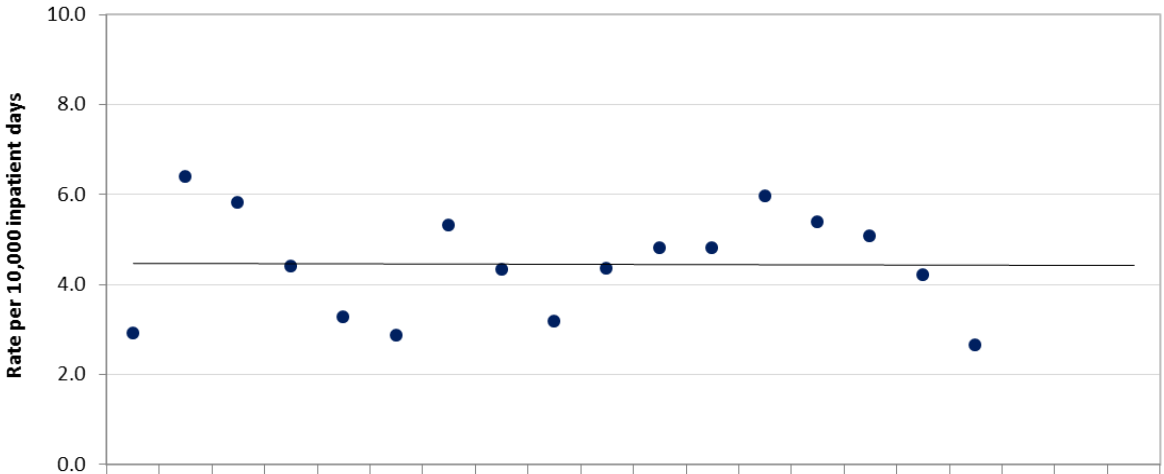
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
● Rate per 10,000 inpatient days	2.9	2.1	2.5	2.3	1.8	3.2	2.8	2.2	3.1	2.7	3.8	2.3	2.2	2.8	4.3	3.0	2.3			
Number of new HCA cases	36	27	34	43	23	42	39	43	40	37	53	48	29	40	66	65	37			

Fiscal year and quarter

[2] Includes acute care facilities of Providence Health Care (PHC)

[3] The data include two new hospitals opened during Q3 of 2017/18 and historical data from two closed hospitals.

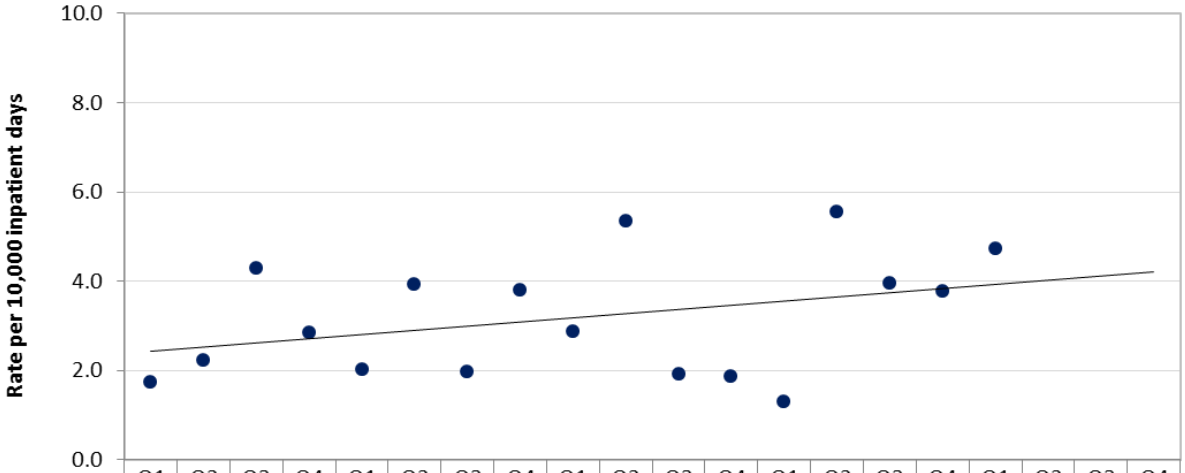
Figure 6. Rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and quarter, 2014/15 - 2018/19, Northern Health



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
● Rate per 10,000 inpatient days	2.9	6.4	5.8	4.4	3.3	2.9	5.3	4.3	3.2	4.3	4.8	4.8	6.0	5.4	5.1	4.2	2.6			
Number of new HCA cases	16	28	26	27	13	12	24	28	13	20	22	32	25	25	25	30	14			

Fiscal year and quarter

Figure 7. Rate and number of new cases of MRSA associated with the reporting facility, by fiscal year and calendar quarter, 2014/15 - 2018/19, Provincial Health Services Authority



	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2014/15				2015/16				2016/17				2017/18				2018/19			
● Rate per 10,000 inpatient days	1.7	2.2	4.3	2.8	2.0	3.9	2.0	3.8	2.9	5.3	1.9	1.9	1.3	5.5	3.9	3.8	4.7			
Number of new HCA cases	4	2	9	6	4	8	4	8	6	11	4	4	3	12	9	8	10			

Fiscal year and calendar quarter

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