

PICNet

PROVINCIAL INFECTION CONTROL NETWORK OF BRITISH COLUMBIA

A program of the Provincial Health Services Authority

PICNet Surveillance Protocol for Methicillin-Resistant *Staphylococcus aureus* (MRSA) in BC Acute Care Facilities

Prepared by PICNet

Version 5.0

October 17, 2011

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Introduction

Methicillin-resistant *Staphylococcus aureus* (MRSA) has been recognized as a major cause of healthcare-associated infections (HAI) for several decades. In Canada, national surveillance for MRSA infection and colonization has been conducted among hospitalized patients since 1995. The overall rate of MRSA incidence increased from 0.65 to 11.04 cases per 10,000 patient-days between 1995 and 2007 in the participating hospitals¹.

The data of MRSA have been collected in the BC hospitals either as a member of Canadian Nosocomial Infection Surveillance Program (CNISP), or for its own MRSA surveillance. Since 2006, the Provincial Infection Control Network of British Columbia (PICNet) has been working with each HA to develop a standardized provincial surveillance system to monitor the healthcare-associated infections in BC. This protocol is to facilitate collection and submission of MRSA data to PICNet in order to analyze the trend and characteristics of MRSA incidence across the province.

Objectives

The objectives of MRSA surveillance system are to

- determine the rate and trend of healthcare-associated MRSA incidence in BC acute care facilities
- determine the characteristics of MRSA incidence across the province

Population under Surveillance

The population under surveillance is inpatients in acute care facilities in BC. This includes patients admitted to the emergency department awaiting placement (e.g. patients admitted to a service who are waiting for a bed), patients in alternative level of care beds, patients in psychiatric beds, and patients in labour and delivery beds.

Excluded are outpatient visits to acute care facilities, patients in extended care beds housed in acute care facilities, and patients for short-term emergency room admissions.

Case Definition

The MRSA cases under PICNet surveillance include only newly identified MRSA cases which must meet **ALL** of the following criteria:

- Laboratory identification of MRSA, including *Staphylococcus aureus* cultured from any specimen that tests oxacillin-resistant by standard susceptibility testing methods; or by a positive result for penicillin binding protein 2a (PBP2a); or molecular testing for *mecA*. May also include positive results of specimens tested by other validated polymerase chain reaction (PCR) tests for MRSA.
- Patient must be admitted to an acute care facility
- The MRSA must be newly identified at the time of hospital admission or identified during hospitalization

This includes:

¹ Simor AE, et al (2010). *Infection Control and Hospital Epidemiology* 31:348-356

- MRSA cases identified for the first time during their hospital admission
- Patients identified in the emergency department and then admitted to your acute care facility
- Patients that have been identified as MRSA cases in outpatient clinics (including ambulatory care) or other health care facilities were admitted to your acute care facility with positive MRSA

This DOES NOT include:

- MRSA cases previously admitted to your acute care facility or other acute care facilities
- Cases identified in the emergency department or outpatient clinics but are not admitted to your acute care facility
- Cases re-admitted with MRSA
- MRSA cases transferred from another acute care facility

The MRSA cases is further classified as:

- **Healthcare Associated, Your Acute Care Facility:**

- A MRSA case (as defined above) identified *greater than 3 calendar days* after the patient was admitted to your acute care facility, with the first day counted as the day of admission.

OR

- A MRSA case (as defined above) identified *3 calendar days or less* after admission to your acute care facility, with the first day counted as the day of admission, AND the patient was admitted to your acute care facility for a period of greater than 3 calendar days within the last 12 months.

- **Healthcare Associated, Another Healthcare Facility:**

- A MRSA case (as defined above) identified *3 calendar days or less* after admission to your acute care facility, with the first day counted as the day of admission,

AND

- The case had an encounter with another healthcare facility, either as an inpatient (including Acute Care and Long Term Care), OR as an outpatient (including emergency care, ambulatory care, and outpatient clinics), within the last 12 months.

An MRSA case (as defined above) in a newborn (less than 28 days) may be considered as healthcare-associated, your acute care facility if the mother was not known to be MRSA positive on admission and was not suspected to have MRSA colonization prior to admission, even if the newborn is < 48 hours of age. In the case of a newborn transferred from another institution and MRSA is identified within 3 calendar days of admission, the case can be classified as healthcare-associated, another healthcare facility.

- **Not Healthcare Associated:**

- A MRSA case (as defined above) identified *3 calendar days or less* after admission to your acute care facility, with the first day counted as the day of admission,

AND

- There was no exposure to any health care facility, either as an inpatient or an outpatient, within the last 12 months.

- **Unknown:**
 - A MRSA case (as defined above) where there is insufficient information on healthcare exposure history to classify as a healthcare-associated case or not.

Data collection and submission

The data of MRSA cases and denominators are being collected and managed in each HA. PICNet's Surveillance Steering Committee (Appendix A), which is consisted of representatives from each HA, agreed to report the aggregated data to PICNet via email on a quarterly basis.

- **MRSA case data**

HA will aggregate the MRSA cases data by acute care facility and by age group (see Appendix B) for each type of MRSA in each fiscal quarter, and submitted the data to PICNet with password-protected.
- **Denominator data**

The inpatient data will be used as denominators to calculate the rate of MRSA incidence in the each HA and acute care facility. Following data will be collected by HA for each acute care facility in the fiscal quarter:

 - Total number of patient hospital admissions
 - Total number of inpatient-days
 - Average count of beds

Data analysis and reporting

PICNet will merge the data reported from each HA and submit to the SharePoint of Ministry of Health Services as required. PICNet will also generate the following data for MRSA surveillance semiannual/annual reports:

- Total number of MRSA cases in each fiscal quarter/year
 - Number of cases for the province, each HA and acute care facility
 - Number and proportion of healthcare-associated MRSA cases
 - Distribution of MRSA by age group
- Rate of MRSA cases associated with reporting facility in each fiscal quarter/year
 - Rate of MRSA incidence per 10,000 inpatient bed days for the province
 - Rate of MRSA incidence per 10,000 inpatient bed days by size of facility
 - Rate of MRSA incidence per 10,000 inpatient bed days by HA
 - Rate of MRSA incidence per 10,000 inpatient bed days by facility

Appendices

Appendix A. Surveillance Steering Committee

Appendix B. MRSA Surveillance Data Submission Form – MRSA Cases

Appendix C. MRSA Surveillance Data Submission Form – Denominator Data

Appendix A. Surveillance Steering Committee

PICNet's Surveillance Steering Committee (SSC) is consisted of the representatives from the Health Authorities in BC and PICNet Management Office. SSC provides guidance to the provincial surveillance programs on the healthcare-associated infections and assists the PICNet Management Office in implementation within the participating Health Authorities. The members of the committee include:

- Jun Chen Collet, Provincial Health Services Authority
- David Crawford, Interior Health Authority
- Tara Donovan, Fraser Health Authority
- Leslie Forrester, Vancouver Coastal Health Authority
- Bruce Gamage (Chair), PICNet
- Dr. Guanghong Han, PICNet
- Deanna Hembroff, Northern Health Authority
- Dr. Bonnie Henry, Provincial Health Services Authority
- Dr. Linda Hoang, Provincial Health Services Authority
- Anthony Leamon, Vancouver Island Health Authority
- Dr. Elisa Lloyd-Smith, Providence Health Care

Appendix B. MRSA Surveillance Data Submission Form – MRSA Cases

Health Authority:



Reporting period:

FQ 1 of 2011/2012

a) Number of MRSA infection/colonization by acquisition mode and facility

Name of Acute Care Facility	Infection/Colonization				Total
	Healthcare-associated, Your Acute Care Facility	Healthcare-associated, Another Healthcare Facility	Not Healthcare-associated	Unknown	
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
Total	0	0	0	0	0

b) Number of MRSA infection/colonization by acquisition mode and age group

Age Group (years)	Healthcare-associated	Not Healthcare-associated	Unknown	Total
<10				0
10-19				0
20-29				0
30-39				0
40-49				0
50-59				0
60-69				0
70-79				0
80+				0
Unknown				0
Total	0	0	0	0

