Protocol for Healthcare-associated Methicillin-resistant *Staphylococcus aureus* (MRSA) Bloodstream Infection Surveillance in Acute Care Hospitals in Nova Scotia

Patient Safety Act

Final May 2015

The following protocol is an appendix to the Patient Safety Reporting Regulations for the *Patient Safety Act* and pertains to reporting of healthcare-associated Methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection surveillance in acute care hospitals in Nova Scotia. This protocol will provide a standardized process for the collection of rates of MRSA bloodstream infection and subsequent process for reporting to the public and to the Health System Quality branch at the Department of Health & Wellness.

DISCLAIMER: Changes may occur to this protocol over time. Users must refer to the online version of this document located on the DHW IPCNS website (http://ipc.gov.ns.ca/) to ensure version accuracy.

Background

The *Act to Improve Patient Safety and Health Systems Accountability* (*Patient Safety Act*) requires that the Nova Scotia Health Authority (NSHA) and IWK Health Centre publicly report patient safety indicators in accordance with protocols established by the regulations.

Beginning April 1, 2015, healthcare-associated Methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection (bacteremia) surveillance for acute care hospitals in Nova Scotia will be included as a patient safety indicator under the Act. While the Nova Scotia Health Authority (NSHA) and the IWK Health Center may choose to capture other MRSA colonizations and infections as part of their targeted surveillance, they will only be required to report healthcare-associated **MRSA bloodstream infections,** as defined in this protocol, to the Department of Health and Wellness (DHW).

Acute care facilities or zones will complete a reporting form (Appendix A). This form will be e-mailed to the DHW each quarter. The DHW will also report MRSA bloodstream infections in acute care facilities publicly at a zone level, IWK Health Centre facility level and at a provincial level.

Why are incidence rates of MRSA bloodstream infections being publicly reported?

Public reporting using common definitions and methods ensures that all hospitals are tracking and counting infections in a standardized way. The purpose of reporting healthcare-associated MRSA bloodstream infection that occur in acute care facilities on publicly available websites is to ensure and confirm a system-wide commitment to public accountability and transparency. This surveillance protocol will determine the rate of healthcare-associated MRSA bloodstream infections related to admissions to acute care facilities in Nova Scotia. Having a better understanding of MRSA bloodstream infections through measuring, monitoring, and reporting allows hospitals in NS to strengthen existing infection prevention and control interventions and to continue to work towards improving infection rates.

Data Collection Methodology

A) Healthcare-associated MRSA Bloodstream Infection (Bacteremia) Case Definition

The MRSA bloodstream infections under surveillance include the following criteria:

- Laboratory confirmation of MRSA from at least one blood culture; may be a primary[1] bacteremia or secondary[2] related to another infection at a different body site
  AND
- The first blood culture for MRSA was obtained ≥48 hours after admission
  OR
- If the first blood culture for MRSA was taken within 48 hours of admission, the patient meets one of the following criteria
  a) healthcare exposure[3] in previous 90 days
  b) hospitalized in the previous 90 days

[1] Positive blood culture not known to be associated with an infection at another site in the body. Intravascular devices (e.g. IVs, central lines, arterial lines etc.) may or may not be present.
[2] Positive blood culture that is associated with an infection with the same organism at another site in the body (e.g. MRSA bacteremia determined to be secondary to a urinary tract infection or surgical site infection with MRSA)
[3] Such as receipt of IV medications, IV chemotherapy or hemodialysis. Exposure will be based on the *best clinical judgement* of the infection prevention and control professional or epidemiologist.

NOTE: Patients previously identified as MRSA positive (colonization and /or resolved infection) who later develop a healthcare-associated bloodstream infection which meets the criteria are included.

Exclusion Criteria:

- Not admitted to an acute care facility
- Incomplete treatment for a previous episode of MRSA bloodstream infection
- Treatment for previous MRSA bloodstream infection with completion of full course of antibiotic therapy at least six weeks prior to onset of MRSA bloodstream infection

REMINDER**: Any MRSA bloodstream infection which also meets the case definition for a central line-associated bloodstream infection in the Intensive Care Unit will also be reported to the DHW in accordance with the **Protocol for Central Line-Associated Blood Stream Infection (CLABSI) Surveillance in Intensive Care Units in Nova Scotia.

B) Numerator data

The number of healthcare-associated MRSA bloodstream infections, as defined in this protocol, for the facility that occur within the reporting period.

Population Under Surveillance

The population under surveillance for MRSA bloodstream infection consists of all patients admitted to acute care hospitals in Nova Scotia. Excluded from surveillance are patients in emergency departments (who are not admitted), mental health or psychiatric units, withdrawal management units and ambulatory clinic or other outpatient clinics.

Calculating the MRSA Bloodstream Infection Rate

The MRSA bloodstream infection rate is calculated by dividing the number of cases of MRSA bloodstream infection (numerator) by the number of inpatient days for the population under surveillance (denominator) in the reporting period for the facility.

The healthcare-associated MRSA bloodstream infection rate is calculated as follows:

$$\text{MRSA Bloodstream Infection Rate} = \frac{\text{Number of MRSA bloodstream infections}}{\text{Number of inpatient days for the reporting quarter}} \times 10{,}000$$

Process for Public Reporting

Reporting process to the DHW

1. The number of healthcare-associated MRSA bloodstream infections, inpatient days and MRSA bloodstream infection rates will be calculated as described through this protocol.
2. The number of MRSA bloodstream infections, inpatient days and MRSA bloodstream infection rates will be sent to DHW using the data collection tool *Healthcare-associated MRSA Infection Rate Surveillance Form* located in Appendix A.
3. Healthcare-associated MRSA bloodstream infection surveillance will be reported on a quarterly basis. The data will be sent to DHW no later than the quarterly data entry deadline, as follows:
   Quarter 1 (April 1-June 30): August 15
   Quarter 2 (July 1-September 30): November 15
   Quarter 3 (October 1-December 31): February 15
   Quarter 4 (January 1-March 31): May 15
4. Facilities will post their MRSA bloodstream infection rates on their public websites either independently or by providing a link to the DHW webpage displaying publicly reported indicators as required by the *Patient Safety Act.* http://novascotia.ca/dhw/qps/public_reporting.asp
5. Facilities may choose their own methods to display MRSA bloodstream infection rates (e.g. charts, graphs).
6. Additional MRSA rates may also be reported by the facility (e.g. other infections, colonization, community-acquired cases) as determined by the infection prevention and control program. Only healthcare-associated MRSA bloodstream infections outlined in this protocol will be reported to DHW.
7. Healthcare-associated MRSA bloodstream infection rates will be accompanied by a standard narrative that will allow the public to interpret the rates. This narrative will be developed in collaboration with the NSHA and the IWK Health Centre subject matter experts and the DHW to ensure consistent messaging.

How will DHW present the data?

The DHW will post the MRSA bloodstream infection rates by zone and for the IWK Health Centre. The DHW will also determine a provincial rate for MRSA bloodstream infection by aggregating the data for all acute care hospitals in Nova Scotia.

How should the data be interpreted?

Rates of MRSA bloodstream infection can be used as a tool for hospitals to monitor their overall efforts to prevent healthcare-associated infection. Readers should be aware that the reported rates may have been related to an admission or healthcare exposure at another acute care facility and not necessarily the facility reporting the infection. Because of a variation in the acuity of illness between facilities and other risk factors, public reporting is not intended to serve as a measure for hospitals to compare themselves against other organizations, or for the public to use as a measure of where to seek care, or the quality of care at different hospitals. Public reporting of healthcare-associated MRSA bloodstream infection rates, and other measures of healthcare quality over time, are important tools to ensure transparency and accountability to Nova Scotians.

References:

Centres for Disease Control (2015). *CDC/NHSN Surveillance Definitions for Specific Types of Infections*. Retrieved from; www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef_current.pdf

New Brunswick Deportment of Health (2013). Hospital-associated Methicillin-resistant *Staphylococcus aureus* bacteremia provincial surveillance case definition.

Public Health Agency of Canada (2015). *Canadian Nosocomial Infection Surveillance Program: 2015 MRSA Surveillance Protocol for Methicillin-Resistant Staphylococcus aureus (MRSA) in CNISP Healthcare facilities.* Public Health Agency of Canada.

Provincial Infection Control Network of British Columbia (PICNet) (2014). *PICNet Surveillance Protocol for Methicillin-Resistant Staphylococcus aureus (MRSA) in BC Acute Care Facilities.* Provincial Infection Control Network of British Columbia.

Appendix A:

Healthcare-associated MRSA Bloodstream Infection Surveillance Reporting Form

Reporting Facility/Zone Choose an item.

Fiscal Year Choose an item.

Reporting Period *Select one only*

☐Quarter 1 (Apr 1-Jun 30) ☐Quarter 3 (Oct 1-Dec 31)
☐Quarter 2 (Jul 1-Sep 30) ☐Quarter 4 (Jan 1-Mar 31)

Facility name	# of MRSA bloodstream infections	Patient days	MRSA Bloodstream Infection Rate
Total			

Person Completing Form

Position

Date

Forward completed forms by email to PSI@novascotia.ca

Information collected for this form shall be done in accordance with the *Protocol for Healthcare-Associated Methicillin-resistant Staphylococcus aureus (MRSA) Bloodstream Infection Surveillance in Acute Care Hospitals in Nova Scotia.*