Infection Prevention & Control Methicillin-Resistant *Staphylococcus aureus* (MRSA) Surveillance Information Sheet

Purpose

The aim of this document is to inform Interior Health (IH) healthcare staff on key concepts related to methicillin-resistant *Staphylococcus aureus* (MRSA) surveillance.

Context

- *Staphylococcus aureus* are bacteria that are commonly found on the skin and in the noses of healthy people. Some Staphylococcus bacteria are easily treatable while others are less so. Staphylococcus bacteria that are resistant to the antibiotic cloxacillin are known as methicillin-resistant *Staphylococcus aureus*, or MRSA.
- People can be either colonized (where the bacteria is present but not causing disease) or infected. If an infection is detected early, it can usually be treated effectively with antibiotics. If left untreated, these infections may develop into serious complications such as infections of the bloodstream, bones, or lungs (pneumonia).
- Modifiable factors that decrease the transmission of methicillin-resistant *Staphylococcus aureus* in hospital are good hand hygiene and environmental cleaning, isolation precautions, treatment of infected patients, and formal staff and physician training on infection prevention and control (IPAC) practices.

Key Messages

- MRSA infections can result in significant morbidity and occasionally can result in death. They may complicate and prolong hospital stays and impact resources and costs in the healthcare system. Monitoring MRSA trends provides important information about effectiveness of IPAC strategies, including effective hand hygiene and safe patient care practices.
- There are many initiatives underway to reduce MRSA infections including nasal decolonization for patients before surgical procedures.
- Ongoing surveillance provides timely data to clinicians and leaders to understand, monitor, and implement measures to improve patient care.

Methodology

- All patients who are admitted to an IH acute care facility are included in surveillance.
- Infection Preventionists (IP's) review the healthcare records of all admitted patients with a positive methicillin-resistant *Staphylococcus aureus* lab test to decide if the patient should be included as a surveillance case and to determine if the patient is colonized or has an infection with MRSA.
- Newly identified cases are included in surveillance. IH patients with MRSA are only counted once in their lifetime.
- Once incident cases are identified, they are case classified as healthcare-associated (HA) or community-associated (CA) – refer to the provincial MRSA Surveillance Protocol for more information on case classifications.

Calculation

MRSA rate calculations are shown below. The rate allows for comparability both within a single facility over time, or between different facilities across Canada or internationally.

$$\text{Rate of HA-MRSA} = \frac{\text{Number of HA-MRSA cases}}{\text{Number of patient-days}} \times 10{,}000$$

$$\text{Rate of CA-MRSA} = \frac{\text{Number of CA-MRSA case}}{\text{Number of patient admissions}} \times 1{,}000$$

Limitations and Explanations

- Once an IH patient is identified as an MRSA case, they are not eligible to be a new MRSA surveillance case again.
- Determination of infection, as per National Healthcare Safety Network definitions, is completed according towhat is available in the patient's chart at the time of data entry and what has been documented by frontline healthcare workers.
- Patients who test positive for MRSA prior to their admission to an IH acute care facility are not included in surveillance unless they test positive again while admitted.

Background Information about IPAC Surveillance Measures

Surveillance for healthcare-associated infections and for antimicrobial resistant organisms is a mandate for IPAC programs to establish baseline frequency of disease, identify risk factors, measure the impact of prevention initiatives, and provide information to inform and educate healthcare workers. Surveillance is most successful when it is comprehensive and linked to program objectives so that surveillance reports are timely and subsequent actions aremeaningful and addressed. IH IPAC surveillance indicators are chosen to monitor quality issues that may need further review and investigation. The data are used by healthcare providers to monitor trends and improve care, and by governments to monitor system performance and for public reporting.

The IPAC program in Interior Health conducts surveillance in every acute care facility in the region. Trained Infection Preventionists perform chart reviews and use the protocols to determine surveillance cases, and the IPAC Epidemiologist reviews all cases for data quality purposes. Surveillance is performed in a web-based app so that no duplicate cases are included, and to ensure complete case capture. The IPAC Data Quality Working Group provides oversight for the surveillance system, surveillance protocols and definitions, and ensuring minimal variability in practices across the health authority so that results are reliable.

Incidence indicators represent the proportion of patients with a new presentation of the condition/event of interest. The IPAC surveillance indicators are presented as a rate for a fiscal year, fiscal quarter, or fiscal period, and allow facilities to compare to their own performance over time.