



## Overview of Methicillin-Resistant *Staphylococcus aureus* Surveillance through the National Healthcare Safety Network

**Purpose.** Many hospitals, state public health agencies, and third parties (e.g., quality improvement organizations) have a need to monitor methicillin-resistant *Staphylococcus aureus* (MRSA)-related data as part of collaborative MRSA prevention efforts or legislative mandates. This document is a summary of the main MRSA-related metrics that can be produced by facility data reported to the National Healthcare Safety Network (NHSN) through its Multidrug-Resistant Organism (MDRO) and *Clostridium difficile*-Associated Disease (CDAD) Module and its Device-Associated Module that may be useful in this context. ([http://www.cdc.gov/ncidod/dhqp/nhsn\\_MDRO\\_CDAD.html](http://www.cdc.gov/ncidod/dhqp/nhsn_MDRO_CDAD.html) and [http://www.cdc.gov/ncidod/dhqp/pdf/nhsn/NHSN\\_Manual\\_PatientSafetyProtocol\\_CURRENT.pdf](http://www.cdc.gov/ncidod/dhqp/pdf/nhsn/NHSN_Manual_PatientSafetyProtocol_CURRENT.pdf))

### Selected MRSA Metrics Available from NHSN:

Metric	Description	Calculation	Comment
1	Nosocomial MRSA Infection Rate	# NHSN MRSA infections / 1000 patient-days	By selected patient-care location only (e.g., MICU, SICU, etc.); uses NHSN criteria to define infections
2	Incidence Rate of Hospital-Onset MRSA Based on Clinical Cultures	# 1 <sup>st</sup> MRSA cultures / 1000 patient-days	Hospital-wide is easiest, can also restrict to selected locations; evaluating same locations as Metric 1 may be most useful; uses positive culture data only
3a	Incidence Rate of Hospital-Onset MRSA BSIs Based on Clinical Cultures	# MRSA blood cultures / 1000 patient-days	
3b	Admission Prevalence MRSA BSI Rate (community-onset infections)	# MRSA blood cultures / 1000 admissions	
4	Direct MRSA Acquisition	# new MRSA surveillance and clinical cultures / 1000 patient-days	Requires data from AST program; selected locations only
5	Adherence to Process Measures	Compliance Rate	Requires data from observational assessment and/or from AST program; selected locations only
6	Central Line-Associated Bloodstream Infections (all pathogens)	# CLABSIs / 1000 line-days	By selected locations only; requires following the NHSN Device-Associated Module-CLABSI protocol

Notes: MRSA: methicillin-resistant *Staphylococcus aureus*, NHSN: National Healthcare Safety Network, #: number of, MICU: medical intensive care unit, SICU: surgical intensive care unit, BSIs: bloodstream infection(s), AST: active surveillance testing, CLABSIs: central line-associated bloodstream infection(s)



**Relevance.** Metrics 2 and 3a are recommended as “basic” measures for all facilities in the Society for Healthcare Epidemiology of America (SHEA) and the Healthcare Infection Control Practices Advisory Committee (HICPAC) Position Paper: “Recommendations for Metrics for Multidrug-Resistant Organisms in Healthcare Settings” (Infection Control and Hospital Epidemiology, October 2008). Location-specific measurements may be most meaningful to individual facilities, although facility-wide measurements may be most helpful for state health departments. Metric 1, although considered “advanced” in the position paper, has demonstrated great utility for facilities evaluating MRSA infection prevention efforts, and is the type of metric NHSN facilities have great experience in interpreting and utilizing. Metrics 1 and 2 are currently proposed for reporting by hospitals to Quality Improvement Organizations as part of their 9<sup>th</sup> Scope of Work with the Centers for Medicare and Medicaid Services (CMS). Metrics 4 and 5 are considered “advanced measures” in the position paper and may be useful for those facilities utilizing direct observations or active surveillance testing programs as part of a MRSA prevention initiative. Metric 6 has been used for many years for quality improvement; it provides risk-adjusted infection rates for central line-associated bloodstream infections (CLABSIs) caused by all pathogens. It can help facilities better define the impact of MRSA in specified units by providing the proportion of CLABSIs caused by MRSA.

**Data Access.** Data reported by facilities as part of surveillance activities through NHSN are entered into a web-enabled interface at any time by authorized users and stored in a secure database that can only be accessed for authorized purposes. Any information contained in this surveillance system that would permit identification of any individual or institution is collected with an assurance that it will be kept confidential, will be used only for the purposes stated, and will not be disclosed or released without the consent of the individual or the institution in accordance with Sections 304, 306, and 308(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d)). Authorized facility users can grant access rights to health agencies and other third parties by creating groups and specifying which data the group will be allowed to view and analyze. This permits enhanced coordination between all levels of public health and healthcare and will assist in meeting reporting mandates. The data used to calculate the metrics listed above are some examples of summary data to which third parties can be granted rights.

**Requirements.** Active participants can use the NHSN MDRO and CDAD Module to produce Metrics 1-5 and the NHSN Device-Associated Module CLABSI protocol to produce Metric 6.

- Minimum Reporting Time Requirements for NHSN Active Participants:
  - NHSN: facilities are required to report at least 6 months of data from any module per calendar year.
  - MDRO and CDAD Module: if selected, facilities are required to report **at least 3 months** of data from this module per calendar year. However, to make most of the metrics meaningful, 6-12 months of reporting are recommended. To meet the minimum reporting requirements for this module, facilities can choose to conduct



either Infection Surveillance in at least one location for at least three months per calendar year or LabID Event reporting in at least one location for at least three consecutive months per calendar year.

- CLABSI Protocol of Device-Associated Module: if selected, facilities are required to report at least 1 month of data from this protocol per calendar year.
- Data Reporting Requirements for Listed Metrics:
  - Metric 1 for specific locations:
    - Report all NHSN-defined nosocomial (i.e., healthcare-associated) MRSA infections for at least one selected location per month.
    - Report patient-days for selected location per month.
  - Metrics 2 and 3 for overall facility-wide measures:
    - Report first clinical MRSA culture and all unique MRSA blood cultures (laboratory-identified events) per patient per month; no bedside assessment is needed nor complete antibiogram reported.
    - Report total facility-wide patient-days and admissions/encounters per month.
  - Metrics 2 and 3 for specific locations:
    - Report first clinical MRSA culture and all unique MRSA blood cultures (laboratory-identified events) per patient by selected location per month.
    - Report patient-days and admissions/encounters by selected location per month.
  - Metrics 4 and 5 for specific locations:
    - Report number of hand hygiene, gown and glove use, or active surveillance testing (AST) adherence observations, or AST culture results for all eligible patients by selected location per month.
  - Metric 6 for specific locations:
    - Report all CLABSIs (all pathogens) by selected location per month.
    - Report central-line days by selected location per month.