Multidrug-Resistant Organism & *Clostridium difficile* Infection (MDRO/CDI) Module

Table of Contents

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* spp. (VRE), and certain gram-negative bacilli have increased in prevalence in U.S. hospitals over the last three decades, and have important implications for patient safety. A primary reason for concern about these multidrug-resistant organisms (MDROs) is that options for treating patients with these infections are often extremely limited, and MDRO infections are associated with increased lengths of stay, costs, and mortality. Many of these traits have also been observed for *Clostridium difficile* infection (CDI). The Healthcare Infection Control Practices Advisory Committee (HICPAC) has approved guidelines for the control of MDROs.[1] These guidelines are available at: http://www.cdc.gov/hicpac/mdro/mdro_toc.html). The MDRO and CDI module of the NHSN can provide a tool to assist facilities in meeting some of the criteria outlined in the guidelines. In addition, many of the metrics used in this module are consistent with "Recommendations for Metrics for Multidrug-Resistant Organisms in Healthcare Settings: SHEA/HICPAC Position Paper."[2]

Clostridium difficile (C. difficile) is responsible for a spectrum of *C. difficile* infections (CDI), including uncomplicated diarrhea, pseudomembranous colitis, and toxic megacolon, which can, in some instances, lead to sepsis and even death. Although CDI represents a subset of gastroenteritis and gastrointestinal tract infections in the current CDC definitions for HAIs, specific standard definitions for CDI [3] should be incorporated to obtain a more complete understanding of how *C. difficile* is being transmitted in a healthcare facility.

As outlined in the HICPAC guideline[1], these MDRO and *C. difficile* pathogens may require specialized monitoring to evaluate if intensified infection control efforts are required to reduce the occurrence of these organisms and related infections. The goal of this module is to provide a mechanism for facilities to report and analyze these data that will inform infection prevention professionals of the impact of targeted prevention efforts.

This module contains two reporting options for MDRO and *C. difficile*, one focused on Laboratory-identified (LabID) Events reporting and the second on Infection Surveillance reporting. Reporting options are summarized in Table 1. Participants may choose either one or both of the two core reporting options and then may also choose to participate in any of the supplemental monitoring methods described in Table 1.

Note: LabID Event reporting and Infection Surveillance reporting are two separate and independent reporting options. See Appendix 3: *Differentiating Between LabID Event and Infection Surveillance* for key differences between the two options.

Table 1. Core and Supplemental Reporting Choices for MDRO and CDI Module

	MDRO			CDI
Reporting Choices	**MRSA or MRSA/MSSA**	**VRE**	**CephR-*Klebsiella*, CRE (*E. coli, Enterobacter, Klebsiella*), *Acinetobacter* spp. (MDR)**	***C. difficile***
Core	**Method**	**Method**	**Method**	**Method**
Proxy Infection Measures LabID Event Choose ≥1 organism	A, B, C, D	A, B, C, D	A, B, C, D	±A, B, C
AND/OR				
Infection Surveillance Choose ≥1 organism	A, B	A, B	A, B	±A, B
Supplemental	**Method**	**Method**	**Method**	**Method**
Prevention Process Measures Options:				
• Hand Hygiene Adherence	B	B	B	B
• Gown and Gloves Use Adherence	B	B	B	B
• Active Surveillance Testing (AST) Adherence	B	B	N/A	N/A
AST Outcome Measures				
• Incident and Prevalent Cases using AST	B	B	N/A	N/A

N/A – not available or contraindicated

±No surveillance for CDI will be performed in Neonatal Intensive Care Units (NICU), Specialty Care Nurseries (SCN), babies in LDRP (Labor, Delivery, Recovery, and Post-partum), well-baby nurseries, or well-baby clinics. And, if conducting facility-wide monitoring (Method C) the denominator counts (admissions, patient-days, encounters) for these locations must be removed.

Reporting Method (must choose to monitor by LabID Event or Infection Surveillance reporting before supplemental methods can also be used for monitoring):

A: **Facility-wide by location.** Report for each location separately and cover all locations in a facility. This reporting method requires the most effort, but provides the most detail for local and national statistical data.

B: **Selected locations within the facility (1 or more).** Report separately for one or more specific locations within a facility. This includes reporting individual Events and denominator data for each of the selected locations. This reporting method is ideal for use during targeted prevention programs. Note: MDRO "blood specimens only" is the sole MDRO LabID event option for IRF, ED and 24-hour Observation locations.

C: **Overall facility-wide.** Report individual LabID events from each inpatient location and aggregate denominator counts for the entire facility. Options include: (1) Overall Facility-wide Inpatient (FacWideIN) to cover all inpatient locations. When using FacWideIN reporting, facilities must also include location specific reporting for outpatient emergency department (i.e., adult and pediatric) and 24-hour observation location(s). NOTE: When following FacWideIN, facilities will be required to enter denominators for all inpatient locations physically located in the hospital, as well as denominators for all inpatient locations minus any inpatient rehabilitation facility (IRF) and inpatient psychiatric facility (IPF) locations with separate CCNs. Totals reported should not include facilities affiliated with the hospital that are enrolled separately. Additionally, separate denominator data will be required to capture encounters for each mapped emergency department and 24-hour observation location. (2) Overall Facility-wide Outpatient (FacWideOUT) to cover all outpatient locations affiliated with the facility. Facilities may choose to monitor both FacWideIN and FacWideOUT.

D: **Overall facility-wide: *Blood Specimens* Only.** This method is available for MDRO LabID Events only and targets the most invasive events. Report individual LabID events from each inpatient location and aggregate denominator counts for the entire facility. Options include: (1) Overall Facility-wide Inpatient (FacWideIN) to cover all inpatient locations. Using this option, facilities must also include location specific reporting for outpatient emergency department (i.e., adult and pediatric) and 24-hour observation location(s). NOTE: When following FacWideIN, facilities will be required to enter denominators for all inpatient locations physically located in the hospital, as well as denominators for all inpatient locations minus any inpatient rehabilitation facility (IRF) and inpatient psychiatric facility (IPF) locations with separate CCNs. Totals reported should not include facilities affiliated with the hospital that are enrolled separately. Additionally, separate denominator data will be required to capture encounters for each mapped emergency department and 24-hour observation location. (2) Overall Facility-wide Outpatient (FacWideOUT) to cover all outpatient locations affiliated with the facility. Facilities may choose to monitor both FacWideIN and FacWideOUT.

I. Core Reporting

Option 1: Laboratory-Identified (LabID) Event Reporting

Introduction: LabID Event reporting option allows laboratory testing data to be used without clinical evaluation of the patient, and therefore is a much less labor-intensive method to track MDROs and *C. difficile*. These provide proxy infection measures of MDRO and/or *C. difficile* healthcare acquisition, exposure burden, and infection burden based almost exclusively on laboratory data and limited admission date data, including patient care location. LabID Event reporting is ONLY for collecting and tracking positive laboratory results (e.g., cultures) that are collected for "clinical" purposes (i.e., for diagnosis and treatment). This means that the results of laboratory specimens collected for active surveillance testing (AST) purposes only should not be reported as LabID Events.

LabID Events can be monitored at the overall facility-wide level for inpatient areas (FacWideIN), and/or at the overall facility-wide level for outpatient areas (FacWideOUT). At the overall FacWide levels and for IRF, ED, and 24-hour observation, MDROs can be monitored for all specimen types or for *blood specimens* only. LabID Events can also be monitored for specific locations with unique denominator data required from each of the specific locations (i.e., facility-wide locations monitored separately [Method A] allowing for both facility-wide and location-specific data, or by selected locations only [Method B]). If a facility chooses to conduct FacWideIN surveillance for LabID Events, the facility must also follow location-specific surveillance for that same organism in each outpatient emergency department (pediatric and adult) and 24-hour observation location.

Laboratory and admission data can be used to calculate a variety of distinct proxy measures including: admission prevalence rate and overall patient prevalence rate (measures of exposure burden), MDRO bloodstream infection incidence rate (measure of infection burden and healthcare acquisition), overall MDRO infection/colonization incidence rate (measure of healthcare acquisition), and CDI incidence rate (measure of infection burden and healthcare acquisition).

Use NHSN forms to collect all required data, using the definitions of each data field as indicated in the Tables of Instructions. When denominator data are available from electronic databases, these sources may be used as long as the counts are not substantially different (+ or – 5%) from manually collected counts.

A. MDRO LabID Event Reporting

Methodology: Facilities may choose to monitor one or more of the following MDROs: MRSA, MRSA and MSSA, VRE, CephR- *Klebsiella*, CRE, and/or multidrug-resistant *Acinetobacter* spp. (see definitions below). For *S. aureus*, both the resistant (MRSA) and the susceptible (MSSA) phenotypes can be tracked to provide concurrent measures of the susceptible pathogens as a comparison to those of the resistant pathogens in a setting of active MRSA prevention efforts.

Note: No Active Surveillance Culture/Testing (ASC/AST) results are to be included in this reporting of individual results (See *General Key Terms chapter*). Do NOT enter surveillance nasal swabs or other surveillance cultures as reports of LabID Events. AST tracking should be recorded under Process & Outcome Measures.

MDRO Definitions: MDROs included in this module are defined below.

MRSA: Includes ***S. aureus*** cultured from any specimen that tests oxacillin-resistant, cefoxitin-resistant, or methicillin-resistant by standard susceptibility testing methods, or by a laboratory test that is FDA-approved for MRSA detection from isolated colonies; these methods may also include a positive result by any FDA-approved test for MRSA detection from specific sources.

MSSA: ***S. aureus*** cultured from any specimen testing intermediate or susceptible to oxacillin, cefoxitin, or methicillin by standard susceptibility testing methods, or by a negative result from a test that is FDA-approved for MRSA detection from isolated colonies; these methods may also include a positive result from any FDA-approved test for MSSA detection from specific specimen sources.

VRE: ***Enterococcus faecalis, Enterococcus faecium, or Enterococcus species unspecified*** *(only those not identified to the species level)* that is resistant to vancomycin, by standard susceptibility testing methods or by results from any FDA-approved test for VRE detection from specific specimen sources.

CephR-*Klebsiella*: ***Klebsiella oxytoca or Klebsiella pneumoniae*** testing non-susceptible (i.e., resistant or intermediate) to ceftazidime, cefotaxime, ceftriaxone, or cefepime.

CRE: Any ***Escherichia coli***, ***Klebsiella oxytoca, Klebsiella pneumoniae***, or ***Enterobacter*** **spp**. testing resistant to imipenem, meropenem, doripenem, or ertapenem by standard susceptibility testing methods (i.e., minimum inhibitory concentrations of ≥4 mcg/mL for doripenem, imipenem and meropenem or ≥2 mcg/mL for ertapenem) OR by production of a carbapenemase (i.e., KPC, NDM, VIM, IMP, OXA-48) demonstrated using a recognized test (e.g., polymerase chain reaction, metallo-β-lactamase test, modified-Hodge test, Carba-NP). **Note**: For in-plan CRE surveillance, facilities must conduct surveillance for all three organisms CRE-*E. coli*, CRE-*Enterobacter*, **and** CRE-*Klebsiella (Klebsiella oxytoca* and *Klebsiella pneumoniae*).

MDR-*Acinetobacter:* Any ***Acinetobacter*** spp. testing non-susceptible (i.e., resistant or intermediate) to at least one agent in at least 3 antimicrobial classes of the following 6 antimicrobial classes:

β-lactam/β-lactam β-lactamase inhibitor combination	**Aminoglycosides**	**Carbapenems**	**Fluoroquinolones**
Piperacillin Piperacillin/tazobactam	Amikacin Gentamicin Tobramycin	Imipenem Meropenem Doripenem	Ciprofloxacin Levofloxacin
Cephalosporins	**Sulbactam**		
Cefepime Ceftazidime	Ampicillin/sulbactam		

Settings: MDRO LabID Event reporting can occur in any location: inpatient or outpatient.

Requirements: Facilities choose at least one of the reporting methods listed below and report data accordingly:

Method	**Numerator Data Reporting**	**Denominator Data Reporting**
Facility-wide by location **Note:** Must monitor *All Specimen* sources	Enter each MDRO LabID Event from all locations separately	Report separate denominators for each location in the facility as specified in the NHSN Monthly Reporting Plan
Selected locations **Note:** Must monitor *All Specimen* sources with the exception of IRF units, 24-hour observation, and emergency department	Enter each MDRO LabID Event from selected locations separately	Report separate denominators for each location monitored as specified in the NHSN Monthly Reporting Plan
Overall Facility-wide Inpatient (FacWideIN), *All Specimens*	Enter each MDRO LabID Specimen Event from all inpatient locations AND separately for outpatient emergency department, and 24-hour observation location(s).	Report aggregate denominator data for all inpatient locations physically located in the hospital (e.g., total number of admissions and total number of patient days), as well as denominators for all inpatient locations minus inpatient rehabilitation facility and inpatient psychiatric facility locations with separate CCNs. Separate denominators should be entered to capture encounters for each mapped outpatient emergency department and 24-hour observation location.

Overall Facility-wide Outpatient (FacWideOUT), *All Specimen* sources	Enter each MDRO LabID Event from all affiliated outpatient locations separately.	Report only one denominator for all outpatient locations (e.g., total number of encounters, including ED and OBS encounters in addition to other outpatient locations.)
Overall Facility-wide Inpatient (FacWideIN), *Blood Specimens* Only	Enter each MDRO LabID Blood Specimen Event from all inpatient locations AND separately for outpatient emergency department, and 24-hour observation location(s).	Report aggregate denominator data for all inpatient locations physically located in the hospital (e.g., total number of admissions and total number of patient days), as well as denominators for all locations minus inpatient rehabilitation facility and inpatient psychiatric facility locations with separate CCNs. Separate denominators should be entered to capture encounters for each mapped outpatient emergency department and 24-hour observation location.
Overall Facility-wide Outpatient (FacWideOUT), *Blood Specimens* Only	Enter each MDRO LabID Blood Specimen Event from all affiliated outpatient locations separately	Report only one denominator for all outpatient locations (e.g., total number of encounters).

Note: Facilities must indicate each reporting choice chosen for the calendar month on the *Patient Safety Monthly Reporting Plan* (CDC 57.106).

For each MDRO being monitored, all MDRO test results are evaluated using either the algorithm in Figure 1 (*All Specimens*) or Figure 2 (*Blood Specimens only*) to determine reportable LabID events for each calendar month, for each facility location as determined by the reporting method chosen. If monitoring *all specimens*, all first MDRO isolates (chronologically) per patient, per month, per location are reported as a LabID event regardless of specimen source [EXCLUDES tests related to active surveillance testing] (Figure 1); if a duplicate MDRO isolate is from blood, or if monitoring *blood specimens* only, it is reported as a LabID event only if it represents a unique blood source [i.e., no prior isolation of the MDRO in blood from the same patient and location in ≤2 weeks, even across calendar months] (Figures **1** & **2**). As a general rule, at a maximum, there should be no more than 3 blood isolates reported, which would be very rare. If monitoring *all specimens* and a blood isolate is entered as the first specimen of the month, then no non-*blood specimens* can be entered that month for that patient and location. Report each LabID Event individually on a separate form.

Definitions:

MDRO Isolate: Any specimen, obtained for clinical decision making, testing positive for an MDRO (as defined above). **Note**: Excludes tests related to active surveillance testing.

Duplicate MDRO Isolate: If monitoring *all specimens*, any MDRO isolate from the same patient and location after an initial isolation of the specific MDRO during a calendar month, regardless of specimen source, except unique blood source (Figure 1).

> EXAMPLE: On January 2, a newly admitted ICU patient has a positive MRSA urine culture. The following week, while still in the ICU, the same patient has MRSA cultured from an infected decubitus ulcer. The MRSA wound culture is considered a duplicate MDRO isolate, since it is the second non-blood MRSA isolate collected from the same patient and location during the same calendar month.

Unique Blood Source: A MDRO isolate from blood in a patient with no prior positive blood culture for the same MDRO and location in ≤2 weeks, even across calendar months and different facility admissions (Figure 2). There should be 14 days with no positive blood culture result for the patient, MDRO, and location before another Blood LabID Event is entered into NHSN for the patient, MDRO, and location. Additionally, if following *all specimens*, the first MDRO for the patient, month, and location should be reported. **Note:** The date of specimen collection is considered Day 1. NHSN recommends facilities keep an internal line listing log of all positive isolates for reference in LabID event reporting.

> EXAMPLE: (For *blood specimens only* reporting): On January 1, an ICU patient has a positive MRSA blood culture which **is** entered into NHSN. On January 4, while in the same location (ICU), the same patient has another positive MRSA blood culture which is **not** entered into NHSN because it has not been 14 days since the original positive MRSA blood culture while in the same location. On January 16, while in the same location (ICU), the same patient has another positive MRSA blood culture. While it has been more than 14 days since the initial positive MRSA blood culture from the same patient and location was entered into NHSN (January 1), it has not been >14 days since the patient's most recent positive MRSA blood culture (January 4) while in the same location. Therefore, the positive blood culture for January 16 is **not** entered into NHSN. On February 1, the patient has another positive MRSA blood culture while in the same location (ICU). Since it has been >14 days since the patient's most recent positive culture (January 16) while in the same location, this event **is** entered into NHSN.
>
> EXAMPLE :(For *all specimens* reporting)*:* For the same scenario as above, report the January 1 positive MRSA blood culture and do not report any additional January events. Additionally, report February 1 positive MRSA blood culture as this represents the first MDRO for the patient, month and location.

Laboratory-Identified (LabID) Event: All non-duplicate MDRO isolates from any specimen source and unique blood source MDRO isolates. [EXCLUDES tests related to active surveillance testing]. Even if reporting at the FacWide level, all reporting must follow rules by location for reporting.

Notes:

- A LabID Event calculator is available on the NHSN website to help with data entry decision making around the 14-day rule.
- If a facility is participating in FacWideIN surveillance and reporting, the facility must also conduct separate location-specific surveillance in all outpatient emergency department and 24-hour observation locations. This means LabID Events for the same organism and LabID Event type (i.e., *all specimens* or *blood specimens* only) must be reported from these locations even if the patient is not subsequently admitted to an inpatient location during the same encounter.
- All emergency department and 24-hour observation locations must be identified and mapped as outpatient locations within NHSN. For more information about mapping locations, see Locations chapter in the NHSN manual.

EXAMPLE: If monitoring blood specimens for FacWideIN (which requires surveillance in the emergency department and 24-hour observation locations), a patient has a positive MRSA laboratory isolate while in the emergency department. This specimen represents an MRSA LabID Event and should be entered for the outpatient emergency department. The next calendar day, the same patient is admitted to ICU and three days later, has a second positive MRSA blood specimen. This specimen also represents a unique LabID Event, because it is the first positive blood specimen in *this location* (ICU). Note that while this patient has two LabID Events, the second specimen that was taken from the ICU will be removed from most analysis reports.

EXAMPLE: If monitoring *all specimens*, on January 2, a newly admitted ICU patient with no previous positive laboratory isolates during this admission has a positive MRSA urine culture. This specimen represents a LabID Event since it is the first MRSA isolate for the patient, the location, and the calendar month.

EXAMPLE: If monitoring *all specimens* for FacWideIN surveillance, on January 2, a VRE wound culture is collected from the facility's own ED. The patient is then admitted to 4W the next calendar day. The ED culture result must be entered as an outpatient LabID event for the ED location for January 2, since the ED location is included in FacWideIN surveillance and reporting.

EXAMPLE: If monitoring *blood specimens only*, on January 26, a newly admitted ICU patient with no previous positive laboratory isolates during this admission has a positive MRSA urine culture which is not entered as a LabID Events since *blood specimens* only are being monitored. The following day, while in the same location, the same patient has a positive MRSA blood culture. This specimen represents a LabID Event since it is

a unique blood source (the first MRSA **blood** isolate for the same patient and same location). While remaining in ICU, the same patient has another positive blood culture on February 5. This does **not** represent a new LabID Event since it has not been >14 days since the most recent MRSA positive blood isolate for this patient and location.

Reporting Instructions: All LabID Events must be reported by location and separately and independently of Events reported through MDRO Infection Surveillance reporting and/or HAIs reported through the Device-associated and/or Procedure-associated Modules. See *Appendix 1. Guidance for Handling MDRO and CDI Module Infection Surveillance and LabID Event Reporting When Also Following Other NHSN Modules* for instructions on unique reporting scenarios. See *Appendix 3. Differentiating Between LabID Event and Infection Surveillance* for additional reporting information.

Numerator Data: Data will be reported using the *Laboratory-identified MDRO or CDI Event* form (CDC 57.128).

Denominator Data: Patient days, admissions (for inpatient locations), and encounters for emergency department, observation units, and other affiliated outpatient locations are reported using the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57.127). Beginning in 2015 for FacWideIN surveillance, facilities will be required to enter denominators for all locations physically located in the hospital, as well as denominators for all locations minus inpatient rehabilitation facility and inpatient psychiatric facility locations with a separate CCN. The totals should not include other facility types within the hospital that are enrolled and reporting separately (e.g., LTAC). See Table of Instructions for completion instructions.

An encounter is defined as a patient visit to an outpatient location. When determining a patient's admission dates to both the facility and specific inpatient location, the NHSN user must take into account any days spent in an inpatient location as an "observation" patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all days spent in an inpatient unit, regardless of admission and/or billing status are included in the counts of admissions and inpatient days for the facility and specific location; facility and specific location admission dates must be moved back to the first day spent in the inpatient location. For further information on counting patient days and admissions, see Appendix 2.

Data Analysis: Based on data provided on the LabID Event form, each event will be categorized by NHSN to populate different measures. By classifying positive cultures obtained on day 1 (admission date), day 2, and day 3 of admission as CO LabID Events and positive cultures obtained on or after day 4 as HO LabID Events, all HO LabID Events will have occurred more than 48 hours after admission.

The following categorizations and prevalence and incidence calculations are built into the analysis capabilities of NHSN, and are based on timing of admission to a facility and/or

location, specimen collection, and location where specimen was collected. Descriptions are provided to explain how the categories and metrics are defined in NHSN.

Categorizing MDRO LabID Events – *Based on Date Admitted to Facility and Date Specimen Collected*:

Community-Onset (CO): LabID Event specimen collected in an outpatient location or an inpatient location ≤3 days after admission to the facility (i.e., days 1, 2, or 3 of admission).

Healthcare Facility-Onset (HO): LabID Event specimen collected >3 days after admission to the facility (i.e., on or after day 4).

The following section describes the various measures calculated for MDRO LabID event surveillance.

Note: Beginning with 2015 data analysis, the number of FacWideIN admissions and number of FacWideIN patient days used in the various MDRO rate and SIR calculations will reflect data reported for the facility minus admissions and patient days from inpatient rehabilitation facility (IRF) and inpatient psychiatric facility (IPF) locations with unique CCNs.

Proxy Measures for Exposure Burden of MDROs – *All specimens*:

Inpatient Reporting:

- Admission Prevalence Rate = Number of 1st LabID Events per patient per month identified ≤3 days after admission to the location (if monitoring by inpatient location), or the facility (if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient admissions to the location or facility x 100

- Location Percent Admission Prevalence that is Community-Onset = Number of Admission Prevalent LabID Events to a location that are CO / Total number Admission Prevalent LabID Events x 100

- Location Percent Admission Prevalence that is Healthcare Facility-Onset = Number of Admission Prevalent LabID Events to a location that are HO / Total number of Admission Prevalent LabID Events x 100

- Overall Patient Prevalence Rate = Number of 1st LabID Events per patient per month regardless of time spent in location (i.e., prevalent + incident, if monitoring by inpatient location), or facility (i.e., CO + HO, if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient admissions to the location or facility x 100

Outpatient Reporting:

- Outpatient Prevalence Rate = Number of 1st LabID Events per patient per month for the location (if monitoring by outpatient location), or the facility (if monitoring by overall facility-wide outpatient = FacWideOUT) / Number of patient encounters for the location or facility x 100

Measures for MDRO Bloodstream Infection: Calculated when monitoring either *all specimens* or *blood specimens* only. NOTE: except for certain locations (i.e., inpatient rehabilitation facilities, emergency department, and 24-hour observation locations), the Blood specimens only option can only be used at the FacWideIN and FacWideOUT levels.

MRSA Bloodstream Infection Standardized Infection Ratio (SIR):

The SIR is calculated by dividing the number of observed events by the number of predicted events. The number of predicted events is calculated using LabID probabilities estimated from negative binomial models constructed from NHSN data during a baseline time period, which represents a standard population.[4] MRSA Bloodstream Infection SIRs are calculated for FacWideIN surveillance only.

Note: In the NHSN application, "predicted" is referred to as "expected".

Note: The SIR will be calculated only if the number of expected events (numExp) is ≥1 to help enforce a minimum precision criterion.

Facility MRSA Bloodstream Infection Incidence SIR = Number of all unique blood source LabID Events identified >3 days after admission to the facility (i.e., HO events, when monitoring by overall facility-wide inpatient = FacWideIN) / Number of expected HO MRSA blood LabID Events

Inpatient Reporting:

- MDRO Bloodstream Infection Admission Prevalence Rate = Number of all unique blood source LabID Events per patient per month identified ≤3 days after admission to the location (if monitoring by inpatient location), or facility (if monitoring by overall facility-wide inpatient=FacWideIN)/ Number of patient admissions to the location or facility x 100

- MDRO Bloodstream Infection Incidence Rate = Number of all unique blood source LabID Events per patient per month identified >3 days after admission to the location (if monitoring by inpatient location), or facility (if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient admissions to the location or facility x 100 (will be removed from NHSN analysis in July 2013)

- MDRO Bloodstream Infection Incidence Density Rate = Number of all unique blood source LabID Events per patient per month identified >3 days after admission to the

location (if monitoring by inpatient location), or facility (if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient days for the location or facility x 1,000 (will be referred to in NHSN analysis as Incidence Rate after July 2013)

- MDRO Bloodstream Infection Overall Patient Prevalence Rate = Number of 1st Blood LabID Events per patient per month regardless of time spent in location (i.e., prevalent + incident, if monitoring by inpatient location), or facility (i.e., CO + HO, if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient admissions to the location or facility x 100

MRSA Bloodstream Reporting for CMS-certified Inpatient Rehabilitation Facilities (IRFs) mapped as units within a hospital:

IRF units within a hospital that participate in the CMS Inpatient Rehabilitation Facility Quality Reporting Program will be given a single MRSA bacteremia Incidence rate for each type of CMS-certified IRF unit (adult and pediatric) mapped within the hospital according to CCN.

- Inpatient MRSA Bacteremia Incidence Density Rate for IRF units: Number of all incident blood source MRSA LabID events identified > 3 days after admission to an IRF unit and where the patient had no positive MRSA bacteremia LabID events in the prior 14 days in any CMS-certified IRF unit of that type / Total number of patient days for that type of IRF unit x 1,000

Outpatient Reporting:

- MDRO Bloodstream Infection Outpatient Prevalence Rate = Number of all unique blood source LabID Events per patient per month for the location (if monitoring by outpatient location), or the facility (if monitoring by overall facility-wide outpatient=FacWideOUT) / Number of patient encounters for the location or facility x 100

Measures for MDRO-CRE surveillance: the above incidence and prevalence rates are calculated separately for each species of CRE (i.e., *Klebsiella*, *E.coli,* and *Enterobacter)* as well as for all species combined. The following additional metrics is available for CRE LabID event reporting:

Percent Positive for Carbapenemase: number CRE positive for carbapenemase / number CRE tested for carbapenemase x 100

Proxy Measures for MDRO Healthcare Acquisition:

- Overall MDRO Infection/Colonization Incidence Rate = Number of 1st LabID Events per patient per month among those with no documented prior evidence of previous infection or colonization with this specific organism type from a previously reported LabID Event, and identified >3 days after admission to the location (if monitoring by

inpatient location), or facility (if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient admissions to the location or facility x 100 (will be removed from NHSN analysis in July 2013)

- Overall MDRO Infection/Colonization Incidence Density Rate = Number of 1st LabID Events per patient per month among those with no documented prior evidence of previous infection or colonization with this specific organism type from a previously reported LabID Event, and identified >3 days after admission to the location (if monitoring by inpatient location), or facility (if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient days for the location or facility x 1,000 (will be referred to in NHSN analysis as Incidence Rate after July 2013)

Clostridium difficile (C. *difficile*) LabID Event Reporting

Methodology: Facilities may choose to monitor *C. difficile* where *C. difficile* testing in the laboratory is performed routinely only on unformed (i.e., conforming to the shape of the container) stool samples. *C. difficile* LabID events may be monitored from all available inpatient locations as well as all available affiliated outpatient locations where care is provided to patients post discharge or prior to admission (e.g., emergency departments, outpatient clinics, and physician offices that submit samples to the facility's laboratory).

Settings: *C. difficile* LabID Event reporting can occur in any location: inpatient or outpatient. Surveillance will NOT be performed in NICU, SCN, babies in LDRP, well-baby nurseries, or well-baby clinics. If LDRP locations are being monitored, baby counts must be removed.

Requirements: Facilities must choose one or more of the reporting choices listed below and report data accordingly:

Method	Numerator Data Reporting	Denominator Data Reporting
Facility-wide by location	Enter each CDI LabID Event from all locations separately	Report separate denominators for each location in the facility as specified in the NHSN Monthly Reporting Plan
Selected locations	Enter each CDI LabID Event from selected locations separately	Report separate denominators for each location monitored as specified in the NHSN Monthly Reporting Plan
Overall Facility-wide Inpatient (FacWideIN)	Enter each CDI LabID Event from all inpatient locations AND separately for outpatient emergency department, and 24-hour observation location(s).	Report aggregate denominator data for all inpatient locations physically located in the hospital (e.g., total number of admissions and total number of patient days), as well as denominators for all inpatient locations minus inpatient rehabilitation facility and inpatient psychiatric facility locations with separate CCNs. Separate denominators should be entered to capture encounters for each mapped outpatient emergency department and 24-hour observation location.
Overall Facility-wide Outpatient (FacWideOUT)	Enter each CDI LabID Event from all affiliated outpatient locations separately	Report only one denominator for all outpatient locations (e.g., total number of encounters including ED and OBS encounters in addition to other outpatient locations).

Note: Facilities must indicate each reporting choice chosen for the calendar month on the *Patient Safety Monthly Reporting Plan* (CDC 57.106).

Definitions:

CDI-positive laboratory assay:
A positive laboratory test result for *C. difficile* toxin A and/or B, (includes molecular assays [PCR] and/or toxin assays) tested on an unformed stool specimen (must conform to the container)
OR
A toxin-producing *C. difficile* organism detected by culture or other laboratory means performed on an unformed stool sample (must conform to the container).

Duplicate C. *difficile*-positive test: Any *C. difficile* toxin-positive laboratory result from the same patient and location, following a previous *C. difficile* toxin-positive laboratory result within the past two weeks [14 days] (even across calendar months and readmissions to the same facility). There should be 14 days with no *C. difficile* toxin-positive laboratory result for the patient and location before another *C. difficile* LabID Event is entered into NHSN for the patient and location. The date of specimen collection is considered Day 1. NHSN recommends each facility keep an internal line listing log of all positive toxin tests as a reference in LabID event reporting.

EXAMPLE: On January 1, an ICU patient has a *C. difficile* toxin-positive laboratory result which **is** entered into NHSN. On January 4, while in the same location (ICU), the same patient has another positive *C. difficile* toxin-positive laboratory result which is **not** entered into NHSN because it has not been >14 days since the original *C. difficile* toxin-positive laboratory result while in the same location. On January 16, while in the same location (ICU), the same patient has another *C. difficile* toxin-positive laboratory result. While it has been more than 14 days since the initial positive *C. difficile* toxin-positive laboratory result was entered into NHSN (January 1) for the same patient and same location, it has not been >14 days since the patient's most recent *C. difficile* toxin-positive laboratory result (January 4) while in the same location. Therefore, the *C. difficile* toxin-positive laboratory result for January 16 is **not** entered into NHSN. On January 31, the patient has another *C. difficile* toxin-positive laboratory result while in the same location (ICU). Since it has been >14 days since the patient's most recent *C. difficile* toxin-positive laboratory result (January 16) while in the same location, this event **is** entered into NHSN.

Laboratory-Identified (LabID) Event: All non-duplicate *C. difficile* toxin-positive laboratory results. Even if reporting at the FacWide level, all reporting must follow rules by location for reporting.

Notes:

- A LabID Event calculator is available on the NHSN website to help with data entry decision making around the 14-day rule.
- If a facility is participating in FacWideIN surveillance and reporting, the facility must also conduct separate location-specific surveillance in all outpatient emergency department and 24-hour observation locations. This means LabID Events for the same organism and LabID

Event type must be reported from these locations even if the patient is not subsequently admitted to an inpatient location during the same encounter.

- All emergency department and 24-hour observation locations must be identified and mapped as outpatient locations within NHSN. For more information about mapping locations, see Chapter 15 in the NHSN manual.

Reporting Instructions: All *C. difficile* LabID Events must be reported by location and separately and independently of Events reported using the *C. difficile* Infection Surveillance reporting option and/or HAI reporting.

Numerator: Data will be reported using the *Laboratory-Identified MDRO or CDI Event* form (CDC 57.128).

Denominator Data: Patient days, admissions (for inpatient locations), and encounters for emergency departments, observation units, and other affiliated outpatient locations are reported using the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57.127). See Tables of Instructions for completion instructions. Beginning in 2015 for FacWideIN surveillance, facilities will be required to enter denominators for all locations physically located in the hospital, as well as denominators for all locations minus inpatient rehabilitation facility and inpatient psychiatric facility locations with a separate CCN. The totals should not include other facility types within the hospital that are enrolled and reporting separately (e.g., LTAC). See Tables of Instructions for completion instructions.

An encounter is defined as a patient visit to an outpatient location for care. When determining a patient's admission dates to both the facility and specific inpatient location, the NHSN user must take into account all days, including any days spent in an inpatient location as an "observation" patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all days spent in an inpatient unit, regardless of admission and/or billing status are included in the counts of admissions and inpatient days for the facility and specific location; facility and specific location admission dates must be moved back to the first day spent in the inpatient location. For further information on counting patient days and admissions, see ***Appendix 2: Determining Patient Days for Summary Data Collection: Observation vs. Inpatients***

CDI Data Analysis: Based on data provided on the LabID Event form, each event will be categorized by NHSN to populate different measures. Positive toxin tests obtained on hospital day 1 (admission date), hospital day 2 or hospital day 3 are classified as CO events. Positive toxin tests obtained on or after hospital day 4 are classified as HO LabID Events.

The following categorizations and prevalence and incidence calculations are built into the analysis capabilities of NHSN, and are based on timing of admission to a facility and/or location, specimen collection, and location where specimen was collected. Descriptions are provided to explain how the categories and metrics are defined in NHSN.

Categorization Based on Current Date Specimen Collected and Prior Date Specimen Collected of a previous CDI LabID Event:

- Incident CDI Assay: Any CDI LabID Event from a specimen obtained >8 weeks after the most recent CDI LabID Event (or with no previous CDI LabID Event documented) for that patient.

- Recurrent CDI Assay: Any CDI LabID Event from a specimen obtained >2 weeks and ≤8 weeks after the most recent CDI LabID Event for that patient.

Note: Beginning in 2015, for FacWideIN surveillance, CDI Assay is assigned based on Events from inpatient locations, emergency departments, and 24-hour observation locations. For data reported prior to 2015, CDI Assay was assigned based on events from within the same setting only. For example, in 2014, if performing both FacWideIN and FacWideOUT surveillance, CDI Assay of inpatient CDI LabID Events was determined by a review of previously-entered CDI LabID Events from inpatient locations only.

The incident and recurrent CDI LabID Events are further categorized within NHSN. The following categorizations, as well as prevalence and incidence calculations are built into the analysis capabilities of NHSN, and are based on timing of admission to facility and/or location, specimen collection, location where specimen was collected, and previous discharge. Descriptions are provided to explain how the categories and metrics are defined in NHSN.

Categorizing CDI LabID Events – Based on Date Admitted to Facility and Date Specimen Collected:

- Community-Onset (CO): LabID Event collected in an outpatient location or an inpatient location ≤3 days after admission to the facility (i.e., days 1, 2, or 3 of admission).

- Community-Onset Healthcare Facility-Associated (CO-HCFA): CO LabID Event collected from a patient who was discharged from the facility ≤4 weeks prior to current date of stool specimen collection. Data from outpatient locations (e.g., outpatient encounters) are not included in this definition.

- Healthcare Facility-Onset (HO): LabID Event collected >3 days after admission to the facility (i.e., on or after day 4).

The following section describes the various measures calculated for CDI LabID event surveillance.

Note: Beginning with 2015 data, the number of FacWideIN admissions and number of FacWideIN patient days used in the various CDI rate and SIR calculations will represent those reported for the facility minus admissions and patient days from the following: locations with unique CCNs (i.e., IRF and IPF units) separate from the reporting facility, neonatal ICUs, special care nurseries, and well-baby locations.

CDI Standardized Infection Ratio (SIR):

The SIR is calculated by dividing the number of observed events by the number of predicted events. The number of predicted events is calculated using LabID probabilities estimated from negative binomial models constructed from NHSN data during a baseline time period, which represents a standard population. CDI SIRs are calculated for FacWideIN surveillance only.[4]

Note: In the NHSN application, "predicted" is referred to as "expected".
Note: The SIR will be calculated only if the number of expected events (numExp) is ≥1, to help enforce a minimum precision criterion. The CDI SIRs are only calculated at the quarter level or higher. In addition, SIRs will not be calculated for a quarter until the CDI Test type has been reported. When the "MDRO/CDI Prevention Process and Outcome Measures Monthly Reporting" form is completed for the last month of each quarter, users are asked to report the primary type of test that was used to identify CDI in the hospital for that quarter. That test type is then used in the calculation of the CDI SIR for that quarter. More information about the calculation of the CDI SIR can be found here: http://www.cdc.gov/nhsn/pdfs/mrsa-cdi/riskadjustment-mrsa-cdi.pdf

Facility CDI Incidence SIR = Number of all Incident CDI LabID Events identified >3 days after admission to the facility (i.e., HO events when monitoring by overall facility-wide inpatient = FacWideIN) / Number of expected Incident HO CDI LabID Events

Calculated CDI Prevalence Rates:

Inpatient Reporting:

- Admission Prevalence Rate = Number of non-duplicate CDI LabID Events per patient per month identified ≤3 days after admission to the location (if monitoring by inpatient location), or facility (if monitoring by overall facility-wide inpatient=FacWideIN) (includes CO and CO-HCFA events) / Number of patient admissions to the location or facility x 100

- Community-Onset Admission Prevalence Rate = Number of CDI LabID events that are CO, per month, in the facility / Number of patient admissions to the facility x 100 (this calculation is only accurate for Overall Facility-wide Inpatient reporting)

- Location Percent Admission Prevalence that is Community-Onset = Number of Admission Prevalent LabID Events to a location that are CO / Total number Admission Prevalent LabID Events x 100 (Note: The numerator in this formula does not include Admission Prevalent LabID Events that are CO-HFCA.)

- Location Percent Admission Prevalence that is Community-Onset Healthcare Facility-Associated = Number of Admission Prevalent LabID Events to a location that are CO-HCFA / Total number Admission Prevalent LabID Events x 100

- Location Percent Admission Prevalence that is Healthcare Facility-Onset = Number of Admission Prevalent LabID Events to a location that are HO / Total number of Admission Prevalent LabID Events x 100

- Overall Patient Prevalence Rate = Number of 1st CDI LabID Events per patient per month regardless of time spent in location (i.e., prevalent + incident, if monitoring by inpatient location), or facility (i.e., CO + CO-HCFA + HO, if monitoring by overall facility-wide inpatient=FacWideIN) / Number of patient admissions to the location or facility x 100

Outpatient Reporting:

- Outpatient Prevalence Rate = Number of all non-duplicate CDI LabID Events per patient per month for the location (if monitoring by outpatient location), or the facility (if monitoring by overall facility-wide outpatient=FacWideOUT) / Number of patient encounters for the location or facility x 100

Calculated CDI Incidence Rates: (see categorization of Incident, HO, and CO-HCFA above).

- Location CDI Incidence Rate = Number of Incident CDI LabID Events per month identified >3 days after admission to the location / Number of patient days for the location x 10,000

- Facility CDI Healthcare Facility-Onset Incidence Rate = Number of all Incident HO CDI LabID Events per month in the facility/ Number of patient days for the facility x 10,000 (this calculation is only accurate for Overall Facility-wide Inpatient reporting)

- Facility CDI Combined Incidence Rate = Number of all Incident HO and CO-HCFA CDI LabID Events per month in the facility / Number of patient days for the facility x 10,000 (this calculation is only accurate for Overall Facility-wide Inpatient reporting)

***C.difficile* Reporting for CMS-certified Inpatient Rehabilitation Facilities (IRFs) mapped as units within a hospital:**

IRF units within a hospital that participate in the CMS Inpatient Rehabilitation Facility Quality Reporting Program will be given a single CDI LabID event Incidence rate for each type of CMS-certified IRF unit (adult and pediatric) mapped within the hospital according to CCN.

- Inpatient CDI Incidence Density Rate for IRF units: Number of all incident CDI LabID events identified > 3 days after admission to an IRF unit and where the

patient had no positive CDI LabID events in the prior 14 days in any CMS-certified IRF unit of that type / Total number of patient days for that type of IRF unit x 10,000

Figure 1. MDRO Test Result Algorithm for *All Specimens* Laboratory-Identified (LabID) Events

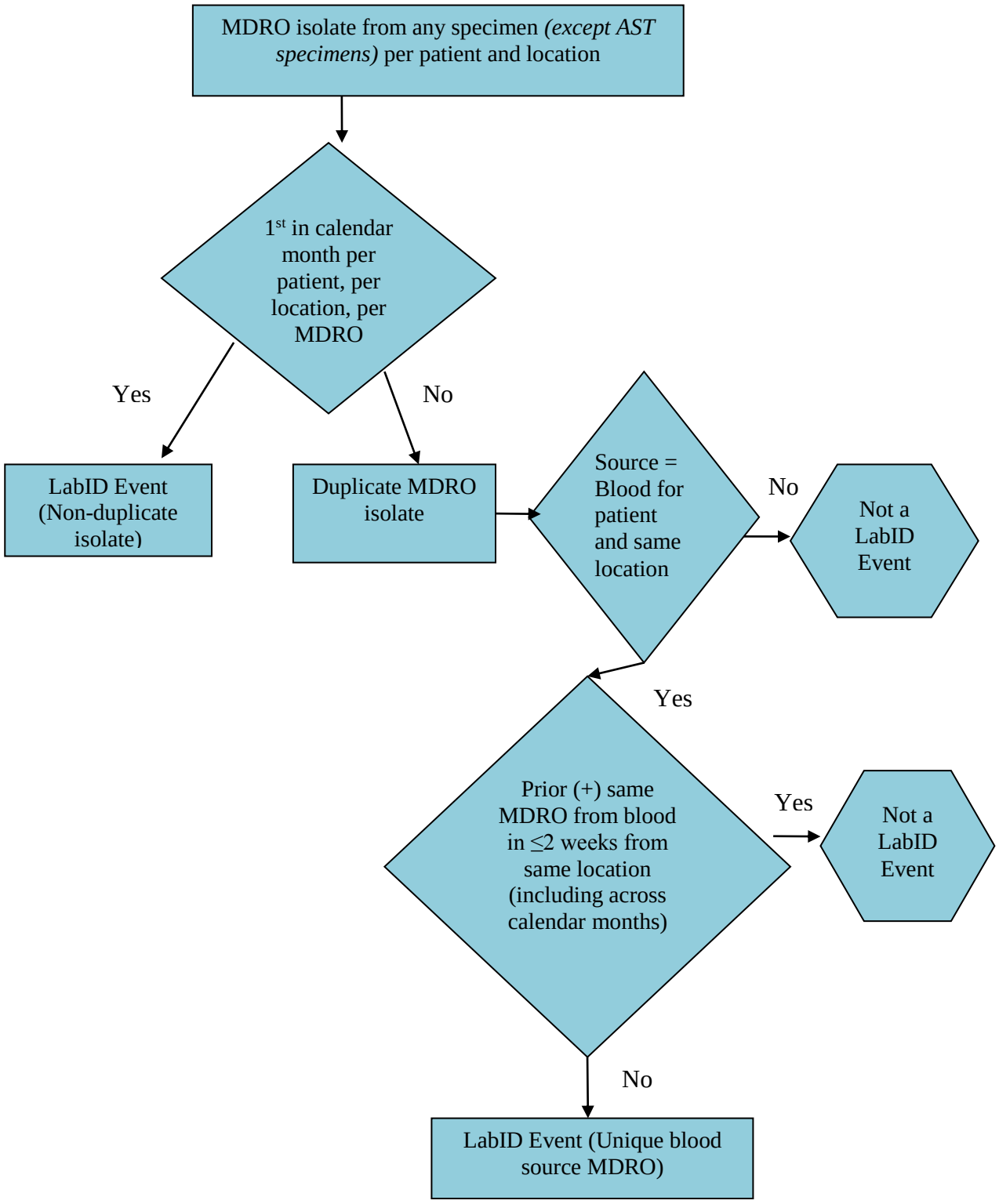


Figure 2. MDRO Test Result Algorithm for *Blood Specimens Only* Laboratory-Identified (LabID) Events

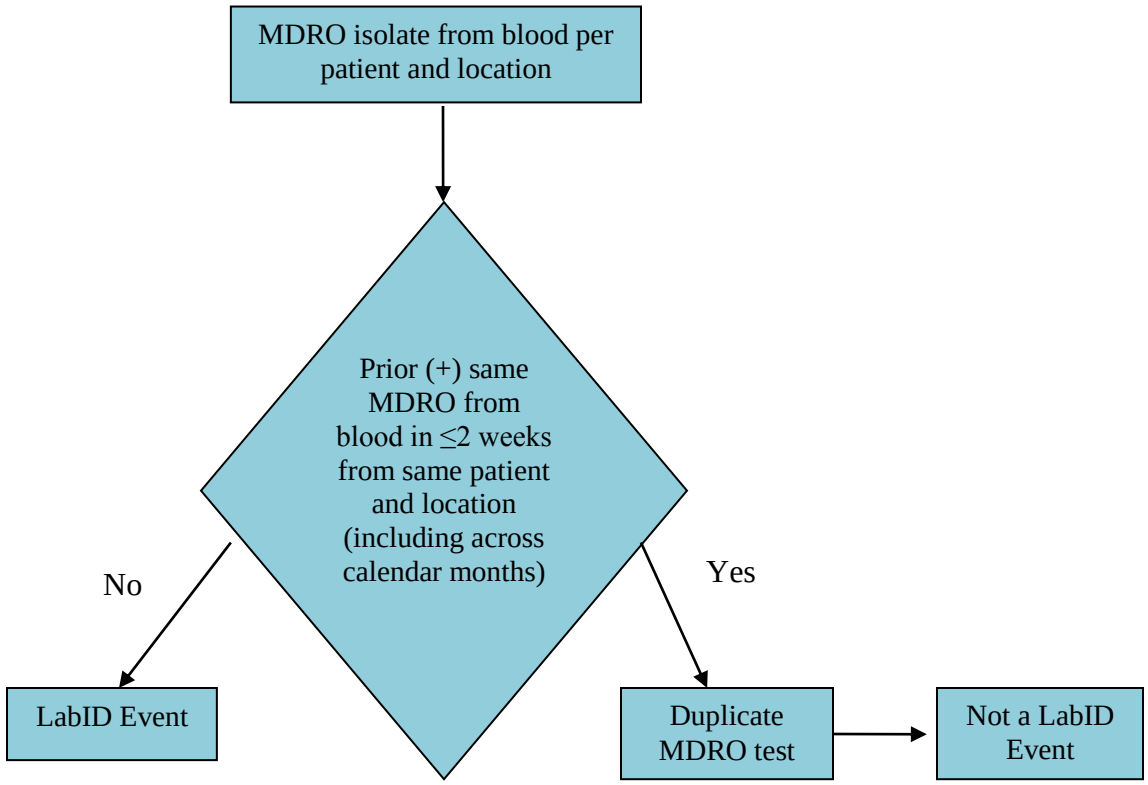
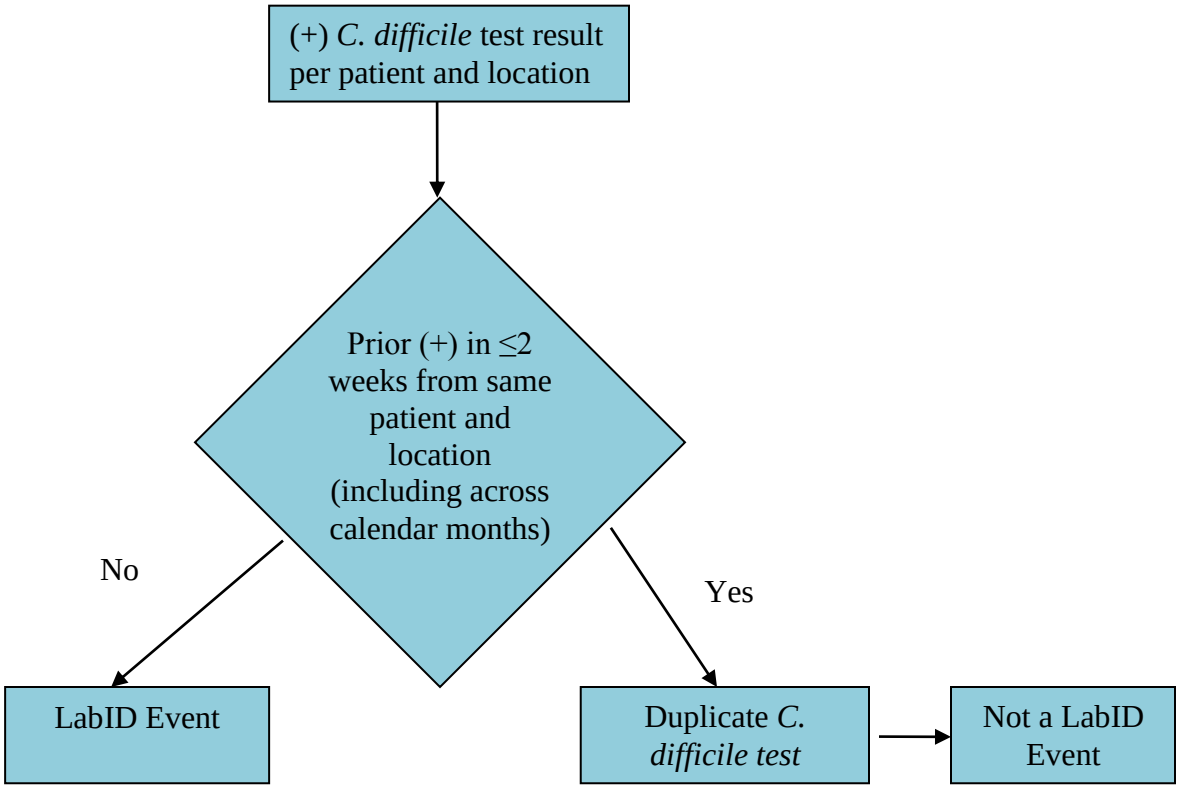


Figure 3. *C. difficile* Test Result Algorithm for Laboratory Identified (LabID) Events



Option 2: Infection Surveillance Reporting

Introduction: The Infection Surveillance reporting option for MDRO and *C. difficile* infections enables users to utilize the CDC/NHSN healthcare-associated infections definitions for identifying and reporting infections associated with MDROs and/or *C. difficile*. Surveillance must occur from at least one patient care area and requires active, patient-based, prospective surveillance of the chosen MDRO(s) and/or *C. difficile* infections (CDIs) by a trained Infection Preventionists (IP). This means that the IP shall seek to confirm and classify infections caused by the chosen MDRO(s) and/or *C. difficile* for monitoring during a patient's stay in at least one patient care location during the surveillance period. These data will enhance the ability of NHSN to aggregate national data on MDROs and CDIs.

A. MDRO Infection Surveillance Reporting

Methodology: Facilities may choose to monitor one or more of the following MDROs: MRSA, MRSA and MSSA, VRE, CephR- *Klebsiella*, CRE (CRE-*Klebsiella*, CRE-*E. coli*, **and** CRE-*Enterobacter)*, and multidrug-resistant *Acinetobacter* spp. (See definitions in Section I, Option 1A). For S. *aureus*, both the resistant (MRSA) and the susceptible (MSSA) phenotypes can be tracked to provide concurrent measures of the susceptible pathogens as a comparison to those of the resistant pathogens in a setting of active MRSA prevention efforts. REMEMBER: No Active Surveillance Culture/Testing (ASC/AST) results are to be included in this reporting of individual results.

Settings: Infection Surveillance can occur in any inpatient location where such infections may be identified and where denominator data can be collected, which may include critical/intensive care units (ICU), specialty care areas (SCA), neonatal units, step-down units, wards, and chronic care units. In Labor, Delivery, Recovery, & Post-partum (LDRP) locations, where mom and babies are housed together, users must count both mom and baby in the denominator. If moms only are being counted, then multiply moms times two to include both mom and baby in denominators.

Requirements: Surveillance for all types of NHSN-defined healthcare-associated infections (HAIs), regardless if HAI is included in "in-plan" or "off- plan" surveillance, of the MDRO selected for monitoring in at least one location in the healthcare facility as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106).

Definitions: MDROs included in this module are defined in Section I, Option 1A. Refer to *CDC/NHSN Surveillance Definitions for Specific Types of Infections* for infection site criteria.

Location of Attribution and Transfer Rule applies – See Identifying HAIs in NHSN chapter (Chapter 2).

Reporting Instructions: If participating in MDRO/CDI Infection Surveillance and/or LabID Event Reporting, along with the reporting of HAIs through the Device-Associated and/or Procedure-Associated Modules, see *Appendix 1: Guidance for Handling MDRO/CDI Module Infection Surveillance and LabID Event Reporting When Also Following Other NHSN Modules*, for instructions on unique reporting scenarios.

Numerator Data: Number of healthcare-associated infections, by MDRO type. Infections are reported on the appropriate NHSN forms: *Primary Bloodstream Infection, Pneumonia, Ventilator-Associated Event, Urinary Tract Infection, Surgical Site Infection, or MDRO or CDI Infection Event (CDC 57.108, 57.111, 57.112, 57.114, 57.120, and 57.126, respectively.).* See the *Table of Instructions*, located in each of the applicable chapters, for completion instructions.

Denominator Data: Number of patient days and admissions. Patient days and admissions are reported by location using the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57.127). See *Table of Instructions* for completion instructions.

Data Analysis: Data are stratified by time (e.g., month, quarter, etc.) and patient care location.
MDRO Infection Incidence Rate = Number of HAIs by MDRO type/ Number of patient days x 1000

B. *Clostridium difficile* Infection Surveillance Reporting

Methodology: *C. difficile* Infection (CDI) Surveillance, reporting on all NHSN-defined healthcare-associated CDIs from at least one patient care area, is one reporting option for *C. difficile* (i.e., part of your facility's Monthly Reporting Plan). These data will enhance the ability of NHSN to aggregate national data on CDIs.

Settings: Infection Surveillance will occur in any inpatient location where denominator data can be collected, which may include critical/intensive care units (ICU), specialty care areas (SCA), step-down units, wards, and chronic care units. Surveillance will NOT be performed in Neonatal Intensive Care Units (NICU), Specialty Care Nurseries (SCN), babies in LDRP, or well-baby nurseries. If LDRP locations are being monitored, baby counts must be removed.

Requirements: Surveillance for CDI must be performed in at least one location in the healthcare institution as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106).

Definitions: Report all healthcare-associated infections where *C. difficile*, identified by a positive toxin result, including toxin producing gene [PCR]), is the associated pathogen, according to the Repeat Infection Timeframe (RIT) rule for HAIs (See Identifying HAIs in NHSN chapter). Refer to specific definitions in *CDC/NHSN Surveillance Definitions for Specific Types of Infections* chapter for *C. difficile* gastrointestinal system infection (GI-CDI).

HAI cases of CDI that meet criteria for a healthcare-associated infection should be reported as *Clostridium difficile* gastrointestinal system infection (GI-CDI). Report the pathogen as C. *difficile* on the *MDRO or CDI Infection Event* form (CDC 57.126). If the patient develops GI-CDI, and GI-GE or GI-GIT, report the GI-CDI and the GI-GE or GI-GIT only if additional enteric organisms are identified and applicable criteria are met. **Note:** CDI laboratory-identified event (LabID Event) categorizations (e.g., recurrent CDI assay, incident CDI assay, healthcare facility-onset, community-onset, community-onset healthcare facility-associated) do **not** apply to HAIs; including *C. difficile* associated gastrointestinal system infections (GI-

CDI). Each new GI-CDI must be reported according to the HAI rules outlined in Identifying HAIs in NHSN chapter.

CDI Complications: CDI in a case patient within 30 days after CDI symptom onset with at least one of the following:

1. Admission to an intensive care unit for complications associated with CDI (e.g., for shock that requires vasopressor therapy);
2. Surgery (e.g., colectomy) for toxic megacolon, perforation, or refractory colitis
   AND/OR
3. Death caused by CDI within 30 days after symptom onset and occurring during the hospital admission.

Location of Attribution and Transfer Rule apply to Infection Surveillance – See Identifying HAIs in NHSN chapter.

Numerator Data: Number of healthcare-associated *C. difficile* infections. Infections are reported on the *MDRO or CDI Infection Event* form (CDC 57.126). See *Tables of Instructions* for completion instructions.

Denominator Data: Number of patient days and admissions by location are reported using the *MDRO and CDI and Outcome Measures Monthly Monitoring* form (CDC 57.127). See *Tables of Instructions* for completion instructions.

C. difficile Infections:

Numerator: The total number of HAI CDI cases identified during the surveillance month for a location.

Denominator: The total number of patient days and admissions during the surveillance month for a location.

Data Analysis: Data are stratified by time (e.g., month, quarter, etc.) and by patient care location.

C. difficile Infection Incidence Rate = Number of HAI CDI cases / Number of patient days x 10,000

II. Supplemental Reporting

1. Prevention Process Measures Surveillance

a. Monitoring Adherence to Hand Hygiene

Introduction: This option will allow facilities to monitor adherence to hand hygiene after a healthcare worker (HCW) has contact with a patient or inanimate objects in the immediate vicinity of the patient. Research studies have reported data suggesting that improved after-contact hand hygiene is associated with reduced MDRO transmission. While there are multiple opportunities for hand hygiene during patient care, for the purpose of this option, only hand hygiene after contact with a patient or inanimate objects in the immediate vicinity of the patient will be observed and reported. (http://www.cdc.gov/handhygiene/)

Settings: Surveillance will occur in any location: inpatient or outpatient.

Requirements: Surveillance for adherence to hand hygiene in at least one location in the healthcare institution for at least one calendar month as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106). This should be done in patient care locations also selected for Infection Surveillance or LabID Event reporting.

In participating patient care locations, perform at least 30 different unannounced observations after contact with patients for as many individual HCWs as possible. For example, try to observe all types of HCWs performing a variety of patient care tasks during the course of the month, not only nurses, or not only during catheter or wound care. No personal identifiers will be collected or reported.

Definitions:

Antiseptic handwash: Washing hands with water and soap or other detergents containing an antiseptic agent.

Antiseptic hand-rub: Applying an antiseptic hand-rub product to all surfaces of the hands to reduce the number of microorganisms present.

Hand hygiene: A general term that applies to either: handwashing, antiseptic hand wash, antiseptic hand rub, or surgical hand antisepsis.

Handwashing: Washing hands with plain (i.e., non-antimicrobial) soap and water.

Numerator: Hand Hygiene Performed = Total number of observed contacts during which a HCW touched either the patient or inanimate objects in the immediate vicinity of the patient and appropriate hand hygiene was performed.

Denominator: Hand Hygiene Indicated = Total number of observed contacts during which a HCW touched either the patient or inanimate objects in the immediate vicinity of the patient and therefore, appropriate hand hygiene was indicated.

Hand hygiene process measure data are reported using the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57. 127). See Tables of Instructions for completion instructions.

Data Analysis: Data are stratified by time (e.g., month, quarter, etc.) and patient care location.

Hand Hygiene Percent Adherence = Number of contacts for which hand hygiene was performed / Number of contacts for which hand hygiene was indicated x 100

b. Monitoring Adherence to Gown and Gloves Use as Part of Contact Precautions

Introduction: This option will allow facilities to monitor adherence to gown and gloves use when a HCW has contact with a patient or inanimate objects in the immediate vicinity of the patient, when that patient is on Transmission-based Contact Precautions. While numerous aspects of adherence to Contact Precautions could be monitored, this surveillance option is only focused on the use of gown and gloves. (http://www.cdc.gov/ncidod/dhqp/gl_isolation_contact.html)

Settings: Surveillance can occur in any of 4 types of inpatient locations: (1) intensive care units (ICU), (2) specialty care areas, (3) neonatal intensive care units (NICU), and (4) any other inpatient care location in the institution (e.g., surgical wards).

Requirements: Surveillance for adherence to gown and gloves use in at least one location in the healthcare institution for at least 1 calendar month as indicated in the Patient Safety Monthly Reporting Plan (CDC 57.106). Ideally, this should be done in patient care locations also selected for Infection Surveillance or LabID Event reporting.

Among patients on Transmission-based Contact Precautions in participating patient care locations, perform at least 30 unannounced observations. A total of thirty different contacts must be observed monthly among HCWs of varied occupation types. For example, try to observe all types of HCWs performing a variety of patient care tasks during the course of the month, not only nurses, or not only during catheter or wound care. Both gown and gloves must be donned appropriately prior to contact for compliance. No personal identifiers will be collected or reported.

Definitions:

Gown and gloves use**:** In the context of Transmission-based Contact Precautions, the donning of both a gown and gloves prior to contact with a patient or inanimate objects in the immediate vicinity of the patient. Both a gown and gloves must be donned appropriately prior to contact for compliance.

Numerator: Gown and Gloves Used = Total number of observed contacts between a HCW and a patient or inanimate objects in the immediate vicinity of a patient on Transmission-based Contact Precautions for which gown and gloves had been donned appropriately prior to the contact.

Denominator: Gown and Gloves Indicated = Total number of observed contacts between a HCW and a patient on Transmission-based Contact Precautions or inanimate objects in the immediate vicinity of the patient and therefore, gown and gloves were indicated.

Gown and gloves use process measure data are reported using the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57.127). See *Tables of Instructions* for completion instructions.

Data Analysis: Data are stratified by time (e.g., month, quarter, etc.) and patient care location.
Gown and Glove Use Percent Adherence = Number of contacts for which gown and gloves were used appropriately / Number of contacts for which gown and gloves were indicated x 100

c. Monitoring Adherence to Active Surveillance Testing

Introduction: This option will allow facilities to monitor adherence to active surveillance testing (AST) of MRSA and/or VRE, using culturing or other methods.

Settings: Surveillance will occur in any of 4 types of inpatient locations: (1) intensive care units (ICU), (2) specialty care areas, (3) neonatal intensive care units (NICU), and (4) any other inpatient care location in the institution (e.g., surgical wards).

Requirements: Surveillance of AST adherence in at least one location in the healthcare facility for at least one calendar month as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106). A facility may choose to report AST for MRSA and/or VRE in one or multiple patient care locations, as the facility deems appropriate. Ideally, this should be done in patient care locations also selected for Infection Surveillance or LabID Event reporting. To improve standardization of timing rules for AST specimen collection, classify admission specimens as those obtained on day 1 (admission date), day 2, or day 3 (i.e., ≤3 days). Classify discharge/transfer AST specimens as those collected on or after day 4 (i.e., >3 days).

Definitions:

AST Eligible Patients: Choose one of two methods for identifying patients that are eligible for AST:

All = All patients in the selected patient care area regardless of history of MRSA or VRE infection or colonization.

OR

NHx = All patients in the selected patient care area who have NO documented positive MRSA or VRE infection or colonization during the previous 12 months (as ascertained by either a facility's laboratory records or information provided by referring facilities); and no evidence of MRSA or VRE during stay in the patient care location (i.e., they are not in Contact Precautions).

Timing of AST: Choose one of two methods for reporting the timing of AST:

Adm = Specimens for AST obtained ≤3 days after admission,

OR

Both = Specimens for AST obtained ≤3 days after admission and, for patients' stays of >3 days, at the time of discharge/transfer. Discharge/transfer AST should include all discharges (including

discharges from the facility or to other wards or deaths) and can include the most recent weekly AST if performed >3 days after admission to the patient care location. Discharge/transfer AST should not be performed on patients who tested positive on AST admission.

Numerator and Denominator Data: Use the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57.127) to indicate: 1) AST was performed during the month for MRSA and/or VRE, 2) AST-eligible patients, and 3) the timing of AST. No personal identifiers will be collected or reported. See Tables of Instructions for completion instructions.

Numerator: For each month during which AST is performed:

Admission AST Performed = Number of patients eligible for admission AST who had a specimen obtained for testing ≤3 days after admission,
AND/OR
Discharge/Transfer AST Performed = For patients' stays >3 days, the number of discharged or transferred patients eligible for AST who had a specimen obtained for testing prior to discharge, not including the admission AST.

Denominator: For each month during which AST is performed:

Admission AST Eligible = Number of patients eligible for admission AST (All or NHx),
AND/OR
Discharge/Transfer AST Eligible = Number of patients eligible for discharge/transfer AST (All or NHx) AND in the facility location >3 days AND negative if tested on admission.

Data Analysis: Data are stratified by patient care location and time (e.g., month, quarter, etc.), according to AST-eligible patients monitored and the timing of AST.

Admission AST Percent Adherence = Number of patients with admission AST Performed / Number of patients admission AST eligible x 100

Discharge/transfer AST Percent Adherence = Number of patients with discharge/transfer AST performed / Number of patients discharge/transfer AST eligible x 100

2. Active Surveillance Testing Outcome Measures

Introduction: This option will allow facilities to use the results of AST to monitor the prevalent and incident rates of MRSA and/or VRE colonization or infection. This information will assist facilities in assessing the impact of intervention programs on MRSA or VRE transmission.

Settings: Surveillance will occur in any of 4 types of inpatient locations: (1) intensive care units (ICU), (2) specialty care, (3) neonatal intensive care units (NICU), and (4) any other inpatient care location in the institution (e.g., surgical wards).
Requirements: Surveillance for prevalent and/or incident MRSA or VRE cases in at least one location in the healthcare facility for at least one calendar month as indicated in the *Patient Safety Monthly Reporting Plan* (CDC 57.106). This can be done ONLY in locations where AST adherence is being performed. A minimum AST adherence level will be required for the system to calculate prevalence and incidence. A facility may choose to report AST for MRSA and/or VRE in one or multiple patient care locations, as the facility deems appropriate. Ideally, this should be done in patient care locations also selected for Infection Surveillance or LabID Event reporting. To improve standardization of timing rules for AST specimen collection, classify admission specimens as those obtained on day 1 (admission date), day 2, or day 3 (i.e., ≤3 days). Classify discharge/transfer AST specimens as those collected on or after day 4 (i.e., >3 days). Only the first specimen positive for MRSA or VRE from a given patient in the patient care location is counted, whether obtained for AST or as part of clinical care. If an Admission AST specimen is not collected from an eligible patient, assume the patient has no MRSA or VRE colonization.

Definitions:

AST Admission Prevalent case:

Known Positive = A patient with documentation on admission of MRSA or VRE colonization or infection in the previous 12 months (i.e., patient is known to be colonized or infected as ascertained by either a facility's laboratory records or information provided by referring facilities). (All MRSA or VRE colonized patients currently in a location during the month of surveillance should be considered "Known Positive"),

OR

Admission AST or Clinical Positive = A patient with MRSA or VRE isolated from a specimen collected for AST ≤3 days after admission or from clinical specimen obtained ≤3 days after admission (i.e., MRSA or VRE cannot be attributed to this patient care location).

AST Incident case: A patient with a stay >3 days:

With no documentation on admission of MRSA or VRE colonization or infection during the previous 12 months (as ascertained either by the facility's laboratory records or information provided by referring facilities); including admission AST or clinical culture obtained ≤3 days after admission (i.e., patient without positive specimen),

AND

With MRSA or VRE isolated from a specimen collected for AST or clinical reasons > 3 days after admission to the patient care location or at the time of discharge/transfer from the patient care location (including discharges from the facility or to other locations or deaths).

MRSA colonization: Carriage of MRSA without evidence of infection (e.g., nasal swab test positive for MRSA, without signs or symptoms of infection).

AST Eligible Patients: Choose one of two methods for identifying patients' eligible for AST:

All = All patients in the selected patient care area regardless of history of MRSA or VRE infection or colonization,

OR

NHx = All patients in the selected patient care area who have NO documented positive MRSA or VRE infection or colonization during the previous 12 months (as ascertained either by the facility's laboratory records or information provided by referring facilities); and no evidence of MRSA or VRE during stay in the patient care location.

Timing of AST: Choose one of two methods for reporting the timing of AST:

Adm = Specimens for AST obtained ≤3 days after admission,

OR

Both = Specimens for AST obtained ≤3 days after admission and, for patients' stays of >3 days, at the time of discharge/transfer. Discharge/transfer AST should include all discharges (including discharges from the facility or to other wards or deaths) and can include the most recent weekly AST if performed >3 days after admission to the patient care location. Discharge/transfer AST should not be performed on patients who tested positive on AST admission.

Numerator and Denominator Data: Use the *MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring* form (CDC 57.127) to indicate: 1) AST outcomes monitoring and adherence was performed during the month for MRSA and/or VRE, 2) AST eligible patients, and 3) the timing of AST. No personal identifiers will be collected or reported. *See Tables of Instructions* for completion instructions.

If only admission AST is performed, only prevalent cases of MRSA or VRE can be detected in that patient care location. If both admission and discharge/transfer AST are performed, both prevalent and incident cases can be detected. No personal identifiers will be collected or reported.

Admission Prevalent Case:
Numerator Sources: (1) Known Positive; (2) Admission AST or Clinical Positive = Cases ≤3 days after admission
Denominator Source: Total number of admissions

Incident Case:
Numerator: Discharge/transfer AST or Clinical Positive = Cases >3 days after admission and without positive test result(s) on admission

Denominator: Total number of patient days

Note: For research purposes calculating patient-days at risk (i.e., excluding patient-days in which patients were known to be MRSA or VRE colonized or infected) may be a preferable denominator, but for surveillance purposes and ease of aggregating, total number of patient days is required for this module.

Data Analysis: Data are stratified by patient care location and time (e.g., month, quarter, etc.) according to the eligible patients monitored and timing of AST.

AST Admission Prevalence rate =
For Eligible patients = All:
Number of admission AST or clinical positive / Number of admissions x 100

For Eligible patients = NHx:
Number of admission AST or clinical positive + Number of known positive / Number of admissions x 100

AST Incidence rate = Number of discharge/transfer AST or clinical positive / Number of patient days x 1000

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[1]HICPAC, Management of Multidrug-Resistant Organisms in Healthcare Settings. <http://www.cdc.gov/NCIDOD/DHQP/hicpac_pubs.html>.

[2]Cohen AL, et al. *Infection Control and Hospital Epidemiology*. Oct 2008; 29:901-913.

[3]McDonald LC, Coignard B, Dubberke E, Song X. Horan T, Kutty PK. Recommendations for surveillance of Clostridium difficile-associated disease. *Infection Control Hospital Epidemiology* 2007; 28:140-5.

[4]Dudeck MA, Weiner LM, Malpiedi PJ, et al. Risk Adjustment for Healthcare Facility-Onset C. *difficile* and MRSA Bacteremia Laboratory-identified Event Reporting in NHSN. Published March 12, 2013. Available at: http://www.cdc.gov/nhsn/pdfs/mrsa-cdi/RiskAdjustment-MRSA-CDI.pdf.

[6]Cohen SH, Gerding DN, Johnson S, Kelly CP, Loo VG, McDonald LC, et al. Clinical practice guidelines for Clostridium difficile infection in adults: 2010 update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA). *Infection Control and Hospital Epidemiology* 2010; 31:431-455.

Table 2. Measures Delivered to CMS For Facilities Participating in Quality Reporting Programs: MRSA Bacteremia and *C.difficile* LabID Events

Facility Type	**CMS Quality Reporting Program**	**MRSA Bacteremia LabID Event Measure Sent to CMS**	***C.difficile* LabID Event Measure Sent to CMS**
General Acute Care Hospitals	Inpatient Quality Reporting Program	MRSA Bloodstream Infection SIR (FacWideIN)	Facility CDI Incidence SIR (FacWideIN)
Long Term Care Hospitals (referred to as Long Term Acute Care Hospitals in NHSN)	Long Term Care Hospital Quality Reporting Program	MRSA Bloodstream Infection Incidence Density Rate (FacWideIN)	Facility CDI Healthcare Facility-Onset Incidence Rate (FacWideIN)
Inpatient Rehabilitation Facilities (IRFs)	Inpatient Rehabilitation Facility Quality Reporting Program	**IRF units within a hospital**: MRSA Bloodstream Infection Incidence Density Rate for IRF Units	**IRF units within a hospita**l: CDI Incidence Density Rate for IRF Units
		Free-standing IRFs: MRSA Bloodstream Infection Incidence Density Rate (FacWideIN)	**Free-standing IRFs**: Facility CDI Healthcare Facility-Onset Incidence Rate (FacWideIN)
PPS-Exempt Cancer Hospital	PPS-Exempt Cancer Hospital Quality Reporting (PCHQR) Program	MRSA Bloodstream Infection Incidence Density Rate (FacWideIN**)**	Facility CDI Healthcare Facility-Onset Incidence Rate (FacWideIN**)**

Appendix 1. Guidance for Handling MDRO and CDI Module Infection Surveillance and LabID Event Reporting When Also Following Other NHSN Modules

If a facility is monitoring CLABSIs, CAUTIs, VAPs, or VAEs within the Device-Associated Module and/or SSIs within the Procedure-Associated Module and is also monitoring MDROs (e.g., MRSA) in the MDRO and CDI Module, then there are a few situations where reporting the infection or LabID event may be confusing. The following scenarios provide guidance to keep the counts and rates consistent throughout your facility and between all of the NHSN Modules. *These rules apply to the reporting of "Big 5" infections (BSI, UTI, PNEU, VAE, and SSI) caused by an MDRO selected for monitoring.*

Device-Associated Module with MDRO and CDI Module

Scenario 1: Facility is following CLABSI, CAUTI, VAP, or VAE along with MDRO Infection Surveillance and possibly LabID Event Reporting in the same location:
Healthcare-associated Infection identified for this location.

1. Report the infection (BSI, UTI, PNEU, or VAE).
2. Answer "Yes" to the MDRO infection question.

This fulfills the infection reporting requirements of both modules in one entry and lets the NHSN reporting tool know that this infection should be included in both the Device-Associated and the MDRO infection datasets and rates.

3. If following LabID event reporting in the same location, report also (separately) as a LabID Event (if meets the MDRO protocol criteria for LabID event).

Scenario 2: Facility is following BSI (CLABSI), UTI (CAUTI), PNEU/VAP, or VAE along with MDRO Infection Surveillance and possibly LabID Event Reporting in multiple locations:
The event date for the infection is the day of patient transfer from one location (the transferring location) to another location (the new location), or the next day.

1. Report the infection (BSI, UTI, PNEU and VAE) and attribute to the transferring location, if transferring location was following that Event Type (BSI, UTI, PNEU, VAE) on the day of Event, which occurred on the date of transfer, or the following day.
2. Answer "Yes" to the MDRO infection question, if the transferring location was following that MDRO on the day of Event, which occurred on the date of transfer, or the following day.
3. If, on the date of culture collection, the new location is following LabID event reporting, report also (separately) as a LabID Event and attribute to the new location (if meets the MDRO protocol criteria for LabID event).

Procedure-Associated Module with MDRO and CDI Module

Note: SSIs are associated with a procedure and not a patient location, but MDROs are connected with the patient location.

Scenario 3: Facility is following SSI along with MDRO Infection Surveillance and possibly LabID Event Reporting:
Patient has surgery, is transferred to a single unit for the remainder of the stay, and during the current stay acquires an SSI.

1. Report the infection (SSI) and attribute to the post-op location.
2. Answer "Yes" to the MDRO infection question, if the post-op location is following that MDRO during the month of the date of event.
3. If following LabID event reporting in the post-op location, report also (separately) as a LabID Event (if meets the MDRO protocol criteria for LabID event).

Scenario 4: Facility is following SSI along with MDRO Infection Surveillance and possibly LabID Event Reporting:
Patient has surgery, is either discharged immediately (outpatient) or transferred to a unit (inpatient), is discharged, and subsequently is readmitted with an SSI.

1. Report the infection (SSI) and attribute to the discharging (post-op) location (not the readmission location).
2. Answer "Yes" to the MDRO infection question, if the discharging (post-op) location was following that MDRO during the Date of Event.
3. If following LabID event reporting in the readmitting location or outpatient clinic where the specimen was collected, report also (separately) as a LabID Event (if meets the MDRO protocol criteria for LabID event).

Appendix 2: Determining Patient Days for Summary Data Collection: Observation vs. Inpatients

In response to questions regarding how to count patient days for "observation" patients, the following guidance is offered.

The NHSN instructions for recording the number of patients in an inpatient unit state that for each day of the month selected, at the same time each day, the number of patients on the unit should be recorded. This procedure should be followed regardless of the patient's status as an observation patient or an inpatient.

1. Observation patients in **observation locations**:

An "observation" location (e.g., 24-hour observation area) is considered an outpatient unit, so time spent in this type of unit does not ever contribute to any inpatient counts (i.e., patient days, device days, admissions). Admissions to such outpatient units represent "encounters" for the purposes of outpatient surveillance for LabID Event monitoring in the MDRO/CDI module.

2. Observation patients in **inpatient locations:**

    a. If an observation patient is transferred from an observation location and admitted to an inpatient location, then only patient days beginning with the date of admission to the inpatient location are to be included in patient day counts (for the location or facility-wide inpatient). In this same way, device days accrue beginning when the patient arrives in any location where device-associated surveillance is occurring and in accordance with the location's device-count methods.

    b. If an observation patient is sent to an inpatient location, the patient should be included for all patient and device day counts. The facility assignment of the patient as an observation patient or an inpatient has no bearing in this instance for counting purposes, since the patient is being housed, monitored, and cared for in an inpatient location.

Below is an example of attributing patient days to a patient admitted to an inpatient location, regardless of whether the facility considers the patient an observation patient or an inpatient.

The examples show counts taken at: A) 12:00 am and B) 11:00 pm.

A. Count at 12:00 am (midnight):

Date	Mr X Pt Day	Mr Y Pt Day
01/01	Mr X admitted at 8:00 pm Mr X not counted because the count for 01/01/10 was taken at 12:00 am on 01/01 10 and he was not yet admitted X	Mr Y admitted at 12:00 am Mr Y is counted because the count for 01/01 was taken at 12:00 am and that is when he was admitted 1
01/02	1	2
01/03	2	3
01/04	3	4
01/05	Mr X discharged at 5:00 pm 4 Counted for 01/05 because he was in the hospital at 12:00 am on 01/05 when the count for that day was taken	Mr Y discharged at 12:01 am 5 Counted for 01/05 because he was in the hospital at 12:00 am on 01/05 when the count for that day was taken
Total	**4 patient days**	**5 patient days**

If we use the same admission dates and times for Mr. X, but a different time is selected for the patient day count, say 11:00 pm, the total number of days in the count will be the same; they will simply be coming from different dates.

B. Count at 11:00 pm:

Date	Mr X	Pt Day
01/01	Mr X admitted at 8:00 am	Counted because the count for 01/01 is taken at 11:00 pm on 01/01 and he is in the hospital at that time 1
01/02		2
01/03		3
01/04		4
01/05	MR X discharged at 5:00 pm	Not counted for 01/05 because he was not in the hospital at 11:00 pm on 01/05 when the count for that day was taken X
Total		**4 patient days**

Determining Admission Counts for Summary Data Collection:

In response to questions regarding how to count number of admissions, the following guidance is offered.

Recognizing that there are a variety of ways in which patient day and admission counts are obtained for a facility and for specific locations, this guidance is offered to assist with standardization within and across facilities. It is most important that whatever method is utilized, it should be used each and every month for consistency of data and metrics. How you operationalize this guidance will depend on how you are obtaining the data for your counts. Any patient who meets criteria for new inclusion should be counted, regardless of whether they are coded by the facility as an inpatient or as an observation patient. See below for specific examples. If admissions are calculated electronically, the data must be checked to ensure that all appropriate patients are included or excluded from those counts and that your electronic data are within +/- 5% of the number obtained if doing the calculations manually. If these counts are more than 5% discrepant, then you will need to evaluate and discuss with your IT staff to determine the cause of the discrepancies and methods to address them. The main goal is to accurately count patients in the denominators that are at risk for potentially contributing to the numerator.

1. Facility-Wide Inpatient Admission Count: Include any new patients that are assigned to a bed in any inpatient location within the facility regardless of billing status. Qualification as a new patient means that the patient was not present on the previous calendar day. The daily admission counts are summed at the end of the calendar month for a monthly facility-wide inpatient admission count.

2. Inpatient Location-Specific Admission Count: Include any new patients that are assigned to a bed in the specific inpatient location. Qualification as a new patient means that the patient was not present on the specific inpatient location on the previous calendar day. The daily admission counts are summed at the end of the calendar month for a monthly inpatient location-specific admission count.

Appendix 3: Differentiating Between LabID Event and Infection Surveillance

	LabID Event	Infection Surveillance (using HAI surveillance definitions)
Protocol	LabID Event protocol in Chapter 12 of NHSN manual	Infection Surveillance protocol in Chapter 12 of NHSN manual and HAI site-specific definitions in NHSN manual (e.g., BSI, UTI, SSI, PNEU, VAE, and GI-CDI and other HAI definitions)
Signs & Symptoms	NONE. Laboratory and admission data, without clinical evaluation of patient	Combination of laboratory data and clinical evaluation of patient (signs/symptoms)
Surveillance Rules	• HAI and POA do **NOT** apply • Transfer Rule does **NOT** apply • Location = location of patient at time of specimen collection • Event date = specimen collection date	• HAI and POA **do** apply • Transfer Rule applies • See NHSN protocol for details regarding location and date of event
Denominator Reporting	• Number of patient days and admissions • Can be reported by specific location or facility-wide, depending on reporting option(s) selected • Inpatient and/or outpatient	• Device days and patient days must be collected separately for each monitored location • Inpatient reporting only
Categorization of Infections	• Events categorized based on inpatient or outpatient and admission and specimen collection dates • Healthcare Facility Onset (HO) or Community Onset (CO) • Community Onset Healthcare Facility-Associated (CO-HCFA) for *C. difficile* only • HO and CO LabID Events must be reported to NHSN • Additional categorizations are applied to *C. difficile*, which include Incident CDI Assay and Recurrent CDI Assay	• HAI protocols used • Events are either HAI or not, therefore LabID Event categorizations **do not** apply • Only HAIs are reported to NHSN