North Carolina SPICE
Statewide Program for Infection Control & Epidemiology

# LABORATORY-IDENTIFIED (LabID) EVENT REPORTING
## MRSA BACTEREMIA AND *C. DIFFICILE*

National Healthcare Safety Network (NHSN)

# REFERENCE ACKNOWLEDGMENT

## BAC[teria] to Basics: NHSN MRSA Bacteremia & CDI LabID Event Reporting

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NHSN Annual Training 2022

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# OBJECTIVES

- Understand and apply LabID event report concepts as outlined by NHSN
- Recognize MRSA bacteremia and *C. difficile* events using NHSN definitions



# KEY CONCEPTS

- LabID event reporting is based strictly on laboratory testing data without clinical evaluation of the patient, allowing for a much less labor-intensive method to track *C. difficile* and MDROs, such as MRSA


- These provide proxy infection measures of healthcare acquisition, exposure burden, and infection burden based primarily on laboratory and limited admission data

# LabID EVENT REPORTING *ADVANTAGES*

- Objective laboratory-based metrics that do not require extensive chart review to:
  - Identify vulnerable patient populations
  - Estimate infection burden
  - Estimate exposure burden
  - Assess need for an effectiveness of interventions
- Standardized case definitions for surveillance
- Increases comparability between clinical settings



# KEY CONCEPTS

- FacWideIN LabID event reporting is based on ***patient and location***. All inpatient units and ED/24-hour observation locations are included. The first positive specimen for the location meeting definition is submitted as a LabID event.


- NHSN does **NOT** use patient "**status**" for reporting. An **'inpatient'** is a patient housed on an inpatient location. An **'outpatient'** is a patient housed on an outpatient unit such as the ED or a dedicated 24-hour observation unit.
- Facility specific status designations such as 'observation', 'outpatient', 'swing bed patient' or 'short stay patient' are not used for NHSN reporting

# KEY CONCEPTS

- For NHSN reporting purposes, the **'date admitted to the facility'** is the calendar day the patient locates to an inpatient location. Time spent in the ED or on a dedicated 24-observation unit is outpatient hours.


- LabID event reporting includes a **'14-day'** rule which prohibits a **'new'** LabID event to be submitted for the patient in the **SAME** location until >14 days has passed between positive specimens. This rule is location specific and resets each time the patient moves to a **'new'** location.



# KEY CONCEPTS

- LabID Event reporting is by single facility; prior positives identified at a different facility will not influence reporting at your facility and are not considered in event categorization
- ***the **'Transfer Rule'** does **NOT** apply to LabID event reporting
- LabID Events are attributable to the location where the positive specimen is collected. There is no time requirement for 'how long' the patient must be housed on the unit to be eligible for reporting.

# BEWARE THE PITS

- LabID Events and HAI Events are <u>two</u> reporting pathways
  - <u>An Event that is both a LabID Event and an HAI should be reported (if in plan)</u>

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# KEY POINTS TO REMEMBER

- Always report the LabID event for the specific unit where specimen was collected. If date of specimen collection = physical inpatient admission calendar date or an ED/24-hour observation encounter

- Report as LabID Event for specific location

*****the "Transfer Rule" does NOT apply to LabID event reporting*

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When calculating the "14 day" rule the LAST positive LabID event, at that location, is your starting point.

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**EXAMPLE:**
Monitoring *Blood Specimens only* with multiple isolates from same location

On January 1, an ICU patient has a positive MRSA urine culture which is **not entered** into NHSN because blood specimens only are being monitored. On January 2, while in the same location (ICU), the same patient has a positive MRSA blood culture which **is entered** into NHSN. This starts the 14-day count. On January 5, 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. The January 5 positive blood culture starts a new 14-day count. On January 19, while in the same location (ICU), the same patient has another positive MRSA blood culture. The January 19 MRSA blood culture **is entered** into NHSN because it has been more than 14 days since the patient's most recent positive blood culture (January 5) while in the **same** location (January 19 is day 15).

| Date | Location | Specimen Body Site | Reportable? | |
|---|---|---|---|---|
| 1-Jan | ICU | Urine – MRSA isolate | NO | |
| 2-Jan | ICU | Blood – MRSA isolate | YES | |
| 3-Jan | ICU | | | |
| 4-Jan | ICU | | | |
| 5-Jan | ICU | Blood – MRSA isolate | NO | 1 |
| 6-Jan | ICU | | | 2 |
| 7-Jan | ICU | | | 3 |
| 8-Jan | ICU | | | 4 |
| 9-Jan | ICU | | | 5 |
| 10-Jan | ICU | | | 6 |
| 11-Jan | ICU | | | 7 |
| 12-Jan | ICU | | | 8 |
| 13-Jan | ICU | | | 9 |
| 14-Jan | ICU | | | 10 |
| 15-Jan | ICU | | | 11 |
| 16-Jan | ICU | | | 12 |
| 17-Jan | ICU | | | 13 |
| 18-Jan | ICU | | | 14 |
| 19-Jan | ICU | Blood – MRSA isolate | YES | 15 |

Non-blood isolate

<14 days from prior blood isolate -- no new blood isolate can be reported

>14 days -- new blood isolate should be reported

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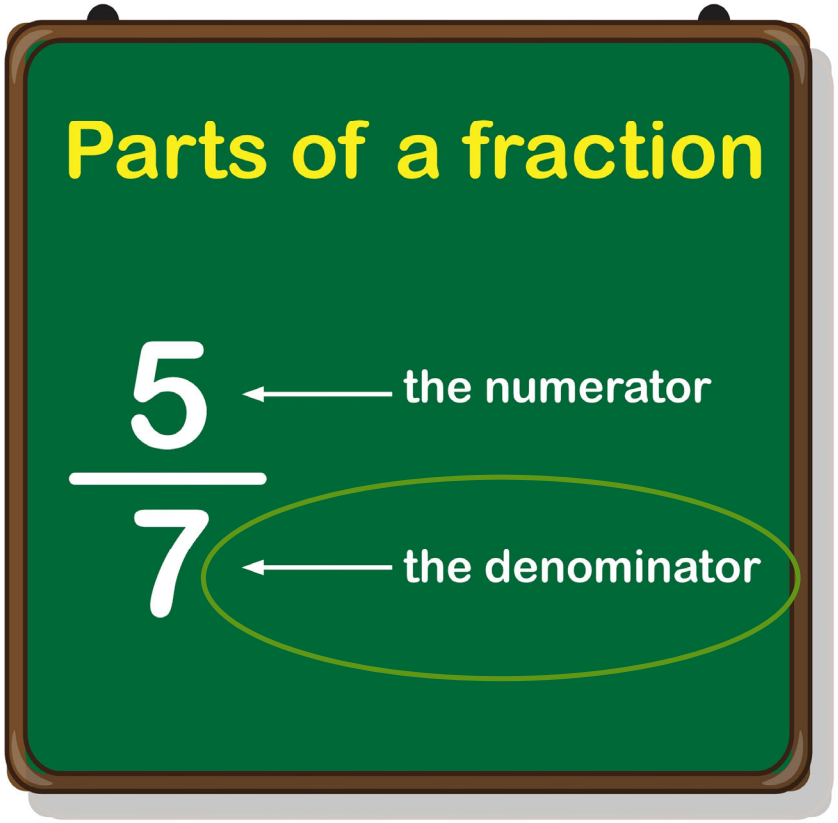


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## DENOMINATORS FOR LabID EVENT

**Denominators = Patient Days, admissions (for inpatient locations) and encounters for emergency department, and observation units.**

Patient Days:

- At the same time each day, the number of patients on the inpatient units should be recorded. This procedure should be followed regardless of the patient's status as an observation patient or an inpatient (based on IP location).

- Patient Admissions:
  - Include any **new** patients that are assigned to a bed in any inpatient location within the facility at the time of the facility-wide admission count (i.e., was not present on the previous calendar day at the time of patient count).
- Encounter:
  - A Patient visit to an outpatient location

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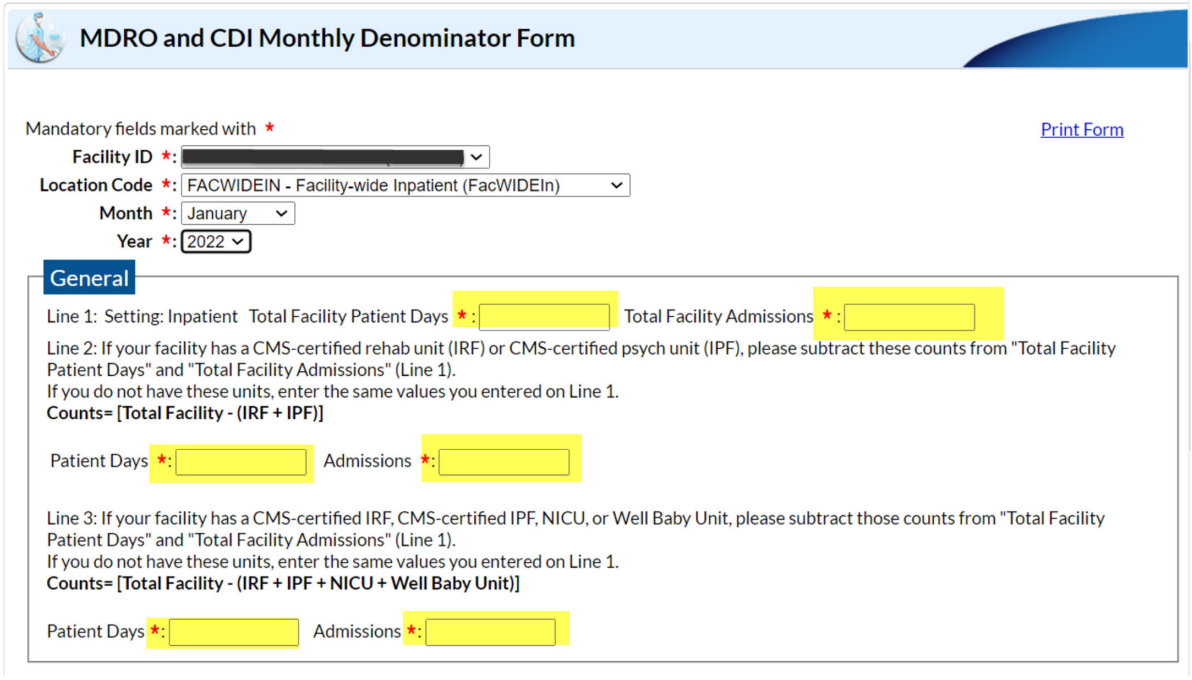


***Denominator Data*: FacWideIN:**

**On the summary data entry screen, select FACWIDEIN as the location for which you are entering the summary data. After selecting the FACWIDEIN location, month, and year, six summary data fields will become required**

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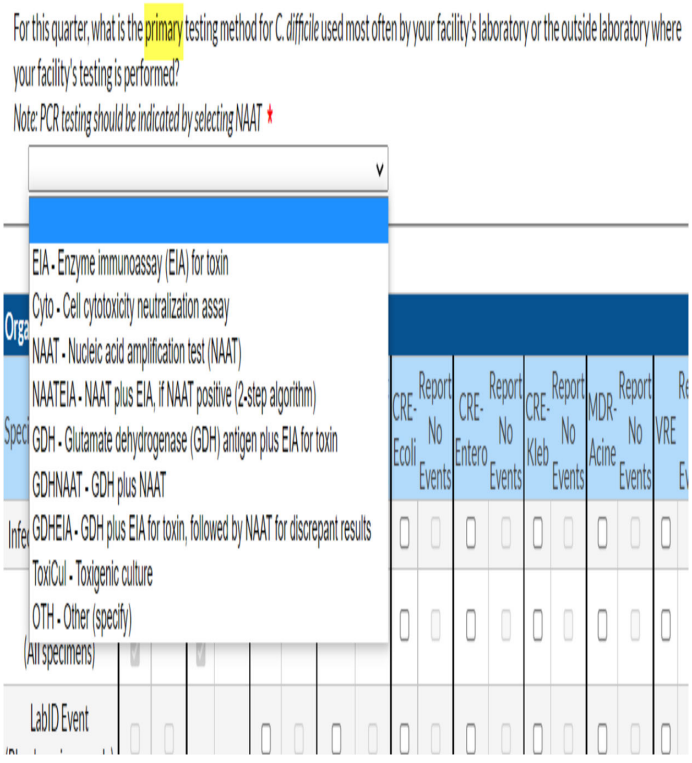


***Denominator Data*:**

- **Select CDI Test type quarterly (last month of each calendar-year-quarter – March; June; September; December**

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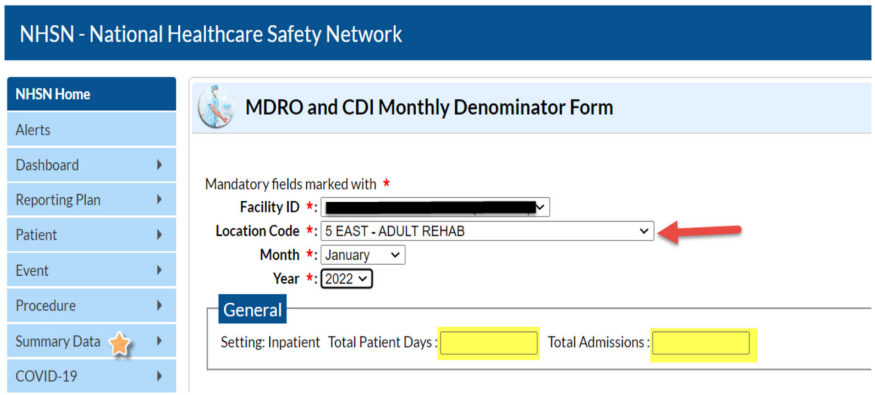
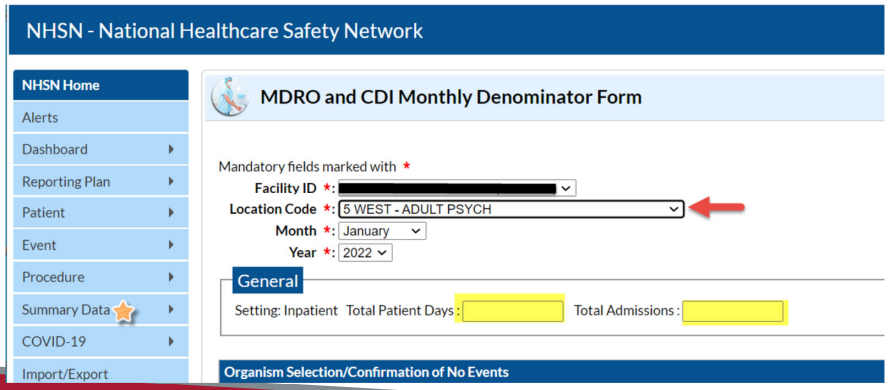
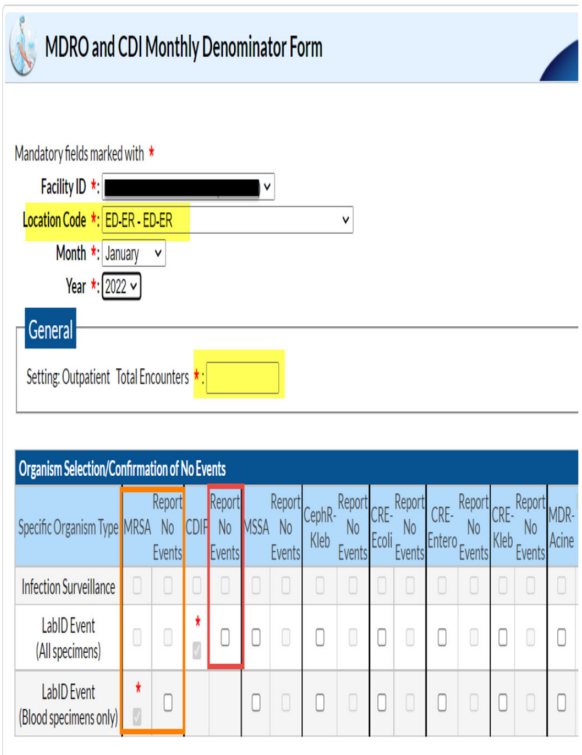
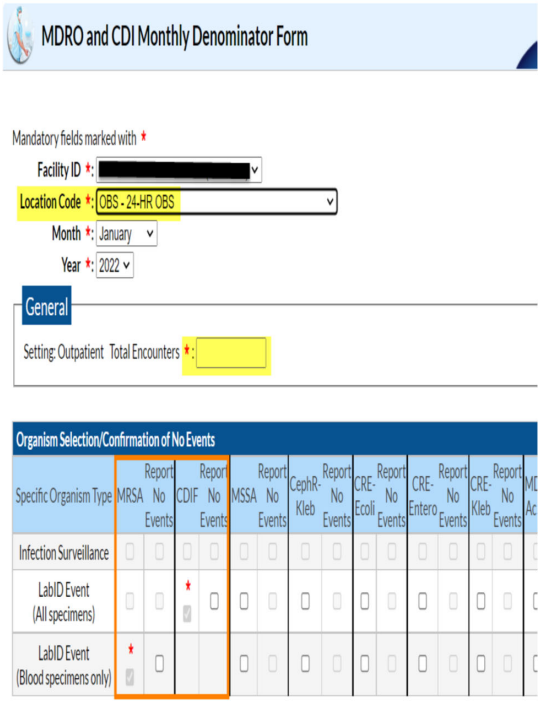

NHSN - National Healthcare Safety Network
NHSN Home
Alerts
Dashboard
Reporting Plan
Patient
Event
Procedure
Summary Data
COVID-19
MDRO and CDI Monthly Denominator Form
Mandatory fields marked with *
Facility ID *:
Location Code *: 5 EAST - ADULT REHAB
Month *: January
Year *: 2022
General
Setting: Inpatient Total Patient Days :
Total Admissions :


NHSN - National Healthcare Safety Network
NHSN Home
Alerts
Dashboard
Reporting Plan
Patient
Event
Procedure
Summary Data
COVID-19
Import/Export
MDRO and CDI Monthly Denominator Form
Mandatory fields marked with *
Facility ID *:
Location Code *: 5 WEST - ADULT PSYCH
Month *: January
Year *: 2022
General
Setting: Inpatient Total Patient Days :
Total Admissions :
Organism Selection/Confirmation of No Events

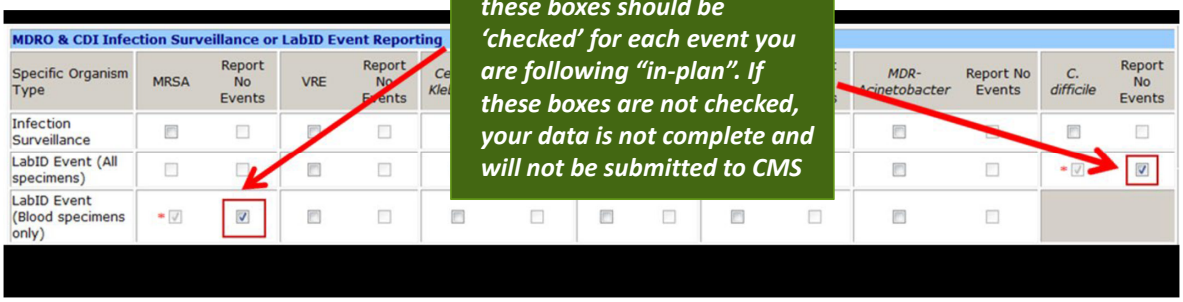

MDRO and CDI Monthly Denominator Form
Mandatory fields marked with *
Facility ID *:
Location Code *: ED-ER - ED-ER
Month *: January
Year *: 2022
General
Setting: Outpatient Total Encounters *:
Organism Selection/Confirmation of No Events
Specific Organism Type
MRSA
Report No Events
CDIF
Report No Events
MSSA
Report No Events
CephR-Kleb
Report No Events
CRE-Ecoli
Report No Events
CRE-Entero
Report No Events
CRE-Kleb
Report No Events
MDR-Acine
Infection Surveillance
LabID Event (All specimens)
LabID Event (Blood specimens only)


MDRO and CDI Monthly Denominator Form
Mandatory fields marked with *
Facility ID *:
Location Code *: OBS - 24-HR OBS
Month *: January
Year *: 2022
General
Setting: Outpatient Total Encounters *:
Organism Selection/Confirmation of No Events
Specific Organism Type
MRSA
Report No Events
CDIF
Report No Events
MSSA
Report No Events
CephR-Kleb
Report No Events
CRE-Ecoli
Report No Events
CRE-Entero
Report No Events
CRE-Kleb
Report No Events
Infection Surveillance
LabID Event (All specimens)
LabID Event (Blood specimens only)

# Denominator Data: Report No Events

•If you have reported any LabID events during the month, you are ***finished*** with your reporting for the month and can skip this step.
•If you have no LabID events for the specific month of reporting, you must indicate this on the summary data record to complete your reporting efforts.
•On the MDRO and CDI Module summary data form, checkboxes for "Report No Events" are found underneath the patient day and admission count fields, as seen in the screenshot below.

***If no LabID events are submitted for the month, these boxes should be 'checked' for each event you are following "in-plan". If these boxes are not checked, your data is not complete and will not be submitted to CMS***

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# DEFINITION: MRSA BACTEREMIA LabID EVENT

- MRSA positive blood specimen for a patient in a location with no prior MRSA positive blood specimen result collected within 14 days for the

  PATIENT
  and the LOCATION
  (includes across calendar
  months and different facility admissions to same location)

- ***Applies to ALL inpatient locations [including locations known to predominately house babies] and Emergency Departments and 24-hour Observation locations***.

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## DUPLICATE MRSA BACTEREMIA LABID EVENT

- Definition:

Any MRSA blood isolate from the ***same patient*** and ***same location***, following a previous positive MRSA blood laboratory result within the past 14 days *(including across calendar months).*

*NHSN removes ALL duplicates within 14 days even when it's obtained in a new unit*

https://www.cdc.gov/nhsn/labid-calculator/index.html



## BEWARE THE PITS

- MRSA bacteremia that is secondary to another HAI will still need to be reported as a LabID event

# CATEGORIZATION OF MRSA BLOOD LabID EVENTS

- 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 (admission), HD 2 or HD 3)

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



# REVIEW:

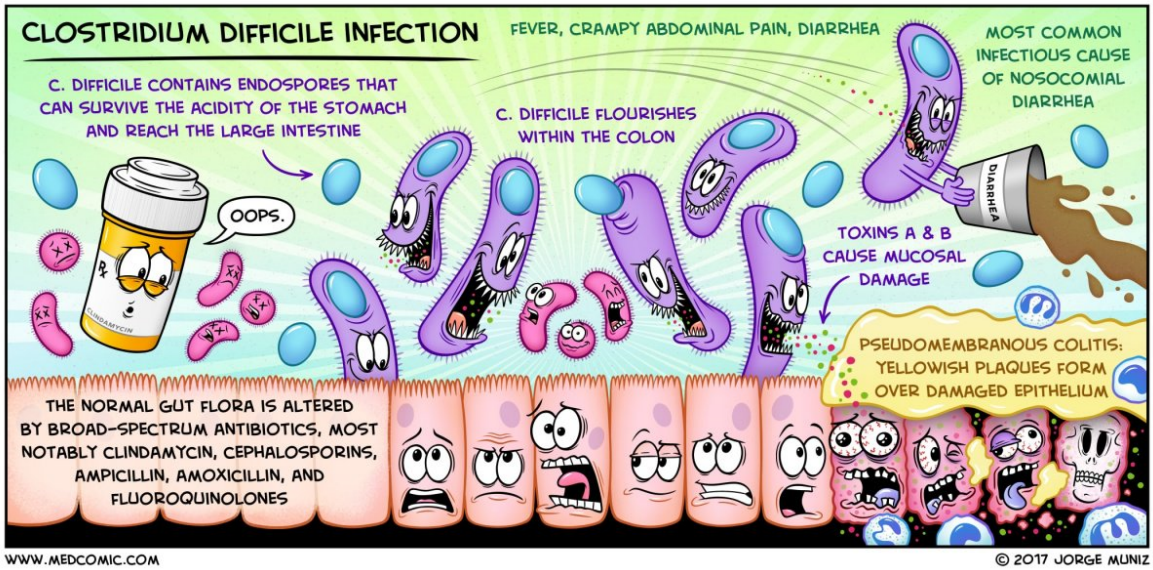
## *MRSA BACTEREMIA LabID EVENT REPORTING*

- For FacWideIN, MRSA + blood cultures are monitored for all inpatient locations within a facility, including ED and 24-hours OBS locations as well as predominately baby locations {Nursery, NICU, etal.}
- All LabID Event(s) MUST be entered without regard to date of occurrence. Community-Onset (CO) or Healthcare facility-onset (HO)
- The first MRSA + BC for the patient and the location qualifies as a LabID event. No additional MRSA LabID events are submitted for the patient in the location until there has been > 14 days from prior MRSA+BC. This is a 'rolling'14-day timeframe not specifically based on a previously submitted MRSA LabID event(s)
- Each location change resets reporting

# MRSA BLOODSTREAM INFECTION SIR

- Number of all unique blood source MRSA LabID Events identified in a non-IRF/IPF inpatient location >3 days after admission to the facility (specifically, HO MRSA blood events with no prior MRSA blood event for that patient in the previous 14days)/Number of predicted HO MRSA blood LabID Events

# *CLOSTRIDIOIDES DIFFICILE (C. difficile)*



# *C. Difficile* LabID EVENT

***(excludes locations known to predominately house babies (NICU, nursery, etc.)***

- A Positive lab test result for *C. difficile* toxin A and/or B (includes molecular assays [PCR] and/or toxin assays)

OR

- A toxin-producing *C. difficile* organism detected in the stool specimen by culture, or another laboratory means

***C. difficile* testing only on UNFORMED stool samples!! Stool should conform to shape of container**


- When using a multi-testing algorithm on the same unformed stool specimen, the finding of the **last test** performed on the specimen that is documented in the patient MR will determine if the CDI positive laboratory assay definition is met.

## EXAMPLES OF MULTI-STEP TESTING INTERPRETATIONS

| Multi-step Testing Same Specimen | Testing Step | Testing Method | Documented Findings | Eligible LabID Event? |
|---|---|---|---|---|
| Example A | Test 1 | NAAT | Negative | **Yes** |
| | Test 2 | GDH | Positive | |
| Last test → | Test 3 | EIA | **Positive** | |
| Example B | Test 1 | NAAT | Positive | No |
| | Test 2 | GDH | Positive | |
| Last test → | Test 3 | EIA | Negative | |
| Example C | Test 1 | GDH | Positive | **Yes** |
| | Test 2 | EIA | Negative | |
| Last test → | Test 3 | NAAT | **Positive** | |
| Example D | Test 1 | GDH | Positive | No |
| | Test 2 | EIA | Positive | |
| Last test → | Test 3 | NAAT | Negative | |

## DUPLICATE C. *DIFFICILE* LABID EVENT

- Definition:

Any *C. difficile* toxin-positive laboratory result from the ***same patient*** and ***same location***, following a previous *C. difficile* toxin-positive laboratory result within the past 14 days *(including across calendar months and readmissions to the same facility location).*

There should be 14 days with **NO** *C. difficile* toxin-positive laboratory result for the patient and specific location before another *C. difficile* LabID Event is entered into NHSN for the patient and the location

***The 14-day rule for LabID events reporting is specific to the location and resets each time a patient transfers to a new inpatient location.***

**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 is a duplicate for the patient and location (has not been more than 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 more than 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 more than 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.



# CATEGORIZATION OF *C. Difficile* LabID EVENTS

- **Community-Onset (CO):**
  - LabID Event specimen collected in an outpatient location in which the patient was not previously discharged from an inpatient location within the same facility ≤ 28 days prior to current date of specimen collection **OR**
  - LabID Event specimen collected as an inpatient ≤ 3 days after admission to the facility (i.e., days 1 (admission), HD 2 or HD 3)

- **Community-Onset Healthcare Facility-Associated (CO-HCFA):**
  - CO LabID Event specimen collected from an inpatient or outpatient location from a patient who was discharged from the facility **≤ 28** days prior to current date of stool specimen collection. Previous discharge must have been from an **IP location** within the same facility

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

## ADDITIONAL CATEGORIZATION OF *C. Difficile* LabID EVENTS

- Incident CDI Assay: Any CDI LabID Event from a specimen obtained > 56 day (day 57) 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 > 14 days (day 15) and ≤ 56 days after the most recent CDI LabID event for that patient



## *C. Difficile* LabID EVENT: REVIEW

- *C. difficile* toxin-positive specimens **MUST** be monitored throughout all inpatient locations, the ED and 24 observation units….with the exception of NICU, SCN, Well baby Nurseries and babies in LDRP units.
- All *C. difficile* LabID events **MUST** be entered whether community-onset, or healthcare facility-onset.
- Only unformed stools should be tested for *C. difficile.*
- A positive CD finding from unformed stool specimen qualifies if there has not been a previous + result for the patient and location within the previous 14 days.

Table 4: Measures Delivered to CMS For Facilities Participating in Quality Reporting Programs MRSA Bloodstream Infection and *C. difficile* LabID Events

| Facility Type | CMS Quality Reporting Program | MRSA Bloodstream Infection LabID Event Measure Sent to CMS | *C. difficile* LabID Event Measure Sent to CMS |
|---|---|---|---|
| General Acute Care Hospitals | Inpatient Quality Reporting Program | FacWideIN MRSA Bacteremia SIR | FacWideIN CDI SIR |
| Long Term Care Hospitals (referred to as Long Term Acute Care Hospitals in NHSN) | Long Term Care Hospital Quality Reporting Program | None | FacWideIN CDI SIR |
| Inpatient Rehabilitation Facilities (IRFs) | Inpatient Rehabilitation Facility Quality Reporting Program | **IRF units within a hospital:** None | **IRF units within a hospital:** CDI SIR for IRF Units |
| | | **Free-standing IRFs:** None | **Free-standing IRFs:** FacWideIN CDI SIR |
| PPS-Exempt Cancer Hospitals (PCHs) | PPS-Exempt Cancer Hospital Quality Reporting Program | FacWideIN MRSA Bacteremia SIR | FacWideIN CDI SIR |

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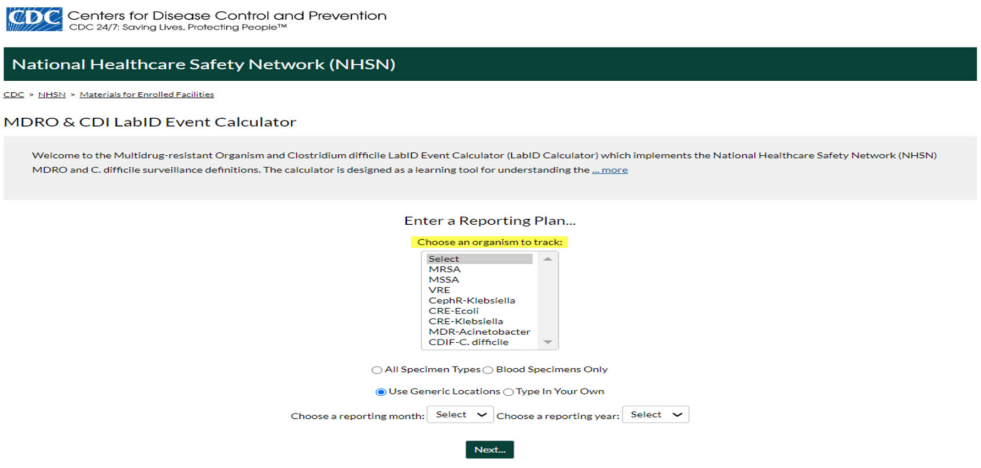
## LabID Event Calculator: https://www.cdc.gov/nhsn/labid-calculator/index.html

- *Available for use with C. difficile and MRSA LabID Event reporting*
- *Aids in decision making around the 14-day rule*
- *External calculator*

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# KNOWLEDGE CHECK

- 65yo patient undergoing treatment for lymphoma presents to the ED from home unresponsive with significant low BP. Fluid resuscitation initiated with blood cultures/labs collected.
- After stabilization, the patient is admitted to ICU on 2/1 The patient's standard chemotherapy infusion is conducted on 2/3 and TPN/lipids are started.
- Later this day, blood cultures are collected after temp spike. The 2/1 and 2/3 blood cultures result as MRSA+ on 2/4.
- Diarrhea is noted first on 2/4 continuing 2/5 and 2/6.
- An unformed stool specimen is collected 2/6, testing positive for *C. difficile*. The patient has a sudden cardiac arrest and expires 2/7.



- If you're monitoring FacWideIN MRSA bacteremia and C. difficile LabID events, are there events for reporting and if so, how many?

# LINKS TO ANALYSIS

- SIR Guide, to learn more about the SIR & how it's calculated [updated 2/21]:

https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf

- Introduction to NHSN Analysis:

https://www.cdc.gov/nhsn/pdfs/training/2019/intro-nhsn-analysis-508.pdf.

- Analyzing LabID Event Data in NHSN:

https://www.cdc.gov/nhsn/pdfs/training/2020/labid-update-508.pdf

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# THANK YOU

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