



Laboratory-identified Event Surveillance Protocol for *Clostridioides difficile* Infection and Multidrug Resistant Organism Events for Long-term Care Facilities

Background: Multi-drug resistant bacteria including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant Enterococci (VRE), and multi-drug resistant Gram-negative bacilli (for example, *Carbapenem-resistant Enterobacteriaceae*) have increased in prevalence in US long-term care facilities (LTCF) over the past several decades. Over 35% of nursing home residents are colonized with a multi-drug resistant organism (MDRO).¹ This has important public health implications as MDRO infections are associated with increased number of hospitalizations and hospital readmissions, higher healthcare costs, increased mortality due to more severe illnesses, and increased use of broad spectrum antibiotics.

Clostridioides (previously known as *Clostridium*) *difficile* infection (CDI) is one of the most common healthcare-associated infections in nursing homes and often a consequence of antibiotic overuse. The clinical presentation of CDI ranges from uncomplicated diarrhea to severe pseudomembranous colitis, toxic megacolon, and even death.

It is critical for LTCF to monitor MDRO and CDI rates using standardized surveillance definitions to obtain a more complete understanding of how these organisms manifest and are transmitted in the long-term care setting. The Laboratory-identified (LabID) Event Module of the NHSN LTCF Component is a tool designed for use in certified skilled nursing facilities/nursing homes (LTC:SKILLNURS) and intermediate/chronic care facilities for the developmentally disabled (LTC:DEVDIS) to help meet criteria outlined in guidelines for the prevention, control, and surveillance of MDRO and CDI.¹⁻⁶

As outlined in these guidelines, these 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 collect, report, and analyze data that will inform infection prevention and control staff of the impact of prevention efforts. This module contains two options, one focused on CDI and the second on select MDROs.

References:

- 1: Cassone, M., et al. Colonization with Multi-drug Resistant Organisms in Nursing Homes: Scope, Importance, and Management. *Current Geriatrics Report*, vol. 4, no. 1, 2015, pp. 87-95.
- 2: Smith et al., SHEA/APIC Guideline: Infection Prevention and Control in the Long-Term Care Facility. *Infection Control and Hospital Epidemiology*, vol. 29, 2008, pp. 785-814.
- 3: Healthcare Infection Control Practices Advisory Committee (HICPAC) Approved Guidelines for the Control of Multidrug Resistant Organism (MDRO). Available at www.cdc.gov/hicpac/pdf/MDRO/MDROGuideline2006.pdf
- 4: McDonald, C., et al. Clinical Practice Guideline for *Clostridium difficile* Infection in Adults and Children: 2017 Update by Infectious Disease Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). *Clinical Infectious Diseases*, vol. 44, no. 77, 2018, pp. e1-e48.
- 5: Simor, A. E., et al. *Clostridium difficile* in Long-Term Care Facilities for the Elderly. SHEA Position Paper. *Infection Control and Hospital Epidemiology*, vol. 23, no. 11, 2002, pp. 696-703.
- 6: Cohen, A. L., et al. Recommendations for Metrics for Multidrug-Resistant Organisms in Healthcare Settings: SHEA/HICPAC Position Paper. *Infection Control and Hospital Epidemiology*, vol. 29, no. 10, 2008, pp. 901-13.



I. *Clostridioides difficile* Infection (CDI) Surveillance using LabID Event Methodology

Methods: Facilities may choose to monitor *Clostridioides difficile* infections (CDI) using laboratory-identified (LabID) event surveillance. This surveillance method allows laboratory data to be used without clinical evaluation of the resident for signs or symptoms, allowing for a less labor intensive method to track CDI. This method provides proxy measures of CDI and healthcare exposure based solely on laboratory data and limited resident admission/transfer data.

The data collected will enable participating facilities and the CDC to calculate several infection measures for CDI. NHSN forms should be used to collect all required data, using the definitions of each data field as indicated in the [Table of Instructions](#).

Settings: CDI LabID Event reporting is currently available for certified skilled nursing facilities/nursing homes (LTC: SKILLNURS) and intermediate/chronic care facilities for the developmentally disabled (LTC: DEVDIS). Events reported should include *C. difficile* positive laboratory assays from any resident receiving care from the reporting LTCF.

Laboratory results obtained before a resident's admission to the LTCF or during an admission in another facility are excluded from LabID Event reporting. Laboratory results obtained from an emergency department (ED) or outpatient (OP) setting, such as a physician's office, during a resident's current admission (specifically, no change in current admission date) are eligible to be included in LabID Event reporting for the LTCF.

EXAMPLE: Mr. T is a resident in your LTCF. He does not have a history of *C. difficile*. On March 1st, he was transferred to the local emergency department (ED) for evaluation of diarrhea and fever. While in the emergency department, a loose stool specimen was collected and tested positive for *C. difficile*. He received IV fluids and was transferred back to the LTCF the next calendar day, on March 2nd. Since the specimen was collected in an ED and Mr. T returned to the LTCF within 2 calendar days (specifically, during his current admission in the LTCF, the *C. difficile* specimen was entered into NHSN as a CDI LabID Event for the LTCF.

Requirements: A *NHSN Monthly Reporting Plan* for the LTCF ([CDC 57.141](#)) must be completed for each calendar month in which a facility plans to enter data into the NHSN. For each participating month, the facility must report numerators (CDI LabID Events) and denominators (total number of resident admissions, total number of resident-days, and total number of LTCF admissions on *C. difficile* treatment) for the entire facility, referred to as facility-wide inpatient (FacWideIN). *C. difficile* surveillance and reporting is limited to testing performed on unformed/loose stool specimens (conforms to the shape of the container). Facilities should report for at least 6 consecutive months to provide meaningful measures.



Definitions: The following definitions apply to CDI LabID Event reporting.

C. difficile positive laboratory assay: An unformed/loose stool that tests positive 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 an unformed/loose stool sample by culture or other laboratory means.

Duplicate C. difficile positive laboratory assay: Any *C. difficile* positive laboratory assay from the same resident following a previous *C. difficile* positive laboratory assay within the past two weeks (<15 days). Duplicate assays should not be reported to NHSN. There should be at least 14 calendar days with no *C. difficile* positive laboratory assay for the resident before another *C. difficile* LabID Event is entered into NHSN for the resident. (see [Settings](#))

CDI Laboratory-identified (LabID) Event: Non-duplicate *C. difficile* positive laboratory assay obtained while a resident is receiving care from the long-term care facility (see [Settings](#)). See [Figure 1](#) - *C. difficile* Test Result Algorithm for Laboratory-identified (LabID) Events.

EXAMPLE: Mr. T is a long-term resident in your facility. On December 30th, he developed diarrhea and abdominal pain. On January 1st, a loose stool specimen was collected and subsequently tested positive for *C. difficile* toxin. After verifying that Mr. T did not have a *C. difficile* positive laboratory assay in the previous 14 calendar days, a CDI LabID Event was entered into the NHSN for January 1. Over the next week, Mr. T seemed to improve and the diarrhea resolved. On January 13th, he had several more episodes of diarrhea, and another loose stool specimen was collected, which subsequently tested positive for *C. difficile* toxin. Since it had not been more than 14 calendar days since the most recent *C. difficile* toxin-positive laboratory assay, this test result was considered a duplicate and not entered into the NHSN. On January 20th, Mr. T had another positive *C. difficile* toxin result. While it had been more than 14 calendar days since the most recent CDI LabID Event was entered into the NHSN (January 1st), it had not been more than 14 calendar days since his most recent *C. difficile* positive laboratory assay (January 13th). Therefore, the *C. difficile* positive laboratory assay collected on January 20th was considered a duplicate and not entered into the NHSN as a CDI LabID Event. On February 10th, Mr. T had another *C. difficile* positive laboratory assay. Since it had been more than 14 calendar days since his most recent *C. difficile* positive laboratory assay (January 20th), this specimen was entered into NHSN as a CDI LabID Event.

Date of Specimen Collection	Duplicate	Enter as a CDI LabID Event?
January 1	No	Yes. No previous positive C. diff assay
January 13	Yes	No. Less than 2-weeks since previous positive C. diff assay
January 20	Yes	No Less than 2-weeks since previous positive C. diff assay
February 10	No	Yes. More than 2-weeks since previous positive C. diff assay



Key Points:

1. Only results from unformed/loose stool specimens, conforming to the shape of the container, should be included in CDI LabID Event surveillance and reporting.
2. All non-duplicate *C. difficile* assays must be reported, even if the resident had a positive specimen prior to transfer or admission to the LTCF. **Note:** This practice is important to understand the burden of CDI in the LTCF.
3. When applying the LabID Event rules, the date of specimen collection is considered as Day 1 of the count.
4. LabID Event rules apply to specimens collected while the resident is receiving care from the LTCF, including specimens collected from an emergency department (ED) or outpatient (OP) setting during a resident's current admission. **Note:** Laboratory results obtained before a resident's admission to the LTCF or during an admission in another facility are excluded from LabID Event reporting.
5. If a specimen is collected while the resident is receiving care from an ED or OP setting, the *Resident Care Location* and *Primary Resident Service Type* should indicate the resident's primary LTCF location and service type prior to the ED or OP visit.
6. When performing LabID Event reporting for CDI, the facility must identify and report from all locations within the LTCF, referred to as FacWideIN.
7. NHSN recommends that each facility keep an internal line listing log of all *C. difficile* positive laboratory assay's as a reference in LabID event reporting to ensure the 14-day rule is applied correctly.

Numerator and Denominator Data:

Numerator: The *Laboratory-identified MDRO or CDI Event for LTCF* form ([CDC 57.138](#)) is used to collect and report each CDI LabID Event. The [Table of Instructions for Completion of the LTCF Laboratory- identified \(LabID\) MDRO or CDI Event form](#) includes brief instructions for collection and entry of each data element on the form. Report one event per form.

Denominator: Resident admissions, resident days, number of admissions on *C. difficile* treatment, and CDI treatment starts are used for denominators. Monthly totals for denominator data are collected using the *MDRO and CDI LabID Event Reporting Monthly Summary Data for LTCF* form ([CDC. 57.139](#)). The [Table of Instructions for Completion of the MDRO and CDI Monthly Monitoring for Long-term Care Facility](#) form includes brief instructions for collection and entry of data elements on the form. Facilities may also choose to use the optional *Denominators for LTCF* form ([CDC 57.142](#)) to collect daily denominator data. Only the monthly totals are entered into the NHSN. The [Table of Instructions for Completion of the LTCF Component Denominators for LTCF](#) provides brief instructions for collection and entry of data elements on the form.



Categorizations of CDI LabID Events: Based on data entered into the NHSN application, each event will be categorized by the NHSN to populate different measures.

The following categorizations are based on the specimen collection date for the current CDI event being entered into the NHSN and the specimen collection date for the previous CDI LabID Event entered into the NHSN for a resident. *Note:* the date of specimen collection is considered as day 1.

- **Incident CDI LabID Event:** Either the first CDI LabID Event ever entered for an individual resident in the facility, or a subsequent LabID Event entered > 56 days (8 weeks) after the most recent CDI LabID Event reported for an individual resident while receiving care in the LTCF.
- **Recurrent CDI LabID Event:** Any CDI LabID Event entered > 14 days (2 weeks) and < 57 days (8 weeks) after the most recent CDI LabID Event reported for an individual resident while receiving care from the LTCF.

EXAMPLE: NHSN Classification of CDI LabID Events as Incident or Recurrent

Resident ID	Current Admit Date	CDI Event Date (specifically, date of specimen collection)	Categorization
1111	01/01/2016	01/05/2016	Incident
1111	01/01/2016	01/25/2016	Recurrent
1111	01/01/2016	03/11/2016	Recurrent
1111	01/01/2016	05/20/2016	Incident

Further Categorizations of CDI LabID Events: All incident and recurrent CDI LabID Events will be further categorized by the NHSN. The following categorizations are based on the date of current admission to the facility, date specimen collected (event date), and date of last transfer from acute care to your facility. Because of variability in documenting time of admission to the LTCF, calendar days are used to categorize LabID Events.

- **Community-onset (CO) LabID Event:** Date specimen collected \leq 3 calendar days after date of current admission to the facility (specifically, days 1, 2, or 3 of admission).
- **Long-term Care Facility-onset (LO) LabID Event:** Date specimen collected > 3 calendar days after date of current admission to the facility (specifically, on or after day 4).
 - LO LabID Events can be further sub-classified as:
 - Acute Care Transfer-Long-term Care Facility-onset (ACT-LO):** LTCF-onset (LO) LabID Event with date specimen collected \leq 4 weeks following date of last transfer from an Acute Care Facility (hospital, long-term acute care hospital, or acute inpatient rehabilitation facility only) to the LTCF.



CDI Long-term Care Facility-onset Incidence Rate/10,000 resident-days* = Number of all incident LO CDI LabID Events per month / Number of resident-days x 10,000.

***NOTE:** This formula excludes recurrent CDI events.

CDI Treatment Prevalence on Admission = Residents on *C. difficile* treatment on admission to facility / Number of admissions x 100.

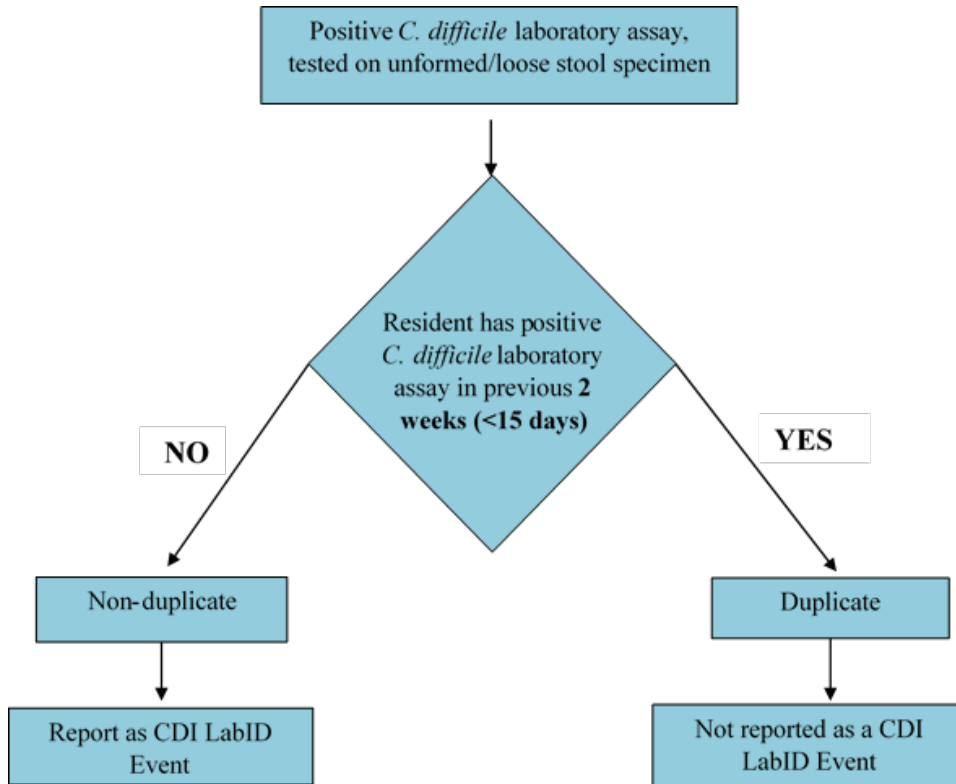
CDI Treatment Ratio = Number of CDI medication treatment starts for CDI / Total number of CDI LabID Events

NOTE:

When the CDI treatment ratio is <1, there are fewer reported medication starts for CDI than CDI events submitted to NHSN; when the CDI treatment ratio equals 1, there are the same number of new medication starts for CDI events submitted; when the CDI treatment ratio is >1, there are more reported medication starts for CDI than CDI events submitted to NHSN.



Figure 1. *C. difficile* Test Result Algorithm for Laboratory-identified (LabID) Events



Notes:

1. LabID event reporting is based on specimens collected by the LTCF during the care of the resident, and specimens collected in an ED or OP (for example, physician's office) during the current admission. Laboratory results obtained prior to the resident's admission to the LTCF or during an admission in another healthcare facility are excluded. See [Settings](#)
2. Day of specimen collection equals day one of the specimen count.



II. MDRO Surveillance using LabID Event Protocol

Methods: Facilities may choose to monitor one or more of the following MDROs: *Staphylococcus aureus*, both methicillin-resistant (MRSA) and methicillin-susceptible (MSSA), vancomycin-resistant *Enterococcus spp.* (VRE), cephalosporin-resistant *Klebsiella spp.*, Carbapenem-resistant *Enterobacteriaceae* (CRE), and multidrug-resistant *Acinetobacter spp.*

Laboratory-identified (LabID) Event reporting allows laboratory data to be used without clinical evaluation of the resident for signs or symptoms, creating a less labor intensive method to track MDROs. This method provides proxy measures of MDRO infections, and healthcare exposure based solely on laboratory data and limited resident admission/transfer data.

The data collected will enable participating facilities and the CDC to calculate several measures, depending on which MDROs the facility chooses to track. NHSN forms are available and should be used to collect all required data, using the definitions of each data field as indicated in the [Table of Instructions](#).

Setting: MDRO LabID Event reporting is currently available for certified skilled nursing facilities/nursing homes (LTC: SKILLNURS) and intermediate/chronic care facilities for the developmentally disabled (LTC: DEVDIS). Events reported should include MDRO positive laboratory cultures obtained from any resident while receiving care from the reporting LTCF.

Laboratory results obtained before a resident's admission to the LTCF or during an admission in another healthcare facility are excluded from LabID Event reporting. Laboratory results obtained from an emergency department (ED) or outpatient (OP) setting, such as a physician's office, during a resident's current admission (specifically, no change in current admission date) are eligible to be included in LabID Event reporting for the LTCF.

EXAMPLE: Mr. T is a resident in your LTCF. He does not have a history of MRSA. On March 1, he was transferred to the local emergency department (ED) for evaluation of a foot ulcer. While in the emergency department, the wound was cultured and tested positive for MRSA. Antibiotics were ordered and Mr. T was transferred back to the LTCF on the same calendar day, March 1st. Since the MRSA positive wound culture was collected in an outpatient setting (specifically, the ED) and within 2 calendar days of leaving the LTCF (specifically, during the resident's current admission in the LTCF), the specimen was entered into the NHSN as a MRSA LabID Event for the LTCF.

Requirements: A *NHSN Monthly Reporting Plan* for the LTCF ([CDC 57.141](#)) must be completed for each calendar month in which a facility plans to enter data into the NHSN. For each participating month, the facility must report numerators (MDRO LabID Events) and denominators (total number of resident admission and total number of resident-days) for the entire facility, referred to as facility-wide inpatient (FacWideIN). Facilities should report for at least 6



consecutive months to provide meaningful measures. For each MDRO being monitored, all MDRO test results are evaluated using the algorithm in [Figure 2](#), keeping in mind the following:

1. All first MDRO isolates (chronologically) per resident, per month are reported as a LabID event regardless of the specimen source [EXCLUDES tests related to active surveillance testing];
2. If a blood isolate is the first positive MDRO specimen for the month, it should be entered as a LabID Event even if the resident had a prior blood reported within two weeks in the previous month;
3. If a blood specimen is entered as the first specimen of the month, then no non-blood specimens can be entered for the remainder of that calendar month for that resident. However, another blood specimen may be entered if it represents a unique blood isolate (see below definition for [unique blood source](#)).

Definitions: The following MDROs can be selected for tracking in the LabID Event module:

Gram-stain positive organisms:

- MRSA: Any *S. aureus* testing resistant to oxacillin, methicillin, or ceftazidime, by standard susceptibility testing methods or by a positive result from an FDA-approved test for direct MRSA detection from that specimen source.
- MSSA: Any *S. aureus* testing intermediate or susceptible to oxacillin, methicillin, and ceftazidime by standard susceptibility testing methods; a positive result from an FDA-approved test for direct MSSA detection from that specimen source; or a negative result from an FDA-approved test for direct MRSA detection from a specimen source. Note: MSSA is only an option when surveillance includes MRSA.
- VRE: Any *Enterococcus species* that is resistant to vancomycin, by standard susceptibility testing methods or by a positive result from an FDA-approved test for VRE detection from that specimen source.

Gram-stain negative organisms:

- CephR-*Klebsiella*: Any *Klebsiella species* testing non-susceptible (specifically, resistant or intermediate) to cephalosporin antibiotics like ceftazidime, cefotaxime, ceftiofur, or cefepime.
- CRE- Any *Escherichia coli (E. coli)*, *Klebsiella species*, or *Enterobacter species* testing resistant to imipenem, meropenem, doripenem, or ertapenem by standard susceptibility testing methods (specifically, minimum inhibitory concentrations of ≥ 4 mcg/mL for doripenem, imipenem and meropenem or ≥ 2 mcg/mL for ertapenem) OR by production of a carbapenemase (specifically, KPC, NDM, VIM, IMP, OXA-48) demonstrated using a recognized test (for example, polymerase chain reaction, metallo- β -lactamase test,



modified-Hodge test, Carba-NP). **Note:** CRE surveillance requires facilities to monitor and report for all three organisms (CRE-*E. coli*, CRE-*Klebsiella spp.*, **and** CRE-*Enterobacter spp.*).

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

Antimicrobial Class	Antimicrobial Agents
β-lactams and β-lactam/β-lactamase inhibitor combinations	Piperacillin, Piperacillin/tazobactam
Sulbactam	Ampicillin/sulbactam
Cephalosporins	Cefepime, Ceftazidime
Carbapenems	Imipenem, Meropenem, Doripenem,
Aminoglycosides	Amikacin, Gentamicin, Tobramycin
Fluoroquinolones	Ciprofloxacin, Levofloxacin

MDRO positive 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 laboratory isolate: Any subsequent MDRO positive isolate collected from the *same* resident after the first isolate of the same MDRO during a calendar month, regardless of the specimen source except when a unique blood source is identified (see definition below and [Figure 2](#)). **Note:** A duplicate MDRO laboratory isolate should not be reported as a LabID Event.

EXAMPLE: On January 2, Mr. T had a positive MRSA urine culture that was entered as a MDRO LabID Event. The following week, he had MRSA cultured from an infected decubitus ulcer. The MRSA wound culture was considered a duplicate MDRO isolate, since it was the second non-blood MRSA isolate collected from the same resident during the same calendar month.

Unique blood source MDRO laboratory isolate: A MDRO isolate identified in a resident with no prior positive blood culture for the same MDRO in the past 2 weeks (<15 days), even across calendar months and admissions. **Note:** If the first MDRO isolate for the resident and calendar month is a blood isolate, the specimen should be reported as a LabID event, even if a previous MDRO blood isolate was reported in the previous 2 weeks across calendar months. See [Figure 2](#).



MDRO Laboratory-identified (LabID) Event: All non-duplicate MDRO positive laboratory isolates from any culture specimen, regardless of specimen source or MDRO unique blood source isolates obtained while a resident is receiving care from the facility (see [Settings](#)). See [Figure 2-MDRO Test Result Algorithm for Laboratory-identified \(LabID\) Events](#).

EXAMPLE: On December 27, Mr. T had a positive MRSA blood culture that was entered into the NHSN as a MRSA LabID Event. On January 2, he had another positive MRSA blood culture that was entered into the NHSN because it was the first positive MRSA blood isolate for the new calendar month. He had a wound that also tested positive for MRSA on January 20. This specimen was not entered into the NHSN since it represented a duplicate MDRO laboratory isolate for January. Again, on January 27, Mr. T had another positive MRSA blood culture. Since the isolate represented a unique blood source (>14 days since the last positive MRSA blood specimen), the MRSA blood specimen was entered into the NHSN as a MRSA LabID Event.

Key Points:

1. MDRO LabID Event reporting is ONLY for collecting and tracking isolates from positive cultures that are taken for "clinical" purposes (specifically, for diagnosis and treatment), which means that Active Surveillance Culture/Testing (for example, nasal swabs for MRSA or perirectal swabs for VRE) results are not reported as LabID Events.
2. LabID Event rules apply to specimens collected while resident is receiving care from the LTCF and includes specimens collected from an ED or OP setting during a resident's current admission. Laboratory results obtained before a resident's admission to the LTCF or during an admission in another facility are excluded from LabID Event reporting.
3. If a specimen is collected while the resident is receiving care from an ED or OP setting, the *Resident Care Location* and *Primary Resident Service Type* should indicate the resident's primary LTCF location and service type prior to the ED or OP visit.
4. When performing LabID Event reporting for MDROs, the facility must report the selected MDRO(s) from all specimen sources, and from all locations within the long-term care facility setting, referred to as FacWideIN.
5. The date of specimen collection is considered Day 1.
6. If the first MDRO isolate for the resident and calendar month is a blood isolate, the specimen should be reported as a LabID event, even if a previous MDRO blood isolate was reported in the previous 2 weeks across calendar months. (See [Figure 2](#)).
7. A unique blood source isolate should be reported even if the resident had this same MDRO previously isolated in a non-blood specimen earlier during the same calendar month (See [Figure 2](#)).



8. As a general rule, at a **maximum**, there should be no more than 2 blood isolates (which would be very rare) and 1 other specimen source isolate per MDRO type reported for the same resident during a calendar month.
9. NHSN recommends facilities keep an internal line listing log of all positive isolates for reference in LabID event reporting.

Numerator and Denominator Data:

Numerator: Data on each MDRO LabID Event will be reported using the *Laboratory identified MDRO or CDI Event for LTCF* form ([CDC 57.138](#)). The [Table of Instructions for Completion of the LTCF Laboratory- identified \(LabID\) MDRO or CDI Event form](#) includes instructions for collection and entry of each data element on the form. Report one event per form.

Denominator: Resident admissions and resident days are used for denominators. Monthly totals for denominators are collected using the *MDRO and CDI LabID Event Reporting Monthly Summary Data for LTCF* form ([CDC. 57.139](#)). The [Table of Instructions for Completion of the MDRO and CDI Monthly Monitoring for Long-term Care Facility](#) form includes brief instructions for collection and entry of data elements on the form. Facilities may also choose to use the *Denominators for LTCF* form ([CDC 57.142](#)) to collect daily denominator data. Only the monthly totals are entered into the NHSN. The [Table of Instructions for Completion of the LTCF Component- Denominators for LTCF](#) provides brief instructions for collection and entry of data elements on the form.

Categorizations of MDRO LabID Events: Based on data entered into the NHSN application, each event will be categorized by the NHSN to populate different measures.

The following categorizations are based on date of current admission to the facility, date specimen collected (event date), and date of last transfer from acute care to your facility. Because of variability in documenting time of admission to the LTCF, calendar days are used to categorize LabID Events.

- Community-onset (CO) LabID Event: Date specimen collected ≤ 3 calendar days after date of current admission to the facility (specifically, days 1, 2, or 3 of admission).
- Long-term Care Facility-onset (LO) LabID Event: Date specimen collected > 3 calendar days after date of current admission to the facility (specifically, on or after day 4).
 - LO LabID Events can be further sub-classified as:
 - Acute Care Transfer-Long-term Care Facility-onset (ACT-LO): LTCF-onset (LO) LabID Event with date specimen collected ≤ 4 weeks following date of last transfer from an Acute Care Facility (hospital, long-term acute care hospital, or acute inpatient rehabilitation facility only) to the LTCF.



EXAMPLE: Ms. T was first admitted to the LTCF on June 4th. On June 6th, a foot ulcer tested positive for MRSA. Since she had not had a positive MRSA positive isolate performed in the previous 14 days, while receiving care in the LTCF, the result was entered into NHSN as a MRSA LabID Event for June 6th (date of specimen collection). The NHSN application categorized the LabID Event as Community-onset (CO) since the specimen was collected within the first 3 days of her current admission date into the facility. If the specimen had been first collected four or more days (June 7th or later) after her current admission date into the facility, the NHSN application would've categorized the LabID Event as Long-term Care Facility-onset (LO).

Example: NHSN Classification of Lab ID Events as Community-onset or LTCF-onset				
Admission date				
June 4 th	June 5 th	June 6 th	June 7 th	June 8 th
day 1	day 2	day 3	day 4	day 5
Community-onset (CO)			Long-term Care Facility-onset (LO)	

Calculated MDRO Rates and Metrics*:

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

*NOTE: These calculations will be performed for each specific MDRO included in the reporting plan during a month (for example, MRSA, VRE, etc.)

MDRO Long-term Care Facility-onset Incidence Rate/ 1,000 resident days = Number of all LO MDRO LabID Events per month / Number of resident days x 1,000.

Total MDRO Rate/1,000 resident days = Number of MDRO LabID Events per month (regardless of time spent in the facility specifically, CO + LO) / Number of resident days per month x 1,000.

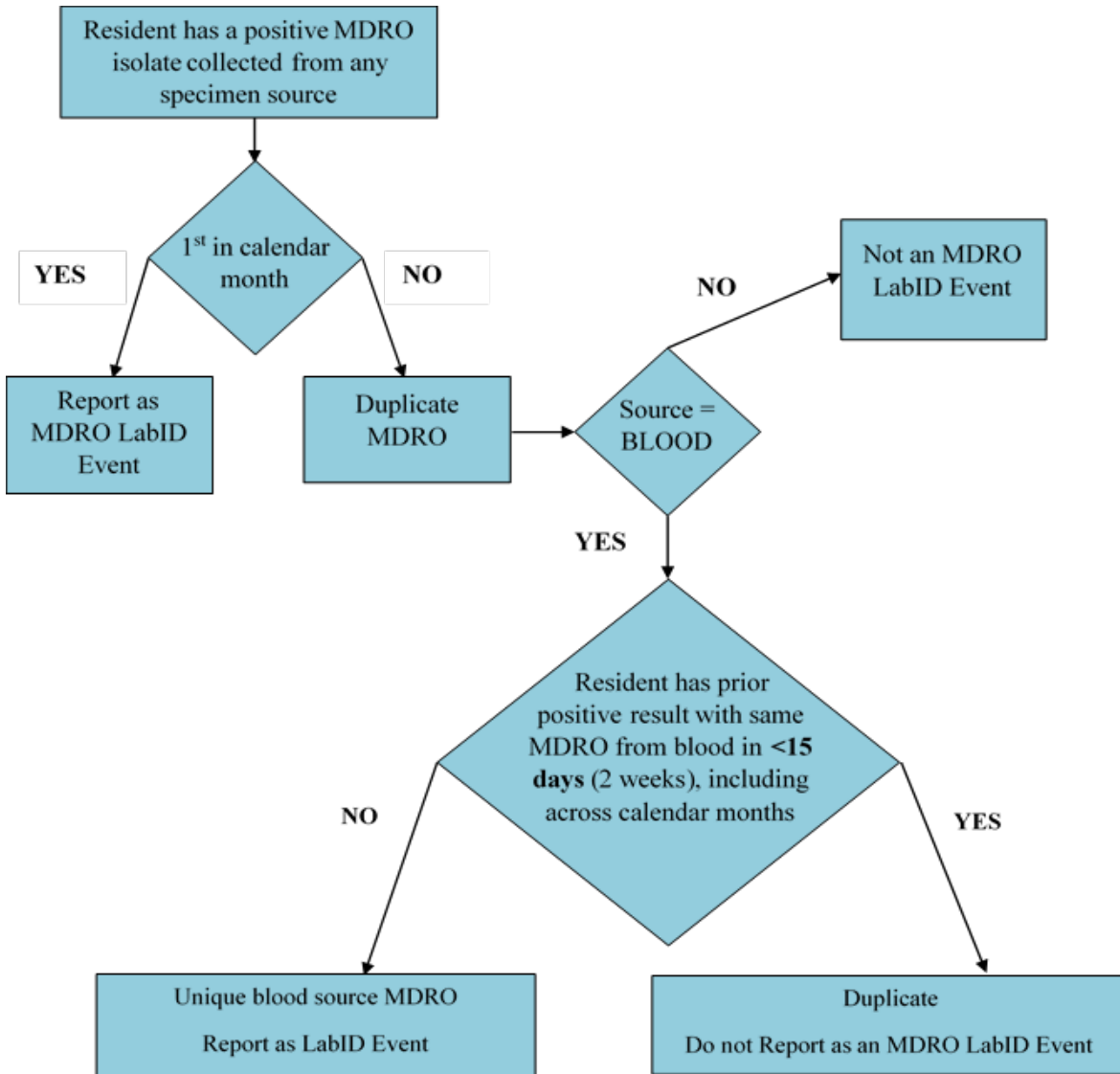
Percent of MDRO LabID Events that are Community-onset = Number of MDRO LabID Events that are CO / Total number of MDRO LabID Events x 100.

Percent of MDRO LabID Events that are Long-term Care Facility-onset = Number of MDRO LabID Events that are LO / Total number of MDRO LabID Events x 100.

Percent of LO LabID Events that are Acute Care-Transfer-Long-term Care Facility-onset = Number of ACT-LO MDRO LabID Events / Total number of LO MDRO LabID Events x 100.



Figure 2. MDRO Test Result Algorithm for Laboratory-identified (LabID) Events.



Notes:

1. LabID event reporting is based on specimens collected by the LTCF during the care of the resident, and specimens collected in an ED or OP setting (for example, physician's office) during the current admission. Laboratory results obtained prior to the resident's admission to the LTCF or during an admission in another healthcare facility are excluded. See [Settings](#)
2. Day of specimen collection equals Day 1 of the specimen count.