NHSN LabID Event Surveillance MDRO/CDI Module

Abigail Marrero, MPH, CPH | January 29th , 2024

Housekeeping

- **This call is being recorded and will be posted on our website.**

- **All questions will be answered at the end.**
  - **Please use the chat box for questions**

Outline

- **Reporting Requirements**
  - **Types of reporting**
    - **Core v. Supplemental**
- **Summary Data (denominator data)**
- **LABID Event: MRSA (Methicillin-resistant *Staphylococcus aureus)***
- **LABID Event: CDI (Clostridioides difficile)**
- **Frequently Asked Questions**
- **Resources**

Current CMS and Tennessee Reporting Requirements

Types of Reporting

- **Core**
  - **Proxy Infection Measures (LabID)**
    - **AND/OR**
  - **Infection Surveillance**
- **Supplemental**
  - **Prevention Process Measures**
  - **AST Outcome Measures**

Reporting Choices	MDRO			CDI
	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

Reporting Methods

- **A: Facility-wide by location.**
  - **Requires the most effort but provides the most detail for local and national statistical data**
- **B: Selected locations within the facility (1 or more).**
  - **Ideal for use in targeted prevention programs.**
- **C: Overall facility-wide**
  - **Report individual LabID events from each inpatient location and total denominator counts for the entire facility.**
- **D: Overall facility-wide: *Blood Specimens Only***
  - ***MDRO LabID Events only and targets the most invasive events.***

Reporting Choices	MDRO			CDI
	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

NHSN MDRO reporting requirements

- **MRSA and CDI are the only required MDROs to be reported in NSHN**
- **Facilities can elect to monitor other MDROs in NHSN:**
  - **MSSA, VRE, CephR- *Klebsiella*, CRE, and/or multidrug-resistant *Acinetobacter spp*.**
  - **These can be isolated from any clinical specimen types**

- **While not reportable in NHSN, CRE, CP-CRAB, CP-CRPA, and *Candida auris* are Reportable Diseases in TN that are required to be reported by all labs located in TN as well was those who test TN residents**

TN NHSN MRSA Reporting Requirements

- **Acute Care Hospitals**
  - **Facility-wide Inpatient (FACWIDEIN)**
  - **Emergency Departments**
  - **24-hour Observation Locations**
  - **CMS-certified Inpatient Rehabilitation Facility Units within the hospital**

- **Long Term Acute Care Hospitals (LTACH)**
- **Inpatient Rehabilitation Facility (Freestanding)**
  - **Facility-wide Inpatient (FACWIDEIN)**

TN NHSN CDI Reporting Requirements

- Acute Care Hospitals
  - Facility-wide Inpatient (FACWIDEIN)
    - Excluding neonatal intensive care units, well baby nurseries and well baby clinics)
  - Emergency Departments
  - 24-hour Observation Locations
  - CMS-certified Inpatient Rehabilitation Facility Units within the hospital
- Long Term Acute Care Hospitals (LTACH)
- Inpatient Rehabilitation Facility (Freestanding)
  - Facility-wide Inpatient (FACWIDEIN)

2024 Changes

2024 MDRO & CDI Clarification

- **FacWideIN Denominator Summary field for CD test type has been modified to request the standard CDI Test Method:**
  - **The response for the standard test type or algorithm used to identify CDI should reflect the testing method standardly performed by the testing laboratory for the quarter.**
  - **The standard test type is reported on the FacWideIN and CMS-certified IRF unit denominator forms on the third month of each quarter (March, June, September, and December)**

- **No additions or deletions**

MRSA and CDI Data

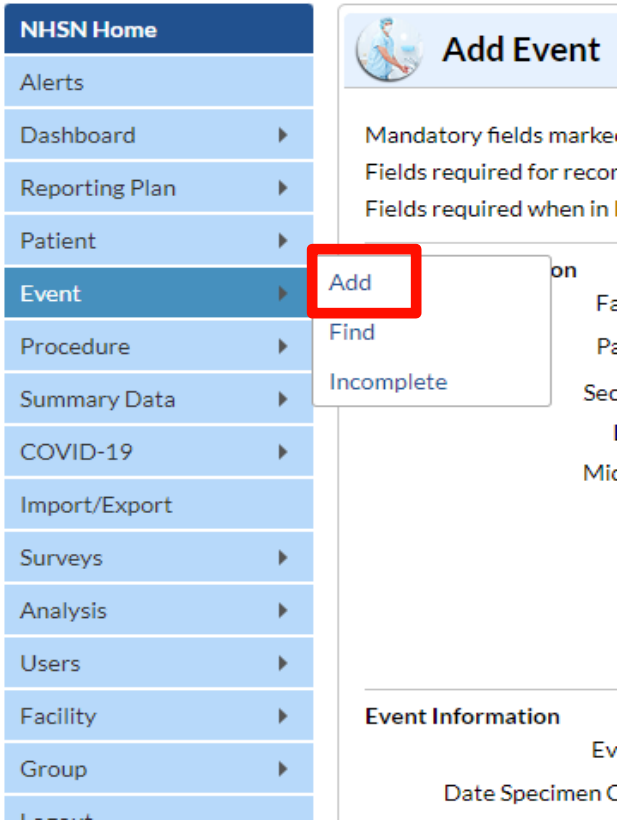
Data Types

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

- **Denominator Data: Patient days and admissions (for inpatient locations), and encounters (for outpatient locations) are reported using the MDRO and CDI Monthly Denominator Form (CDC 57.127).**
  - **Monthly summary data captured for 3 locations: FACWIDEIN, ED, and 24 Hr Obs**

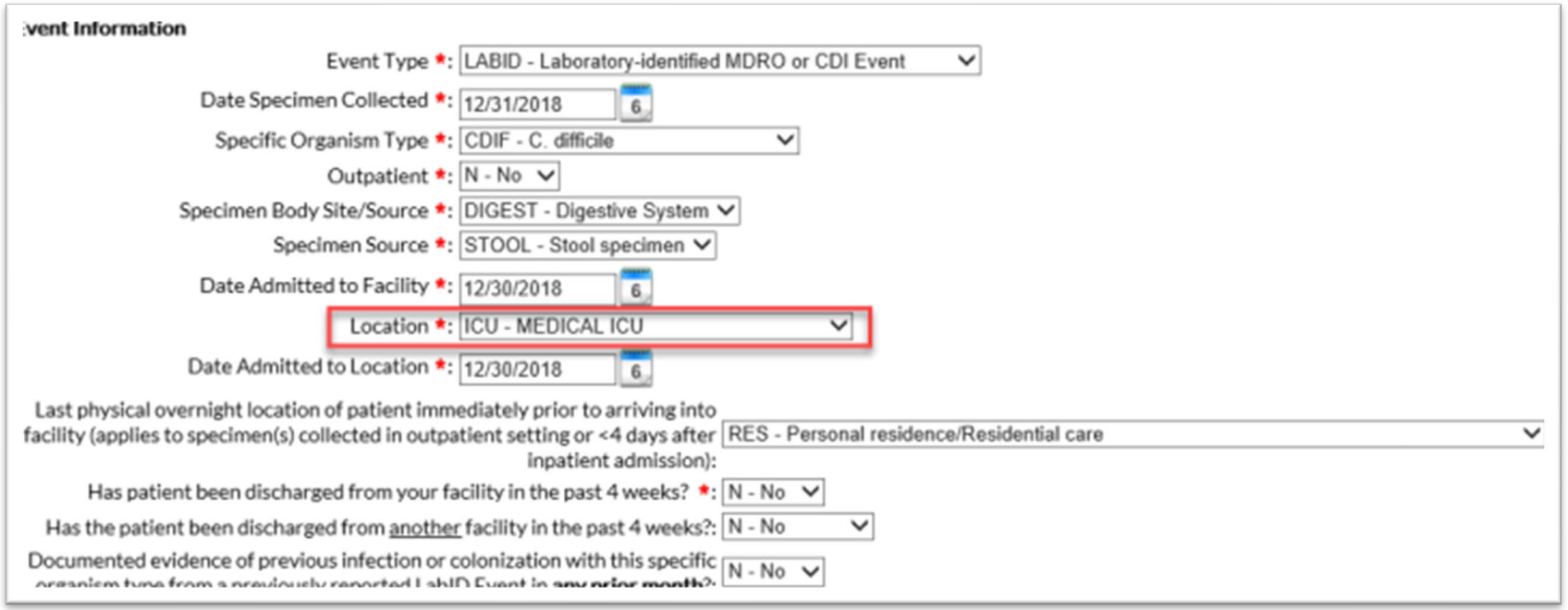
Numerator Data: LabID Event

- **To report numerator data each month, facilities should use the MDRO/CDI Module protocol to identify MRSA bacteremia and C. difficile LabID events**



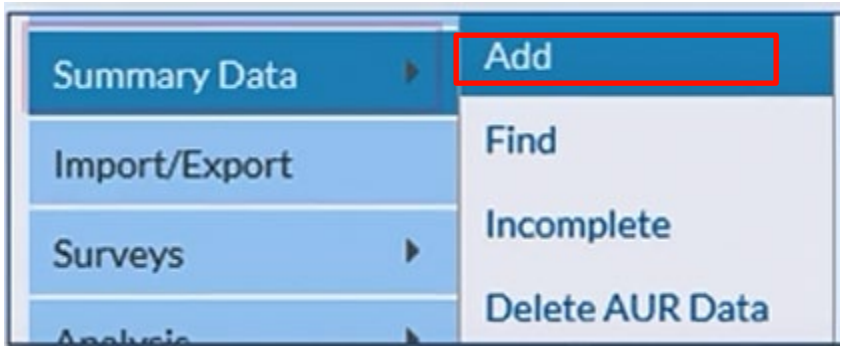
Numerator Data: LabID Event

- **All identified LabID events must be entered into NHSN using the specific location where the patient was assigned at the time of specimen collection**

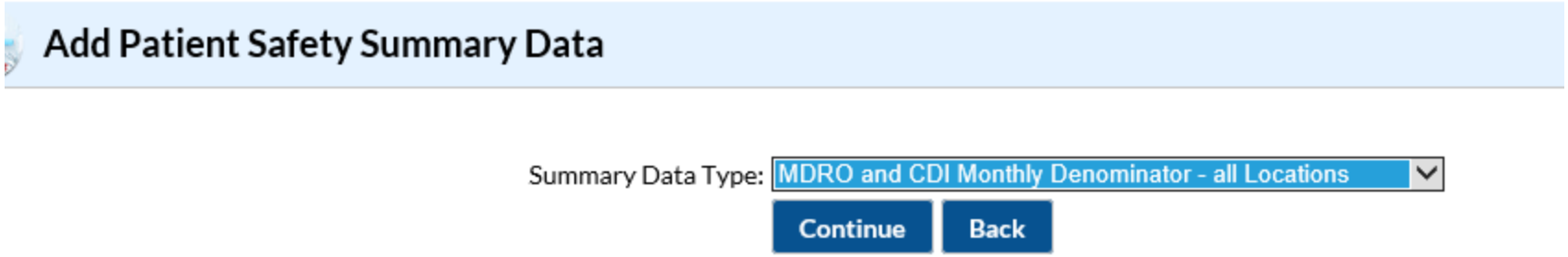


Denominator Data: Facility-wide Inpatient Summary Data

- **Navigate to the form**

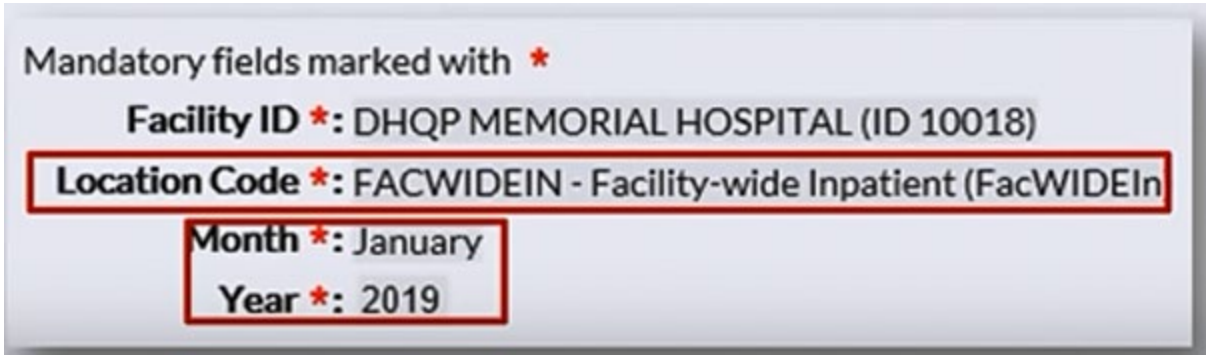


- **Select**

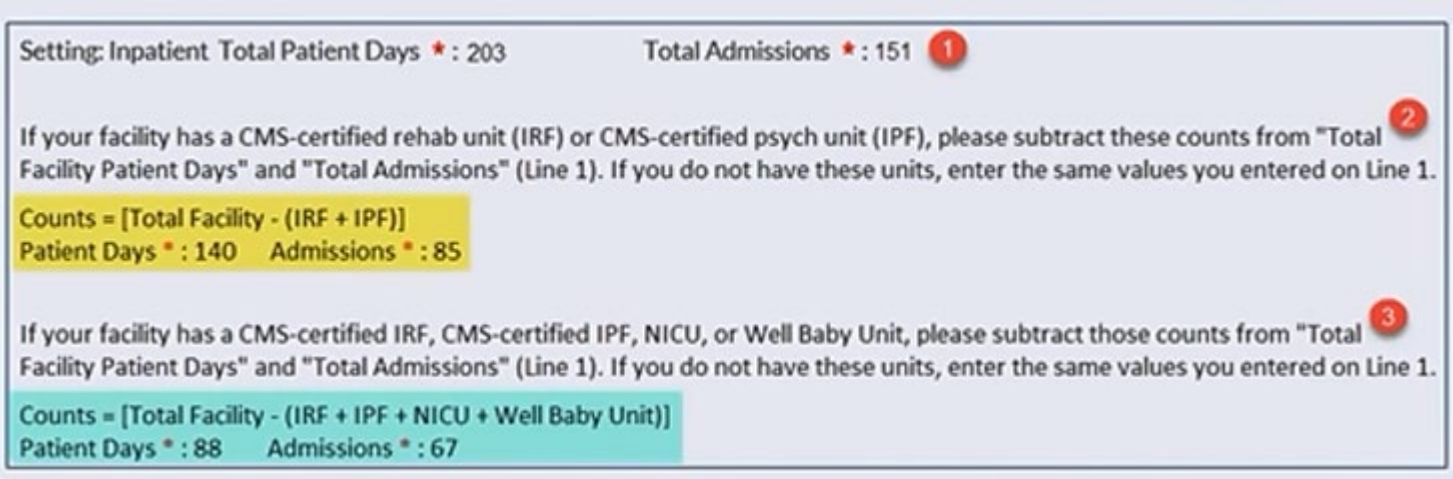


Facility-wide Inpatient Summary Data

- **Select Correct Location Code, Month, and Year**



Facility-wide Inpatient Summary Data


Setting: Inpatient Total Patient Days * : 203 Total Admissions * : 151 1

If your facility has a CMS-certified rehab unit (IRF) or CMS-certified psych unit (IPF), please subtract these counts from "Total Facility Patient Days" and "Total Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1. 2

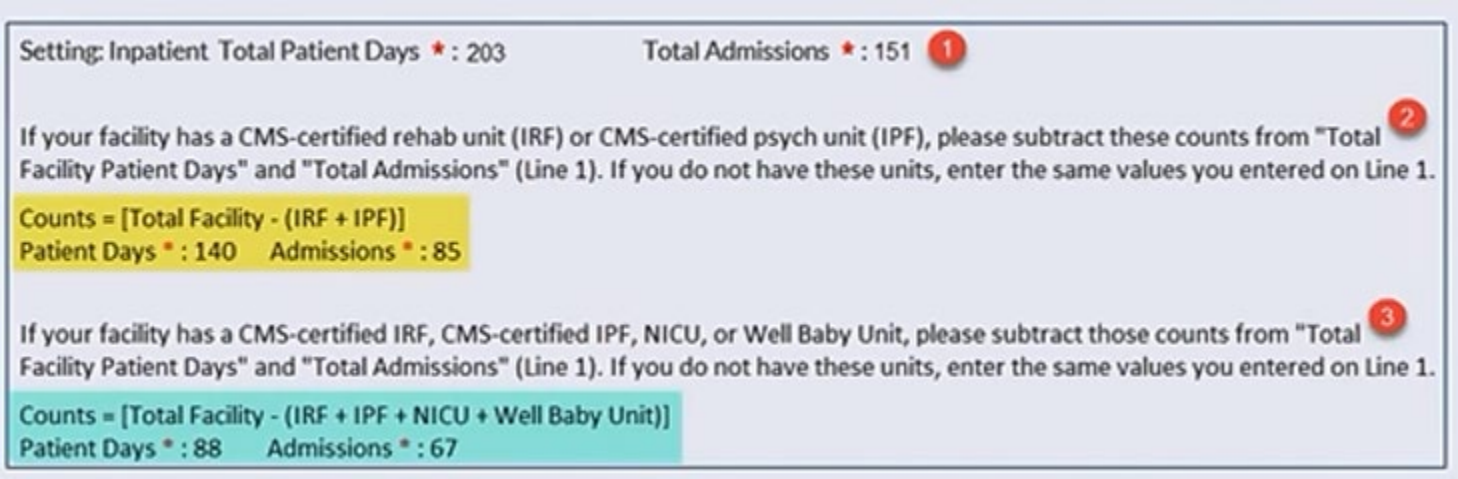
Counts = [Total Facility - (IRF + IPF)]
Patient Days * : 140 Admissions * : 85

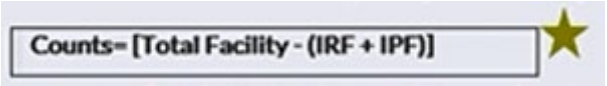
If your facility has a CMS-certified IRF, CMS-certified IPF, NICU, or Well Baby Unit, please subtract those counts from "Total Facility Patient Days" and "Total Admissions" (Line 1). If you do not have these units, enter the same values you entered on Line 1. 3

Counts = [Total Facility - (IRF + IPF + NICU + Well Baby Unit)]
Patient Days * : 88 Admissions * : 67

- **Row 1: Counts from all inpatient locations in the facility**
  - **Exclude outpatient location totals from these fields**

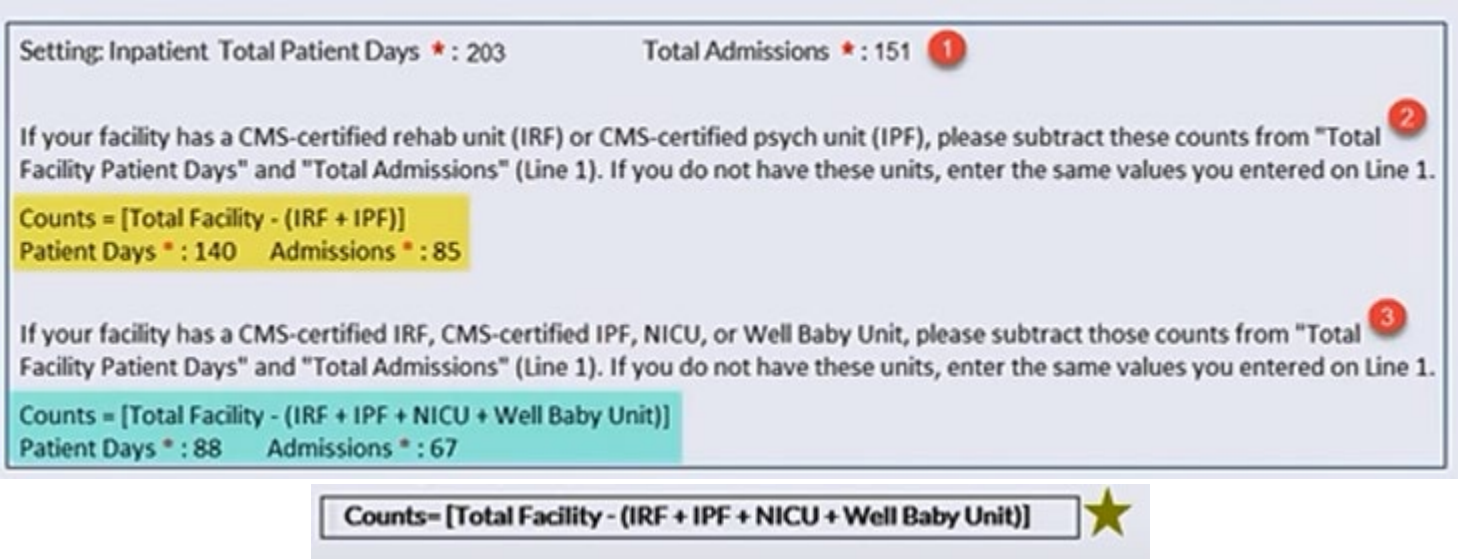
Facility-Wide Inpatient Summary Data





- **Row 2: Counts from all inpatient locations in the facility, with the subtraction of CMS-certified Rehab (IRF) and Psych (IPF) units**
  - **Totals from CMS-Certified Rehab and Psych units are subtracted from the totals found on row 1, and new totals are entered in row 2**

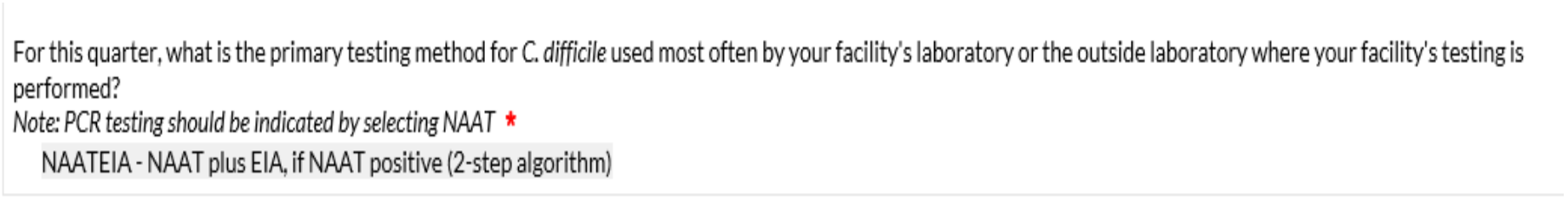
Facility-wide Inpatient Summary Data



- **Row 3: Counts from all inpatient locations in the facility except CMS-certified Rehab (IRF) and Psych (IPF) units, NICUs, and Well Baby units**
  - **Totals from CMS-certified Rehab and Psych units, NICUs, and Well-Baby units are subtracted from totals found on row 1 and new totals entered on row 3**

Primary CDI Test Method

- **The response for the standard test type or algorithm used to identify CDI should reflect the testing method standardly performed by the testing laboratory for the quarter.**
- **The standard test type is reported on the FacWideIN and CMS-certified IRF unit denominator forms on the third month of each Quarter**
  - **March (Q1), June (Q2), September (Q3), December (Q4)**

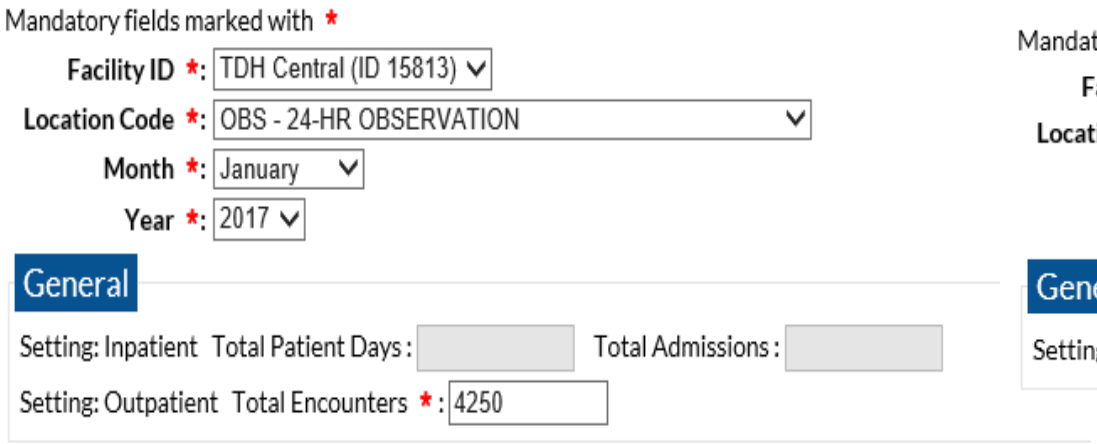

For this quarter, what is the primary testing method for *C. difficile* used most often by your facility's laboratory or the outside laboratory where your facility's testing is performed?
Note: PCR testing should be indicated by selecting NAAT *
NAATEIA - NAAT plus EIA, if NAAT positive (2-step algorithm)

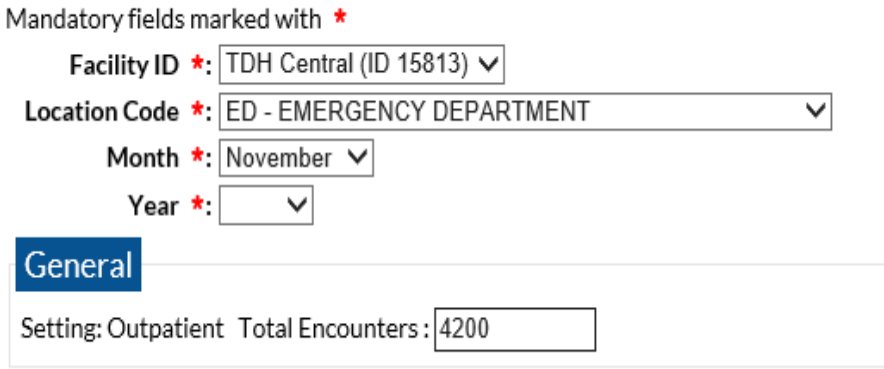
2024 Clarification example

- **At Facility A, the laboratory uses "GDH plus EIA for toxin, followed by NAAT if antigen positive, toxin negative as the standard testing process for specimens during the quarter.**
  - **The appropriate response for the standard test type for this quarter is "GDH antigen plus EIA for toxin followed by NAAT for discrepant results"**
- **At Facility B, the laboratory uses a PCR testing method (NAAT) on all specimens. If the specimen is NAAT positive, a reflex test to EIA for confirmation is performed.**
  - **The appropriate response for the standard test type for this quarter is "NATT plus EIA, if NATT positive (2-step algorithm)"**

Emergency Department/Observation Locations Summary Data

- **Total number of encounters each month**
  - **No exclusions by age (include infants)**





  - **FacWideOut, Emergency Department, Dedicated observation units and other outpatient units, monthly denominator data are reported as encounters**

Determining Patient Days: Observation vs Inpatients

- **Observation patients in <u>observation locations</u>**
  - **An observation location (e.g., 24-hour observation area) is considered an outpatient unit, so time spent in this type of unit does not contribute to any inpatient counts (i.e., patient days, device days, admissions). Admissions to such outpatient units represent "encounters" and are reported for the observation location.**

- **Observation patients in <u>inpatient locations</u>**
  - **An observation patient housed in an inpatient location should be included in any appropriate patient or device day counts for that inpatient location.**

MDRO and CDI Monthly Denominator Form

Location Code *: ER - EMERGENCY DEPARTMENT
Month *: October
Year *: 2019

General

Setting: Outpatient Total Encounters * : 4229

Organism Selection/Confirmation of No Events

Specific Organism Type	MRSA	Report No Events	CDIF	Report No Events	CephR-Kleb	Report No Events	CRE-Ecoli	Report No Events
Infection Surveillance	☐	☐	☐	☐	☐	☐	☐	☐
LabID Event (All specimens)	☐	☐	* ☑	☑	☐	☐	☐	☐
LabID Event (Blood specimens only)	* ☑	☑			☐	☐	☐	☐

The boxes for MRSA and CDI will be checked if you have correctly completed the monthly reporting plan. Check "Report No Events" boxes if you have no LabID events for the month.

NHSN Definitions

MRSA Definition

- **Methicillin-resistant *Staphylococcus aureus***
  - **Includes *S.aureus* cultured from any specimen that tests oxacillin-resistant, cefoxitin-resistant, or methicillin-resistant by standard susceptibility testing methods, or any laboratory finding of MRSA (includes but not limited to PCR or other molecular based detection methods).**

CDI Definition

- **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 (specifically, conforming to the shape of 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 container)**

CDI Multi-Step Testing

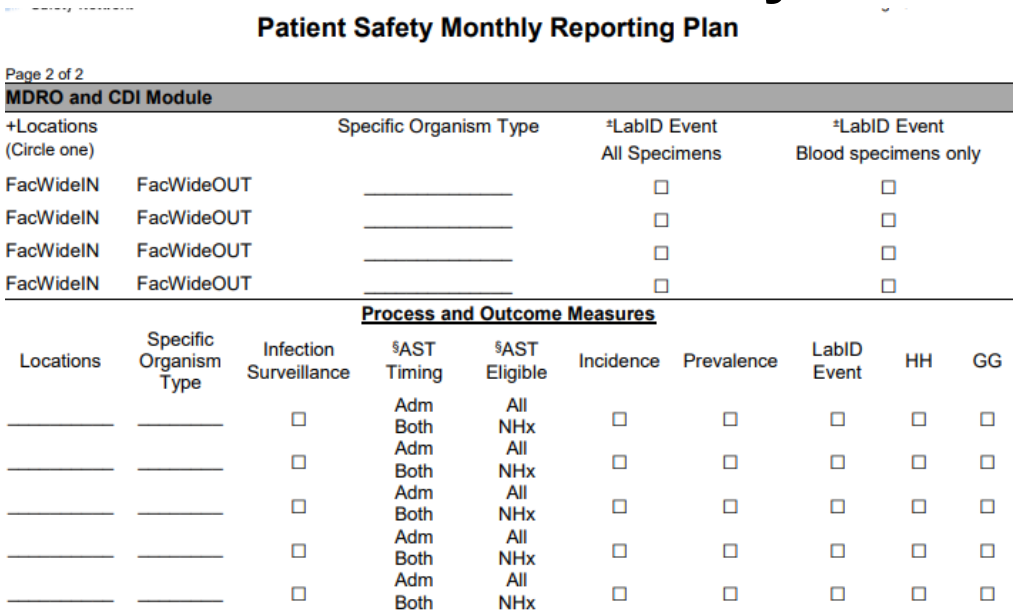
Examples of Multi-step Testing Interpretations (does not consider prior positives):

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	

Other MDRO Definitions

- **NHSN definitions for VRE, CephR- Klebsiella, CRE, and/or multidrug-resistant Acinetobacter spp can be found in Chp. 12 Section 1A of the Patient Safety Manual**

- **If facilities elect to report additional MDROS, facilities must indicate each reporting choice chosen for the calendar month on the Patient Safety Monthly Reporting Plan**



Patient Safety Monthly Reporting Plan

Page 2 of 2

MDRO and CDI Module

+Locations (Circle one)		Specific Organism Type	‡LabID Event All Specimens	‡LabID Event Blood specimens only
FacWideIN	FacWideOUT	_____	☐	☐
FacWideIN	FacWideOUT	_____	☐	☐
FacWideIN	FacWideOUT	_____	☐	☐
FacWideIN	FacWideOUT	_____	☐	☐

Process and Outcome Measures

Locations	Specific Organism Type	Infection Surveillance	§AST Timing	§AST Eligible	Incidence	Prevalence	LabID Event	HH	GG
_____	_____	☐	Adm Both	All NHx	☐	☐	☐	☐	☐
_____	_____	☐	Adm Both	All NHx	☐	☐	☐	☐	☐
_____	_____	☐	Adm Both	All NHx	☐	☐	☐	☐	☐
_____	_____	☐	Adm Both	All NHx	☐	☐	☐	☐	☐
_____	_____	☐	Adm Both	All NHx	☐	☐	☐	☐	☐

Reminders!

- **Specimens collected in ED or 24-hour observation location(s) are only entered into NHSN once, assigned to the outpatient (ED/observation) location**

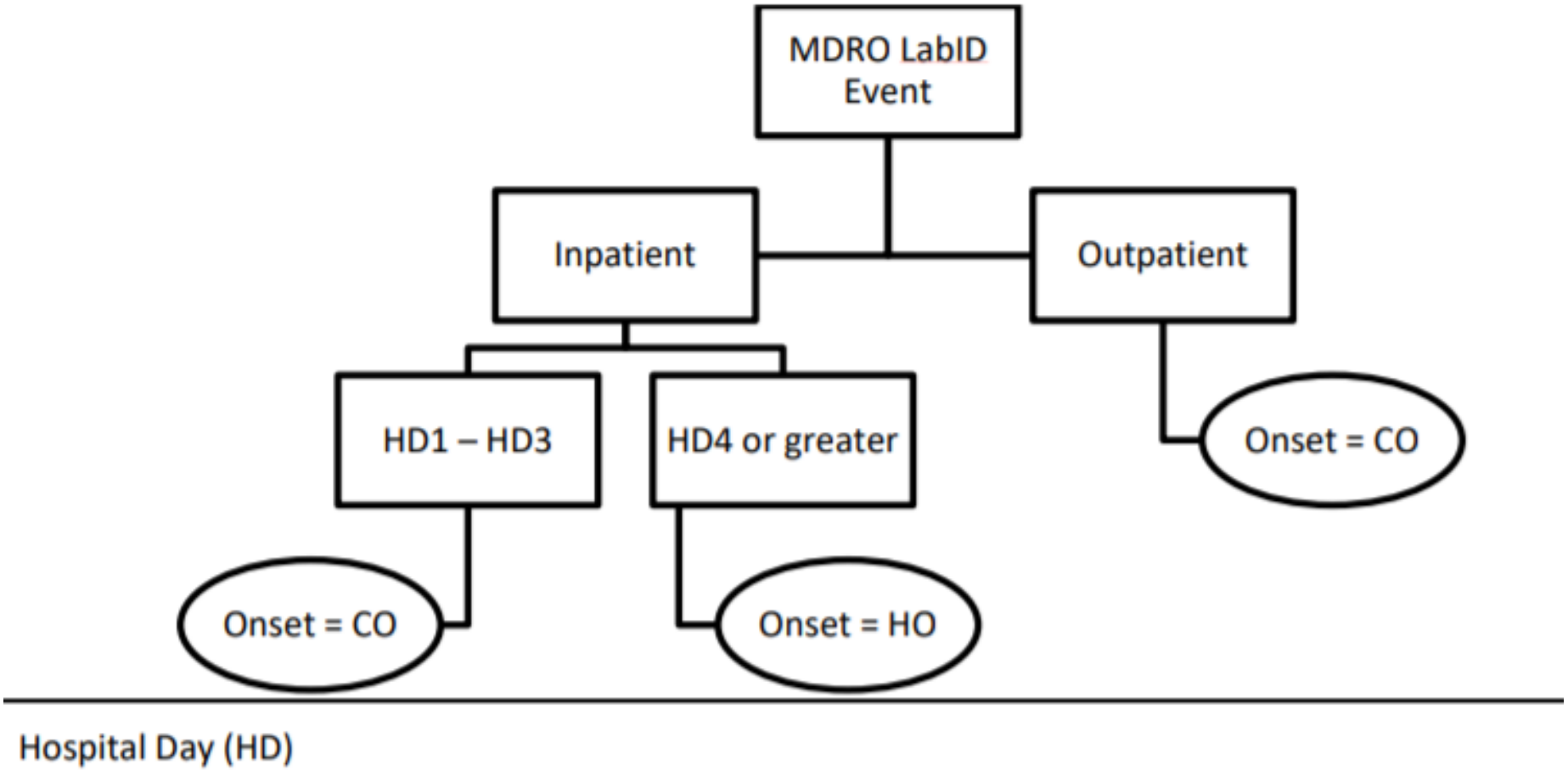
- **NOTE: Specimens collected from other affiliated outpatient locations should still be reported to an inpatient location, if collected on the same calendar day as inpatient admission**

LabID Event Categorization

- **Community –Onset (CO):**
  - collected in an outpatient location in which the patient was not previously discharged from an inpatient location within the same facility less than or equal to 28 days prior to current date of specimen collection
  - Collected in an inpatient location less than or equal to 3 days after admission to the facility (specifically, days 1, 2, or 3 of admission.

- **Healthcare Facility –Onset (HO):**
  - LabID Event specimen collected greater than 3 days after admission to the facility (specifically, on or after day 4).

MDRO LabID Event Categorization



CO Example

January 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17 Admit HD 1	18 HD 2	19 CDI+ HD 3	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

HO Example

January 2024

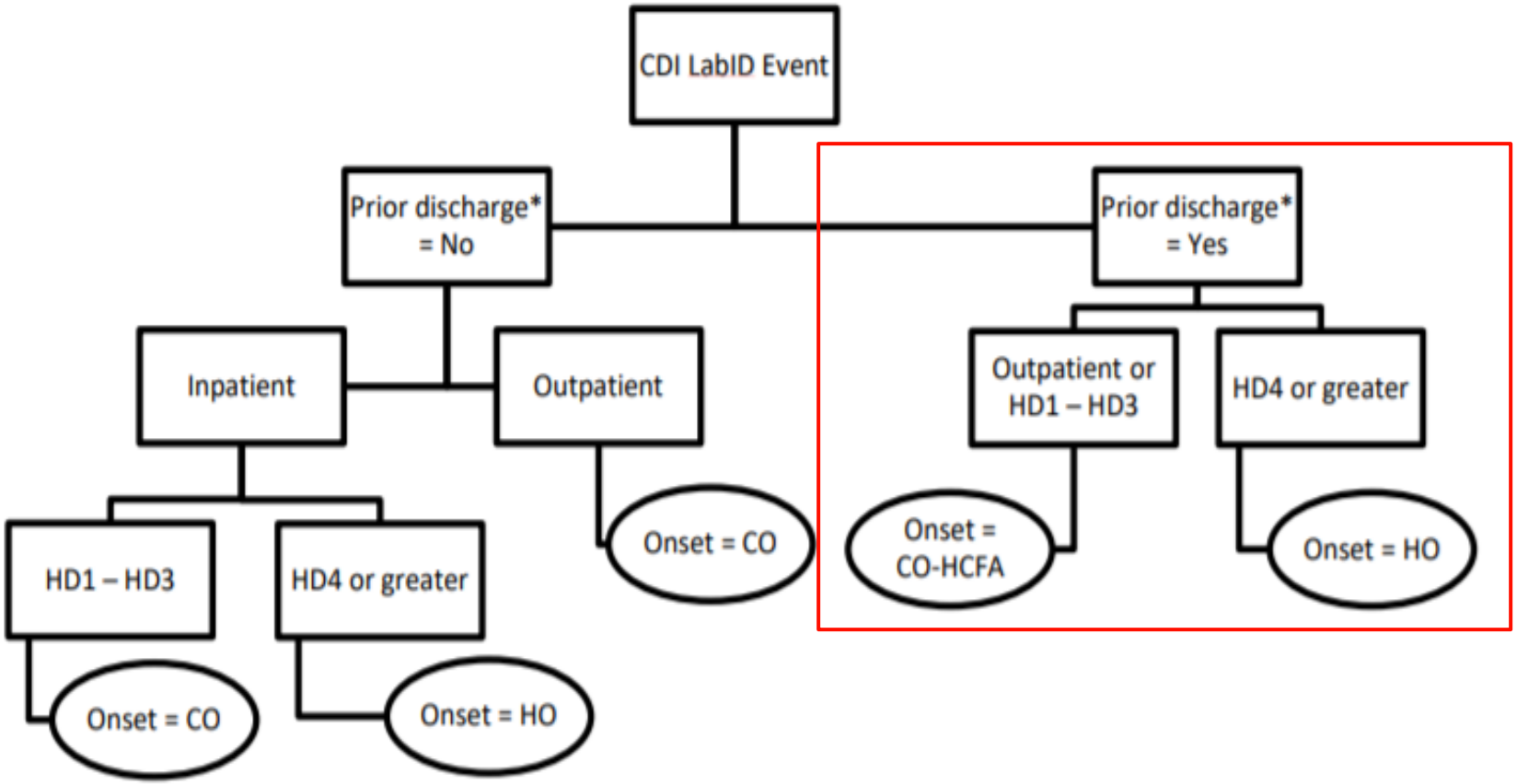
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17 Admit HD 1	18 HD 2	19 HD 3	20 CDI+ HD 4	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

CDI LabID Event Categorization

- **Community-Onset Healthcare Facility-Associated (CO-HCFA):**
  - **CO LabID Event collected from an inpatient or an outpatient location from a patient who was discharged from the facility less than or equal to 28 days prior to current date of stool specimen collection.**
  - **The previous discharge must have been from an inpatient location with the same facility (in other words, an outpatient visit does not qualify as "admitted", and therefore is not used to set the timeline for CO-HCFA).**

When reporting to NHSN, you DO NOT have to calculate this! *NHSN will do it for you!*

LabID Event Categorization -CDI



CO-HCFA Example

January 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Admit # 1	3	4 Discharged	5	6	7
8	9	10	11	12	13	14
15	16	17 Admit # 2 HD 1	18 HD 2	19 CDI+ HD 3	20 HD 4	21 Discharged HD 5
22	23	24	25	26	27	28
29	30	31	1	2	3	4

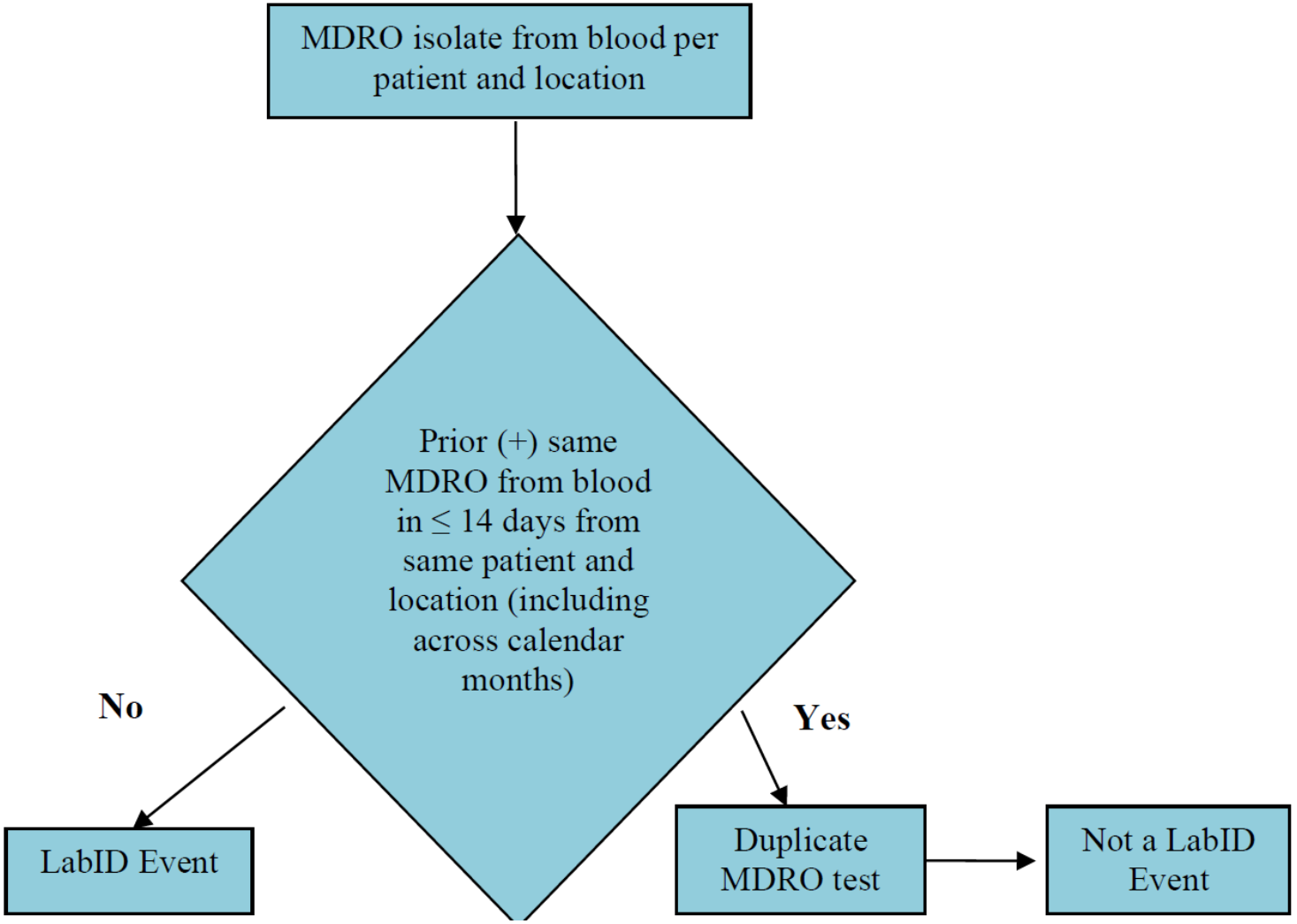
LabID Event: MRSA Blood Specimens

MRSA Bacteremia LabID Event Definition

- **Non-duplicate, unique blood source**
  - **MRSA isolate from blood in a patient with no prior positive blood culture for the same MDRO and location in less than or equal to 14 days, even across calendar months and different facility admissions.**

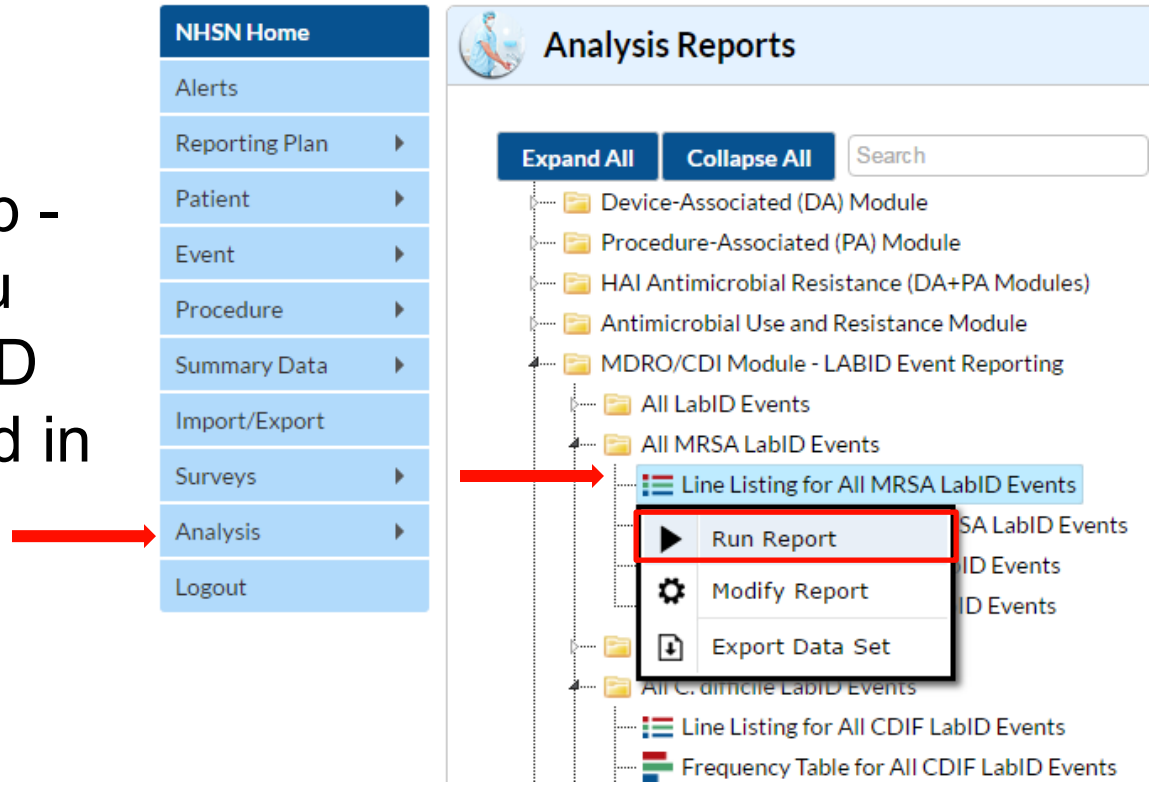
NOTE: Active Surveillance Culture/Testing results are NOT eligible

Identifying a MRSA Bacteremia LabID Event



LabID Analysis

- Under the analysis tab - Line lists can help you determine which LabID events will be included in your SIR



LabID Analysis SIR Determination

- Line Listing of all MRSA LabID Events
  - The variable FWMRSA_bldincCount tells you whether the event will be included in your SIR

patID	eventID	spcOrg Type	location	outpatient	prevPos	onset	admitDate	locationAdmitDate	specimenSource	specimenDate	FWMRSA_admPrevBldCount	FWMRSA_bldIncCount
1C10013231	42844747	MRSA	5S MED ONC	N	N	HO	05/30/2020	05/30/2020	BLDSPC	06/03/2020	0	1
1C11845928	43426755	MRSA	ED	Y	N	CO	.	.	BLDSPC	08/08/2020	0	0
1C11845928	43426756	MRSA	5N SURG	N	Y	HO	08/09/2020	09/04/2020	BLDSPC	09/12/2020	0	1
1C11845928	43426757	MRSA	I03	N	N	CO	08/09/2020	08/09/2020	BLDSPC	08/09/2020	0	0

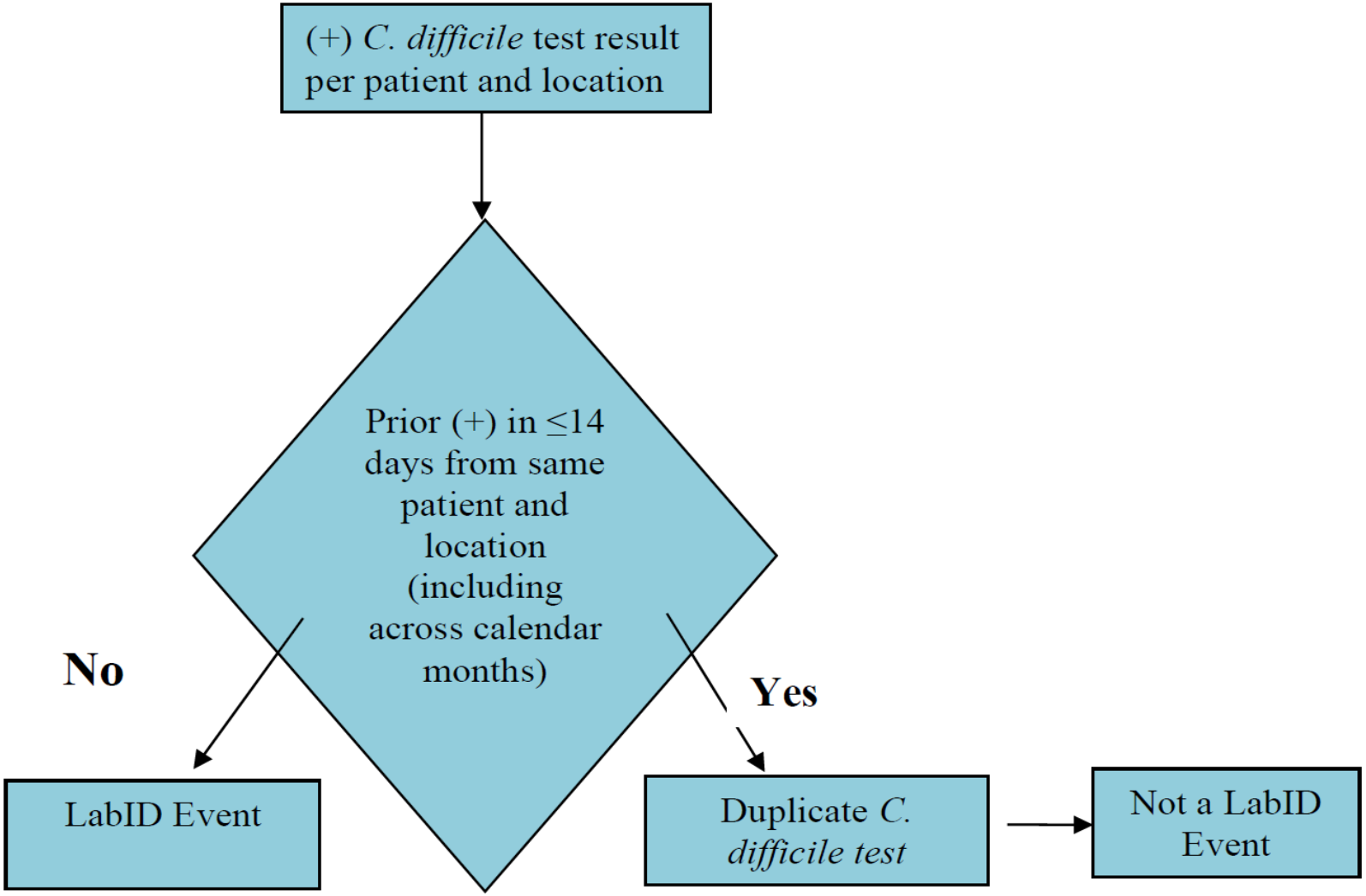
LabID Event:CDI

CDI LabID Event Definition

- **Non-duplicate, *C. difficile* toxin-positive lab result**
  - **Any *C. difficile* lab result with no prior positive in the prior 14 days (even across calendar months) for this patient in this particular location.**
    - **Day of specimen collection is Day 1**
    - **Tests should only be performed on unformed stool**
      - **Stool that takes the shape of its container**

NOTE: Active Surveillance Culture/Testing results are NOT eligible

Identifying a CDI LabID Event



Incident vs. Recurrent

- **Incident CDI LabID Event: a specimen obtained more than 56 days after the most recent CDI LabID Event (or with no previous CDI LabID Event documented) for that patient.**
- **Recurrent CDI LabID Event: a specimen obtained more than 14 days and and less than or equal to 56 days after the most recent CDI LabID Event for that patient.**

When reporting to NHSN, you DO NOT have to calculate this! *NHSN will do it for you!*

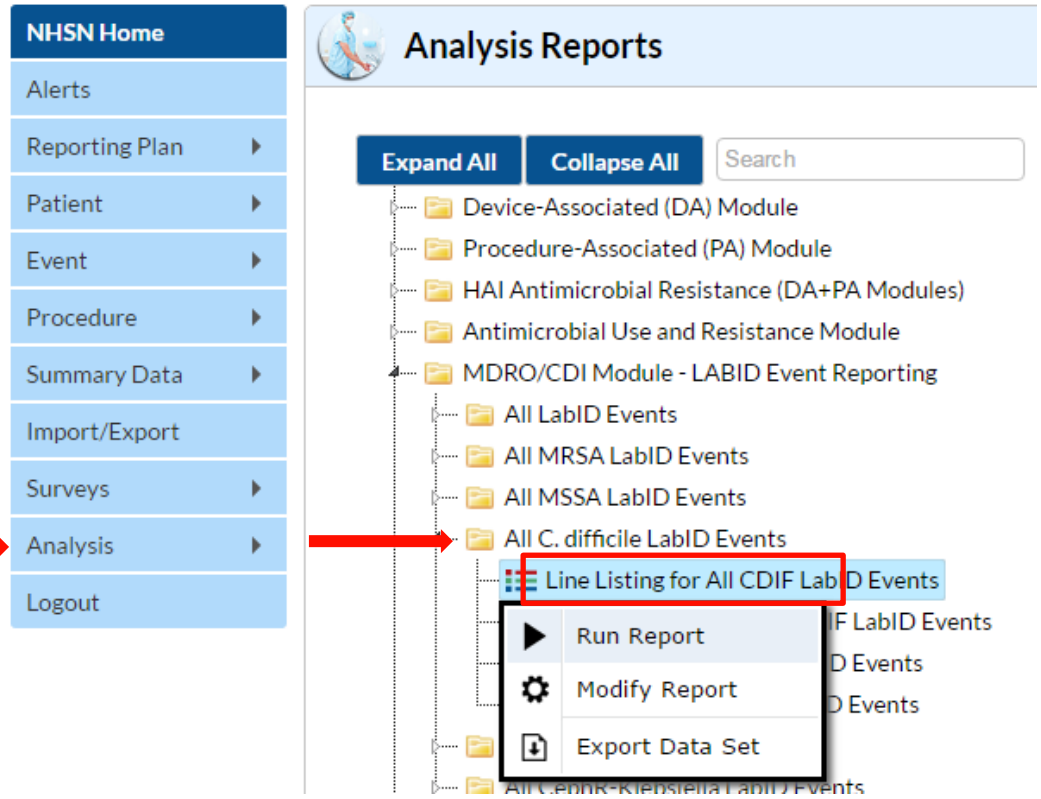
LabID Event Calculator

- **LabID event calculator available through the NHSN website to help with data entry decision making around the 14-day rule**
- **LabID Calculator**

Analysis

LabID Analysis

- Under the analysis tab - Line lists can help you determine which LabID events will be included in your SIR



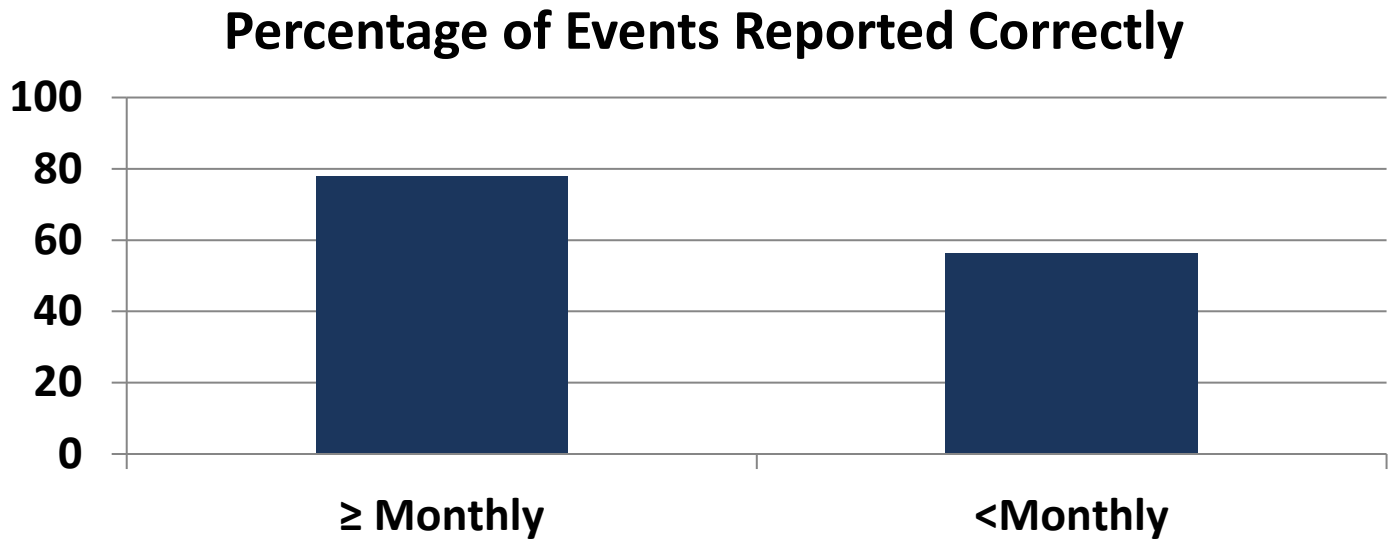
Lab Analysis SIR Determination

- Line Listing of all CDIF LabID Events
  - The variable FWCDIF_IncHOCount tells you whether the event will be included in your SIR

patID	eventID	spcOrgType	location	outpatient	prevPos	onset	cdiAssay	admitDate	locationAdmitDate	specimenSource	specimenDate	FWCDIF_facIncHOCount	FWCDIF_admPrevCOCount
1C10055063	43426036	CDIF	5N SURG	N	N	CO	Incident	08/22/2020	08/22/2020	STOOL	08/23/2020	0	1
1C10099892	42844776	CDIF	3W ICUSD	N	N	CO-HCFA	Incident	07/02/2020	07/02/2020	STOOL	07/02/2020	0	0
1C10119335	43426042	CDIF	I01	N	N	CO-HCFA	Incident	09/28/2020	09/28/2020	STOOL	09/29/2020	0	0
1C10149393	44277201	CDIF	ED	Y	N	CO-HCFA	Incident	.	.	STOOL	10/12/2020	0	0
1C10249643	42844761	CDIF	5N SURG	N	N	CO	Incident	06/19/2020	06/19/2020	STOOL	06/20/2020	0	1
1C10256861	44278094	CDIF	3S MS	N	N	HO	Incident	10/04/2020	10/04/2020	STOOL	10/19/2020	1	0
1C10555870	42844775	CDIF	ED	Y	N	CO	Incident	.	.	STOOL	06/16/2020	0	1

Clinical Decision Support Software

- If you use clinical decision support software (CDSS) it is best practice to compare your results monthly to a laboratory line list.
- As part of a validation conducted by TDH, facilities that verified their CDSS identified events, at least monthly, with a laboratory line list had significantly higher percentage of correctly reported events than facilities that validated less frequently or not at all.



Frequently Asked Questions: LabID Events

Question 1

- **My facility is doing active surveillance testing (AST) and LabID Event reporting. If an MDRO is identified during AST is it also a LabID Event?**

- **Answer**: ***No, because a LabID Event is an MDRO isolate obtained for clinical decision making, not as part of routine surveillance.***

Question 2

- **<u>TRUE or FALSE:</u> At the Overall facility-wide levels and for IRF, ED, and 24-hour observation, MDROs can be monitored for All Specimen types or for Blood Specimens Only.**

- **<u>Answer</u>: *TRUE***
  - ***All other inpatient and outpatient locations can only monitor for All Specimen types.***

Question 3

- **I have a patient with a positive MRSA blood specimen early in the month. If he has another positive blood specimen one week later, on the same unit, do I enter a second LabID Event in NHSN?**

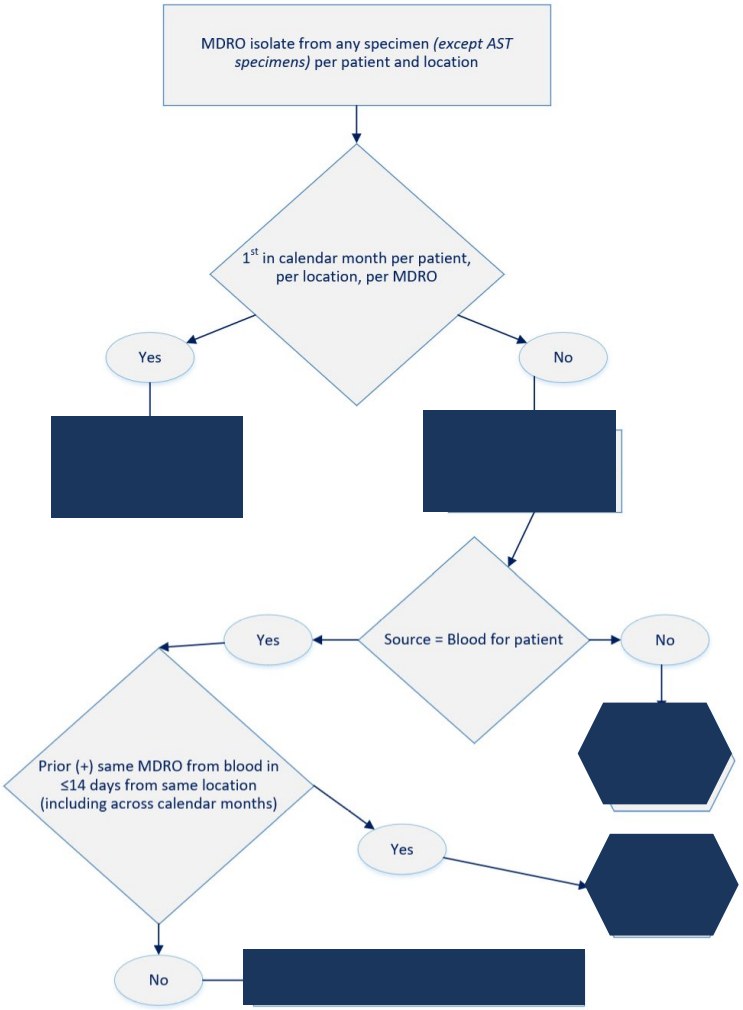
- **Answer**: ***You would not report an additional positive blood specimen that was obtained the following week (14-day rule) .***

Question 4

- **If I have a patient with a positive MRSA blood specimen late in the month and the following month he has another positive blood specimen, do I enter the second specimen as a LabID Event in NHSN?**

- **Answer**: ***You need to apply the 14-day rule to determine if the specimen meets the LabID event definition. Remember that the 14-day rule crosses months.***

Question 5


MDRO isolate from any specimen (except AST specimens) per patient and location
1st in calendar month per patient, per location, per MDRO
Yes
No
Source = Blood for patient
Yes
No
Prior (+) same MDRO from blood in ≤14 days from same location (including across calendar months)
Yes
No

Question 6

- **A MRSA-positive blood culture was obtained in the ED and then admitted to an inpatient unit on the same day. How do I report this LabID event?**

- **<u>Answer</u>: *Report this MRSA blood specimen as a LabID Event for the ED.***

- **If the patient had went to an affiliated outpatient clinic, how would it have been reported?**

- **<u>Answer:</u> It would have been reported for the inpatient location.**

Question 7

- **A MRSA-positive blood culture was obtained while patient was in dedicated observation unit and then was admitted as inpatient the same day. How do I report this LabID event?**

- **Answer**: ***Report this MRSA blood specimen as a LabID Event for the dedicated observation unit.***

- **An observation patient is placed on an inpatient unit. MRSA + blood cultures are collected. How do I report this LabID event?**

- **Answer: It would have been reported for the inpatient location.**

Resources

NHSN Resources

- **NHSN MDRO/CDI Module and Protocol**
  - https://www.cdc.gov/nhsn/pdfs/pscmanual/12pscmdro_cdadcurrent.pdf
- **NHSN MDRO and CDI Resources**
  - http://www.cdc.gov/nhsn/acute-care-hospital/cdiff-mrsa/index.html
- **MDRO & CDI LabID Event Calculator**
  - https://nhsn.cdc.gov/labid-calculator/mdrolabidcalc.html
- **Reportable Diseases and Conditions**
  - https://www.tn.gov/health/cedep/reportable-diseases.html

Information and Support

- **CDC - NHSN**

Helpdesk email: nhsn@cdc.gov

NHSN website: NHSN | CDC

- **Tennessee Department of Health**

TDH HAI inbox: hai.health@tn.gov

TDH NHSN Website: State-Based NHSN

Next Meetings

- NHSN User Call
  - February 20th
- LTCF Call
  - February 7th

- Next NHSN Training is February 5th
  - SSI Events

Questions?

Abigail.Marrero@tn.gov
Hai.health@tn.gov