



## **NHSN: Laboratory-Identified Event Module Multidrug-Resistant Organisms and *Clostridium difficile* Infection**

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## **Official CDC Training**

- Available at <http://www.cdc.gov/nhsn/PDFs/LTC/slides/NHSN-LTCF-LABID-Event-training-v2.pdf>.
- Laboratory-identified = LabID

## Background

- ❑ **Why monitor MDRO and CDI in long-term care facilities?**
  - Residents in long term care facilities are at risk of carrying or acquiring MDROs and *C. difficile*
  - Infections from MDROs and CDI can be more severe, harder to treat, and are associated with increased risk of hospitalization, debility, and death
  - Focused monitoring of MDROs and CDI helps to evaluate trends and changes in the occurrence of these pathogens and related infections in the facility over time
  - Tracking these events will also inform infection control staff of the impact of targeted prevention efforts

## Purpose of LabID Event Reporting

- ❑ **To calculate proxy measures for MDRO and CDI events, exposures, and healthcare acquisition**
- ❑ **This method is based solely on laboratory data and limited resident admissions/transfer data**
  - This includes results of testing performed on residents while at the facility
  - Clinical evaluation of resident is not required, and therefore this surveillance option is less labor intensive

## Settings for LabID Event Reporting

- ❑ **Reporting is available for the following facility types:**
  - Certified skilled nursing facilities/nursing homes (LTC:SKILLNURS)
  - Intermediate/chronic care facilities for the developmentally disabled (LTC:DEVDIS)

## Reporting Requirements

- ❑ **Facilities must indicate LabID event surveillance in the *Monthly Reporting Plan for LTCF***
- ❑ **Surveillance must be reported for at least 6 consecutive months to provide meaningful measures**
- ❑ **MDRO and CDI surveillance should be performed facility-wide**

## Monthly Reporting Plan for LTCF



Department of Health and Human Services  
 Centers for Disease Control and Prevention

Home - National Healthcare Safety Network (NHSN) - Home (NHSN) [CO] | NHSN Home | My Info | Get Help  
 Logged into Stone and Thompson Quality Care Facility (ID 11131) as NEMALIC. Facility Stone and Thompson Quality Care Facility (ID 11131) is following the LTCF component.

### Add Monthly Reporting Plan

Mandatory fields marked with \*

Facility ID\*: Stone and Thompson Quality Care Facility (ID 11131) ▾

Month\*: March ▾

Year\*: 2012 ▾

No Long Term Care Facility Component Modules Followed this Month

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**HAI Module** @HELP

Locations	UTI
<input type="checkbox"/> FACWIDEN - FacWideN ▾	<input type="checkbox"/>

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**LabID Event Module** @HELP

Locations	Specific Organism Type	Lab ID Event All Specimens
<input type="checkbox"/> FACWIDEN - FacWideN ▾	CDIF - C. difficile ▾	<input checked="" type="checkbox"/>
<input type="checkbox"/> FACWIDEN - FacWideN ▾	MISA - MISA ▾	<input checked="" type="checkbox"/>

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**Prevention Process Measure Module** @HELP

Locations	Hand Hygiene	Gown and Gloves use
<input type="checkbox"/> FACWIDEN - FacWideN ▾	<input type="checkbox"/>	<input type="checkbox"/>

## Reporting Options

- ❑ I. CDI
- ❑ II. MDROs
  - A facility can chose to monitor one or more of the following organisms:
    - *Staphylococcus aureus*, methicillin-resistant (MRSA)
    - *Staphylococcus aureus*, methicillin-susceptible (MSSA)
    - Vancomycin-Resistant *Enterococcus* spp. (VRE)
    - Cephalosporin-Resistant *Klebsiella* spp.(CephR-*Klebsiella*)
    - Carbapenem-Resistant *Klebsiella* spp. (CRE-*Klebsiella*)
    - Carbapenem-Resistant *E coli*. (CRE-*Ecoli*)
    - Multidrug-Resistant *Acinetobacter* spp (MDR-*Acinetobacter*)

## Required Forms

- ❑ **Laboratory-identified MDRO or CDI Event for LTCF Form**
  - Numerator data
    - Collect and report each MDRO or CDI event that meets the LabID Event definition
  
- ❑ **Denominators for LTCF Locations Form**
  - Denominator data
    - Resident-days each month
    - Resident admissions each month

## Laboratory-identified Event Form

- ❑ **“Numerator” – one form per MDRO or CDI Event**

OIG No. 200-288  
 Rev. Date: 01-29-2012  
[www.cdc.gov/nhsn](http://www.cdc.gov/nhsn)

**Laboratory-identified MDRO or CDI Event for LTCF**

Page 1 of 1

*Facility for LabID	
Facility ID:	Event #:
*Resident ID:	*Social Security #:
Medicare number (or comparable reinsurance number):	
Resident Name, Last: _____ First: _____ Middle: _____	
*Gender: M F Other	*Date of Birth: ___/___/___
Ethnicity (specify): _____	Race (specify): _____
*Resident type: <input type="checkbox"/> Short-stay <input type="checkbox"/> Long-stay	*Date of Current Admission to Facility: ___/___/___
*Date of First Admission to Facility: ___/___/___	
<b>Event Details</b>	
*Event Type: LabID	*Date Specimen Collected: ___/___/___
*Specific Organism Type: (check one)	
<input type="checkbox"/> MRSA <input type="checkbox"/> MSSA <input type="checkbox"/> VRE <input type="checkbox"/> C. difficile <input type="checkbox"/> Capn/Rubella <input type="checkbox"/> CRE-E. coli <input type="checkbox"/> CRE/Klebsiella <input type="checkbox"/> MRSA/Ashe/obacter	
*Specimen Body Site/System:	*Specimen Source:
*Resident Care Location:	
*Primary Resident Service Type: (check one)	
<input type="checkbox"/> Long-term general nursing <input type="checkbox"/> Long-term dementia <input type="checkbox"/> Long-term psychiatric <input type="checkbox"/> Skilled nursing/Short-term rehab (subacute) <input type="checkbox"/> Ventilator <input type="checkbox"/> Bariatric <input type="checkbox"/> Hospice/Palliative	
*Has resident been transferred from an acute care facility in the past 3 months? Yes No	
If Yes, date of last transfer from acute care to your facility: ___/___/___	
If Yes, was the resident on antibiotic therapy for this specific organism type at the time of transfer to your facility? Yes No	
<b>Custom Fields</b>	
Label: _____	Label: _____

See Table of Instructions at : [http://www.cdc.gov/nhsn/PDFs/LTC/forms/57\\_138-TOI-for-LAB-ID-EVENT\\_FINAL\\_7.6.2012.pdf](http://www.cdc.gov/nhsn/PDFs/LTC/forms/57_138-TOI-for-LAB-ID-EVENT_FINAL_7.6.2012.pdf)

## Add Event

Mandatory fields marked with \*

Fields required for record completion marked with \*\*

### Resident Information [HELP](#)

Facility ID\*: State Memorial Long-term Care Facility (ID 30203) ▼

Resident ID\*: W12345

Find

Find Events for Resident

Social Security #\*: 123-45-6789

Medicare number (or comparable railroad insurance number):

Last Name: Badger

First Name: Bucky

Middle Name:

Gender\*: M - Male ▼

Date of Birth\*: 06/01/1929

Ethnicity:

- Race:
- American Indian/Alaska Native
  - Black or African American
  - White
  - Asian
  - Native Hawaiian/Other Pacific Islander

Resident type\*: LS - Long Stay ▼

Date of First Admission to Facility\*: 12/10/2010

Date of Current Admission to Facility\*: 06/21/2013

11

### Event Information

Event Type\*: LABID - Laboratory-identified MDRO or CDI Event ▼

Date Specimen Collected\*: 07/01/2013

Specific Organism Type\*: CDIF - C. difficile ▼

Specimen Body Site/System\*: DIGEST - Digestive System ▼

Specimen Source\*: STOOL - Stool specimen ▼

Resident Care Location\*: 3F - THIRD FLOOR ▼

Primary Resident Service Type\*: GENNUR - Long-term general nursing ▼

Documented prior evidence of previous infection or colonization with this specific organism type from a previously reported LabID Event? N - No ▼

Has resident been transferred from an acute care facility in the past 3 months\*\*? Y - Yes ▼

If Yes, date of last transfer from acute care to your facility\*: 06/21/2013

If Yes, was the resident on antibiotic therapy for this specific organism type at the time of transfer to your facility\*\*? N - No ▼

### Custom Fields

LAST DISCH DATE: [ ] [ ] [ ]

3-20-13: [ ] [ ] [ ]

OTHER DATE: [ ] [ ] [ ]

LAST DISCH DA2: [ ] [ ] [ ]

### Comments [HELP](#)

Save

Back

12

# Entering Denominator Data in NHSN

Department of Health and Human Services  
Centers for Disease Control and Prevention

NHSN Home | My Info

MDRO National Healthcare Safety Network (Log in to enter data) | NHSN Home | My Info

Logged into Stone and Thompson Quality Care Facility (ID 11131) as RSMALTE.  
Facility Stone and Thompson Quality Care Facility (ID 11131) is following the LTOP component.

## Add Monthly Summary Data

Mandatory fields marked with \*

Fields required for record completion marked with \*\*

Facility ID\*: Stone and Thompson Quality Care Facility (ID 11131) ▾

Month\*: March ▾

Year\*: 2017 ▾

### MDRO & CDI LabID Event Reporting [Help](#)

- No long term care locations selected on monthly reporting plan

Location Code	Resident Admissions:	MRSA	VRE	Clostr. difficile	CRE Ecob	CRE Klebsiella	C. difficile	MDRO
FACWIDE - FacWideN	Resident Admissions: <input type="checkbox"/> LabID Event (All specimens) <input type="checkbox"/> Resident Days: <input type="checkbox"/> Report No Events: <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					

### Prevention Process Measures [Help](#)

- No long term care locations selected on monthly reporting plan

Save Back

LabID Event Module:

## C. DIFFICILE REPORTING

## CDI Definitions

- ❑ **C. difficile positive laboratory assay:** A positive result for a laboratory test detecting presence of either of the following:
  - *C. difficile* toxin A or B (e.g., enzyme immunoassay or EIA test), OR
  - A toxin-producing *C. difficile* organism detected in the stool specimen by culture or other laboratory means (e.g., nucleic acid amplification testing by polymerase-chain reaction, or PCR).
  
- ❑ **Duplicate C. difficile positive assay:** Any *C. difficile* positive laboratory test from the same resident following a previous *C. difficile* positive test within the past 2 weeks

## CDI Definitions (continued)

- ❑ **CDI LabID Event:** All non-duplicate *C. difficile* positive laboratory assays obtained while a resident is receiving care in the LTCF
  - Lab results from outside facilities, before a resident's admission, should not be included in LabID event reporting
  - It is helpful to keep a log of all the positive *C. difficile* tests sent from your facility so you can track duplicate results to ensure they are not incorrectly entered as CDI LabID Events

Date of Positive <i>C. difficile</i> lab tests for a resident	Duplicate?	Enter as a CDI LabID Event?
1/3/2012	No	Yes
1/7/2012	Yes	No (within 2 weeks of positive test 1/3/2012)
1/20/2012	Yes	No (within 2 weeks of positive test 1/7/2012)
2/1/2012	Yes	No (within 2 weeks of positive test 1/20/2012)
2/23/2012	No	Yes

## CDI Definitions (continued)

CDI LabID Events are categorized further by the NHSN system:

- **Incident CDI LabID Event:** The first LabID Event ever entered or a subsequent LabID Event entered > 8 weeks after the most recent LabID Event reported for an individual resident
- **Recurrent CDI LabID Event:** Any LabID Event entered > 2 weeks and ≤ 8 weeks after the most recent LabID Event reported for an individual resident

\*\*Remember, duplicate *C. difficile* positive laboratory tests for a resident should NOT be entered as LabID events

## Identifying a CDI LabID Event

The image shows a screenshot of the NHSN 'LAB ID EVENT, Complete Form' for LTCC. The form includes fields for Facility ID, Resident ID, Resident Name, Last Name, First Name, Middle Name, Date of Birth, Sex, Race, Event Occurrence, Resident Type (Short stay or Long stay), Date of First Admission to Facility, and Date of Current Admission to Facility.



Resident with positive CDI test result



NO

YES

Duplicate-Not LabID Event

*Incident*  
No previous positive,  
OR  
Prior positive >8 weeks

*Recurrent*  
Prior positive > 2 and ≤ 8 weeks

LabID Event Module:

## MDRO REPORTING

### MDROs Tracked in LabID Event

#### GRAM-STAIN POSITIVE

- ❑ Methicillin-resistant *Staphylococcus aureus* (MRSA)
- ❑ Methicillin-sensitive *Staphylococcus aureus* (MSSA)
- ❑ Vancomycin-resistant *Enterococcus* species (VRE)

#### GRAM-STAIN NEGATIVE

- ❑ Cephalosporin-resistant *Klebsiella* species (CephR-*Klebsiella*)
- ❑ Carbapenem-resistant *E. coli* (CRE-*E. coli*)
- ❑ Carbapenem-resistant *Klebsiella* species (CRE-*Klebsiella*)
- ❑ Multidrug-resistant *Acinetobacter* (MDR-*Acinetobacter*)
  - *Acinetobacter* species resistant to at least one agent in at least 3 antimicrobial classes (see next slide for examples of antibiotic agents/classes)

For additional information on MDRO definitions, see LabID Event Protocol at:  
[http://www.cdc.gov/nhsn/PDFs/LTC/LTCF-LabID-Event-Protocol\\_FINAL\\_8-24-12.pdf](http://www.cdc.gov/nhsn/PDFs/LTC/LTCF-LabID-Event-Protocol_FINAL_8-24-12.pdf)

## Select Antibiotic Agents and Classes in LabID Event

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

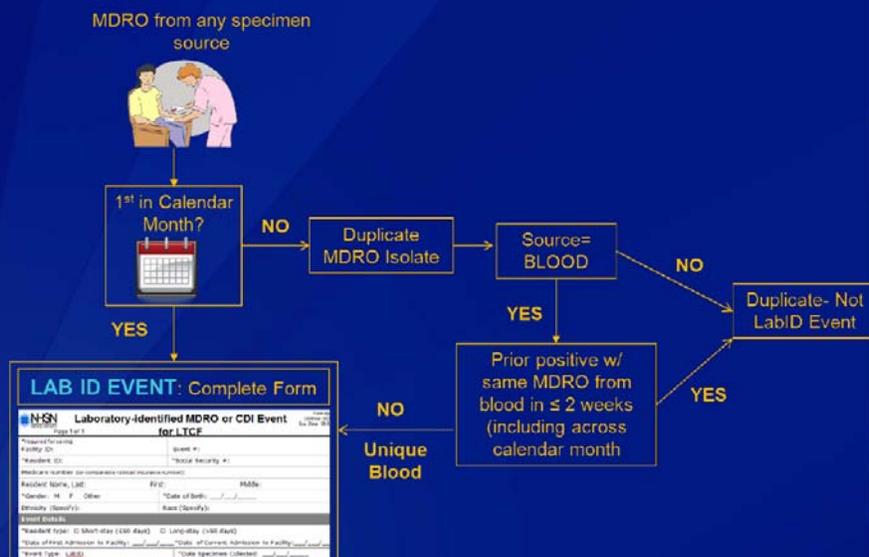
## MDRO Definitions

- ❑ **MDRO positive laboratory isolate:** Any laboratory culture specimen, from which a MDRO is identified, that was obtained for clinical decision making while a resident is receiving care in the facility
  - Results from Active Surveillance Culture/Testing (e.g., nasal swabs for MRSA or perirectal swabs for VRE) are not considered MDRO positive laboratory isolates
- ❑ **Duplicate MDRO laboratory isolate:** Any MDRO isolate from the *same* resident after an initial isolation of the same MDRO *during a calendar month*, regardless of the specimen source except when a unique blood source.
- ❑ **Unique blood source:** A MDRO isolate identified in a blood culture from a resident with no prior isolation of the MDRO *in blood in the past 2 weeks, even across calendar months*.

## MDRO Definitions (continued)

- **MDRO LabID Event:** All non-duplicate MDRO positive laboratory isolates from any culture specimen, regardless of specimen source, or MDRO isolates from unique blood source, obtained while a resident is receiving care in the LTCF
  - LabID Event reporting is **ONLY** for collecting and tracking isolates from positive cultures that are taken for "clinical" purposes (i.e., for diagnosis and treatment)
  - Results from Active Surveillance Culture/Testing (e.g., nasal swabs for MRSA or perirectal swabs for VRE) are not reported as LabID Events
  - Lab results from outside facilities, before a resident's admission, should not be included in LabID event reporting

## Identifying an MDRO LabID Event



LabID Event Reporting  
**DATA ANALYSIS**

### **LabID Event Categorization**

- **Based on data provided on LabID Event form, each event is categorized by NHSN as**
  - **Community-onset (CO) LabID Event:** Date specimen collected  $\leq$  3 calendar days after current admission to the facility (i.e., days 1, 2, or 3 of admission)
  - **Long-term Care Facility-onset (LO) LabID Event :** Date specimen collected  $>$  3 calendar days after current admission to the facility (i.e., on or after day 4)
  - LO Events are further sub-classified
    - **Acute Care Transfer-Long-term Care Facility-onset (ACT-LO):** LTCF-onset (LO) LabID event with specimen collection date  $\leq$  4 weeks following date of last transfer from an Acute Care Facility (Hospital, Long-term acute care hospital, or Acute inpatient rehabilitation facility only)
- **Categories are based on the date of current admission to facility and the date specimen collected**

## LabID Event Categorization (continued)

Example: NHSN Classification of Lab ID Events as Community-onset or LTCF-onset

Admission date				
June 4th	June 5th	June 6th	June 7th	June 8th
day 1	day 2	day 3	day 4	day 5
Community-onset (CO)			Long-term Care Facility-onset (LO)	

## CDI Event Metrics

- Total CDI Rate/10,000 resident-days = Number of CDI LabID Events per month regardless of time spent in the facility (i.e., CO + LO) / Number of resident-days per month x 10,000
- Long-term Care Facility-onset (LO) Incidence Rate/10,000 resident-days = Number of all **incident** LO CDI LabID Events per month / Number of resident-days x 10,000

  - *This formula excludes recurrent CDI events.*
- Percent that is Community-onset (CO) = Number of CDI LabID Events that are CO / Total number of CDI LabID Events x 100
- Percent that is Long-term Care Facility-onset (LO) = Number of CDI LabID Events that are LO / Total number of CDI LabID Events x 100

  - Percent of LO that is Acute Care Transfer Long-term Care Facility-onset = Number of ACT-LO CDI LabID Events / Total number of LO CDI LabID Events x 100
- Percent that is Recurrent CDI = Number of CDI LabID Events that are **recurrent** / Total number of CDI LabID Events x 100

## MDRO Event Metrics\*

- ❑ Total MDRO Rate/1,000 resident-days = Number of MDRO LabID Events per month (regardless of time spent in the facility i.e., CO + LO ) / Number of resident-days per month x 1,000
- ❑ Long-term Care Facility-Onset Rate (LO) /1,000 resident-days = Number of all LO MDRO LabID Events per month / Number of resident-days x 1,000
- ❑ Percent that is Community-onset (CO) = Number of MDRO LabID Events that are CO / Total number of MDRO LabID Events x 100
- ❑ Percent that is Long-term Care Facility-onset (LO) = Number of MDRO LabID Events that are LO / Total number of MDRO LabID Events x 100
  - Percent of LO that is Acute Care Transfer Long-term Care Facility-onset = Number of ACT-LO MDRO LabID Events / Total number of LO MDRO LabID Events x 100

\*These calculations will be performed for each specific MDRO included in the reporting plan (e.g., MRSA, VRE, etc.)

Expand All
Collapse All

MDRO/CDI Module - LABID Event Reporting

- All LabID Events
    - CDC Defined Output
      - Line Listing - All LabID Events Run Modify
  - All MRSA LabID Events
    - CDC Defined Output
      - Line Listing - All MRSA LabID Events Run Modify
      - Rate Tables for MRSA LabID Data Run Modify
  - All MSSA LabID Events
  - All C. difficile LabID Events
    - CDC Defined Output
      - Line Listing - All CDI LabID Events Run Modify
      - Rate Tables for CDI LabID Event Data Run Modify
  - All VRE LabID Events
  - All CephR-Klebsiella LabID Events
  - All CRE-Klebsiella LabID Events
    - CDC Defined Output
      - Line Listing - All CREKLEB LabID Events Run Modify
      - Rate Tables for CREKLEB LabID Data Run Modify
  - All CRE-Ecoli LabID Events
  - All Acinetobacter LabID Events

30

**National Healthcare Safety Network  
Rate Tables for CDI LabID Event Data  
Total CDI Rate**

As of: July 31, 2013 at 4:50 PM  
Date Range: All LTCLABID\_RATESCODIF

Org ID=30203

Summary Year/Month	Location	Total CDI Count	Number of Resident Days	Total CDI Rate
2012M03	FACWIDEIN	0	2,000	0.000
2012M05	FACWIDEIN	1	1,550	6.452
2012M08	FACWIDEIN	0	156	0.000
2012M09	FACWIDEIN	0	625	0.000
2012M10	FACWIDEIN	0	200	0.000
2012M11	FACWIDEIN	0	200	0.000
2013M01	FACWIDEIN	0	600	0.000
2013M02	FACWIDEIN	0	800	0.000

Source of aggregate data: Not available  
Data contained in this report were last generated on July 31, 2013 at 4:45 PM.

**National Healthcare Safety Network  
Rate Tables for CDI LabID Event Data  
Total CDI Percent that is Community-Onset (CO)**

As of: July 31, 2013 at 4:50 PM  
Date Range: All LTCLABID\_RATESCODIF

Org ID=30203

Summary Year/Month	Location	Total CDI Count	CDI CO Count	CDI CO Percent
2012M03	FACWIDEIN	0	0	.
2012M05	FACWIDEIN	1	0	0.000
2012M08	FACWIDEIN	0	0	.
2012M09	FACWIDEIN	0	0	.
2012M10	FACWIDEIN	0	0	.
2012M11	FACWIDEIN	0	0	.
2013M01	FACWIDEIN	0	0	.
2013M02	FACWIDEIN	0	0	.

Source of aggregate data: Not available  
Data contained in this report were last generated on July 31, 2013 at 4:45 PM.

31

## Custom Fields

- Additional data entry fields which users can name (labels) and capture text or numeric data
- Available on each event form
- User can customize or expand data collected and submitted at your facility using these optional fields

The screenshot shows a form titled "Laboratory-identified MDRO or CDI Event for LTCF" from the National Healthcare Safety Network (NHCN). The form includes a header with the NHCN logo and OMB No. 0920-0656. Below the title, there is a section labeled "Custom Fields" which contains a table with two rows: "Label" and "Data". Each row has four empty input fields for defining custom data points.

## Let's Review!



- ❑ **You can perform monitoring of CDI, and one or more MDROs using the LabID Event Module**
  
- ❑ **To get the most from your data:**
  - Minimum reporting is six months during a calendar year
  - Monitoring should be done facility-wide
  - Keeping a log of all positive laboratory tests and/or cultures for organisms being tracked will help prevent duplicate events from being entered into the system

## NHSN Resources

- ❑ **NHSN Home Page**
  - <http://www.cdc.gov/nhsn/>
  
- ❑ **NHSN LTCF Component**
  - <http://www.cdc.gov/nhsn/ltc/>
  
- ❑ **LTCF Component Laboratory-identified Event Module**
  - <http://www.cdc.gov/nhsn/ltc/mdro-cdi/>



## Questions?

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