

## National Healthcare Safety Network (NHSN)

### Long-term Care Facility (LTCF) Component

**Laboratory-identified (LabID) Event Module:**  
Clostridium difficile Infection (CDI) Event Reporting  
Multidrug-Resistant Organism (MDRO) Event Reporting



## Target Audience

- ❑ **This training is designed for those who will collect, report, or analyze prevention process measures data in NHSN, and may include:**
  - NHSN Facility Administrator
  - LTCF Component Primary Contact
  - LTCF Administrator
  - Director of Nursing
  - Infection Prevention and Control Staff
  - Professional Nursing Staff
  - Trained Support Staff



You should have viewed the Overview of the LTCF Component slides prior to beginning this training

## Objectives

- ❑ Describe the rationale for monitoring *C. difficile* infection (CDI) and multidrug-resistant organisms (MDROs) in NHSN
- ❑ Describe the methodology, protocol and definitions used for monitoring Laboratory-identified (LabID) Events

## Documents and Forms

- ❑ **The following documents and forms will be discussed in this training. You may wish to PRINT these to follow along.**
  - 1) Laboratory-identified (LabID) MDRO and CDI Events for LTCF Protocol**
  - 2) Table of Instructions for the LabID Event Form**
  - 3) LabID for LTCF Event Reporting Form**
  - 4) Denominators for LTCF Form**
  - 5) Monthly Reporting Plan for LTCF**

# 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

NHSN - National Healthcare Safety Network (apt-v-nhsn-test:7001)

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Alerts

Reporting Plan

- [Add](#)
- [Find](#)

Resident

Event

Summary Data

Surveys

Users

Facility

Group

Log Out

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

## Add Monthly Reporting Plan

[Print PDF Form](#)

Mandatory fields marked with \*

Facility ID\*:

Month\*:

Year\*:

No Long Term Care Facility Component Modules Followed this Month

### HAI Module [HELP](#)

	Locations	UTI
	<input type="text" value="FACWIDEIN - FacWideIN"/>	<input type="checkbox"/>

### LabID Event Module [HELP](#)

	Locations	Specific Organism Type	Lab ID Event All Specimens
	<input type="text" value="FACWIDEIN - FacWideIN"/>	<input type="text" value="CDIF - C. difficile"/>	<input checked="" type="checkbox"/>
	<input type="text" value="FACWIDEIN - FacWideIN"/>	<input type="text" value="MRSA - MRSA"/>	<input checked="" type="checkbox"/>

### Prevention Process Measure Module [HELP](#)

	Locations	Hand Hygiene	Gown and Gloves Use
	<input type="text" value="FACWIDEIN - FacWideIN"/>	<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 *Enterobacteriaceae* (CRE)
  - *Klebsiella* spp. (CRE-*Klebsiella*)
  - *E coli*. (CRE-*Ecoli*)
  - *Enterobacter* (CRE-*Enterobacter*)
- 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
  - Residents admitted on *C. difficile* treatment each month

# Laboratory-identified Event Form

## ☐ “Numerator” – one form per MDRO or CDI Event



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Exp. Date: 12/31/2017  
www.cdc.gov/nhsn

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

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*required for saving	
Facility ID:	Event #:
*Resident ID:	*Social Security #:
Medicare number (or comparable railroad insurance 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 First Admission to Facility: __/__/__ *Date of Current 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"/> <i>C. difficile</i> <input type="checkbox"/> <u>CephR-Klebsiella</u> <input type="checkbox"/> CRE- <i>E. coli</i> <input type="checkbox"/> CRE- <i>Enterobacter</i> <input type="checkbox"/> CRE- <i>Klebsiella</i> <input type="checkbox"/> MDR- <i>Acinetobacter</i>	
*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/LTC/mdro-cdi/index.html>

# Entering Denominator Data in NHSN

Facility ID\*: Pike Nursing Home (ID 11106) ▼

Month\*: January ▼

Year\*: ▼

## Denominators for Long Term Care Locations

Location Code	Total Resident Days	Urinary Catheter Days	Report No UTI	New Antibiotic Starts for UTI Indication	
Facility-wide Inpatient (FacWIDEIn) ▼	<input type="text"/> *	<input type="text"/> *	<input type="checkbox"/>	<input type="text"/> *	Custom Fields

## MDRO & CDI LabID Event Reporting

Location Code		MRSA	VRE	CephR-Klebsiella	CRE-Ecoli	CRE-Enterobacter	CRE-Klebsiella	C. difficile	MDR-Acinetobacter	
Facility-wide Inpatient (FacWIDEIn) ▼	Resident Admissions: <input type="text"/> *									
	Resident Days: <input type="text"/> *	LabID Event (All specimens) <input type="checkbox"/>	<input type="checkbox"/>							
	Number of Admissions on C. diff Treatment: <input type="text"/> *	Report No Events <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Custom Fields

## Prevention Process Measures

Location Code	Hand Hygiene		Gown and Gloves		
	Performed	Indicated	Used	Indicated	
Facility-wide Inpatient (FacWIDEIn) ▼	<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	Custom Fields

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 C.difficile 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



Resident with positive CDI test result

Prior CDI positive in last 2 weeks?



NO

YES

Duplicate-Not LabID Event

## LAB ID EVENT: Complete Form

 <b>Laboratory-identified MDRO or CDI Event for LTCF</b>		<small>Form Ad OMB No. 0925 Exp. Date: 05-1</small>
<small>Page 1 of 1</small>		
<small>*required for saving</small> Facility ID: _____		Event #: _____
Resident ID: _____		*Social Security #: _____
Medicare number (or comparable railroad insurance number): _____		
Resident Name, Last: _____		First: _____ Middle: _____
*Gender: M F Other		*Date of Birth: __/__/____
Ethnicity (Specify): _____		Race (Specify): _____
<b>Event Details</b>		
*Resident type: <input type="checkbox"/> Short-stay (≤90 days) <input type="checkbox"/> Long-stay (>90 days)		
*Date of First Admission to Facility: __/__/____		*Date of Current Admission to Facility: __/__/____
*Event Type: <u>LabID</u>		*Date Specimen Collected: __/__/____

### 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 *Enterobacteriaceae* (must monitor all 3)
  - CRE-*Ecoli*
  - CRE-*Klebsiella*
  - CRE-*Enterobacter*
- ❑ 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/LTC/mdro-cdi/index.html>

# Select Antibiotic Agents and Classes in LabID Event

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

# MDRO Definitions

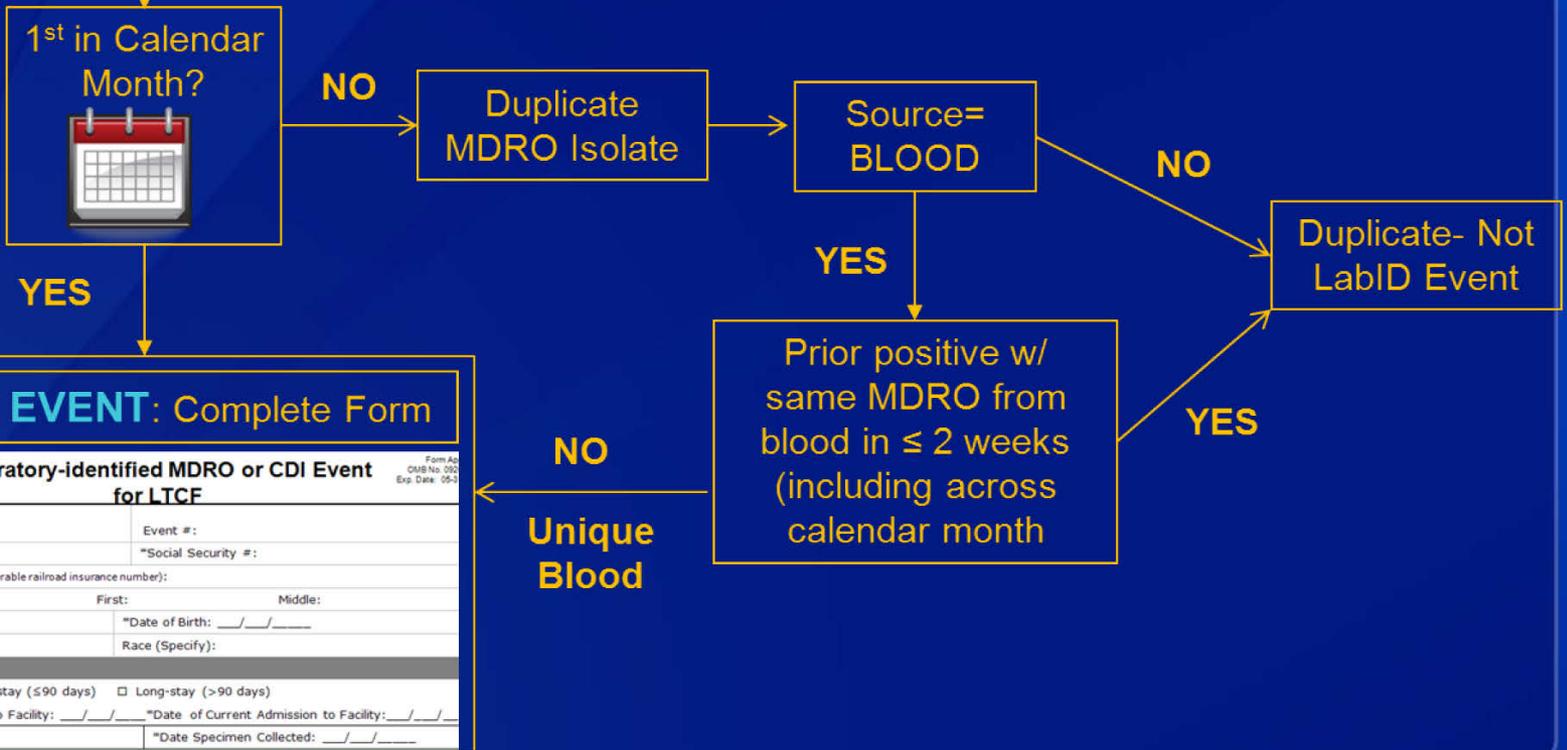
- ❑ **MDRO positive laboratory isolate:** Any laboratory culture specimen, from which a MDRO is identified, that was obtained for clinical decision making while a resident is receiving care in the facility.
  - Results from Active Surveillance Culture/Testing (e.g., nasal swabs for MRSA or perirectal 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

MDRO from any specimen source



**LAB ID EVENT: Complete Form**

**NHSN** Laboratory-identified MDRO or CDI Event for LTCF Form AD-018/No. 002 Exp. Date: 05-3

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*required for saving Facility ID:	Event #:
*Resident ID:	*Social Security #:
Medicare number (or comparable railroad insurance number):	
Resident Name, Last:	First: Middle:
*Gender: M F Other	*Date of Birth: ___/___/___
Ethnicity (Specify):	Race (Specify):
<b>Event Details</b>	
*Resident type: <input type="checkbox"/> Short-stay (≤90 days) <input type="checkbox"/> Long-stay (>90 days)	
*Date of First Admission to Facility: ___/___/___	*Date of Current Admission to Facility: ___/___/___
*Event Type: LabID	*Date Specimen Collected: ___/___/___

**NO**  
**Unique Blood**

LabID Event Reporting

# **DATA ANALYSIS**

# LabID Event Categorization

- ❑ **Based on data provided in the LabID Event form, each event (CDI and/or MDRO) is further categorized by NHSN**
- ❑ **Categories are based on the date of current admission to facility and the date specimen collected:**
  - **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)

# 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
- ❑ **CDI Treatment Prevalence on Admission** = Admissions on C. diff treatment / Number of Admissions \* 100
- ❑ **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. *This formula excludes recurrent CDI events.*
- ❑ **Percent that is Community-onset** = Number of CDI LabID Events that are CO / Total number of CDI LabID Events x 100
- ❑ **Percent that is Long-term Care Facility-onset** = 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/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** = Number of MDRO LabID Events that are CO / Total number of MDRO LabID Events x 100
- ❑ **Percent that is Long-term Care Facility-onset** = 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.).

# 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

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[www.cdc.gov/nhsn](http://www.cdc.gov/nhsn)

## Laboratory-identified MDRO or CDI Event for LTCF

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<small>*required for saving</small>	
Facility ID:	Event#:
<b>Custom Fields</b>	
Label	_____
Data	_____

## 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/index.html>

- ❑ **LTCF Component Laboratory-identified Event Module**

- <http://www.cdc.gov/nhsn/LTC/mdro-cdi/index.html>