

# 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**

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

# 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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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.

- Alerts
- Reporting Plan
  - Add
  - Find
- Resident
- Event
- Summary Data
- Surveys
- Users
- Facility
- Group
- Log Out

## 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

### HAI Module [HELP](#)

|  | Locations               | UTI                      |
|--|-------------------------|--------------------------|
|  | FACWIDEIN - FacWideIN ▾ | <input type="checkbox"/> |

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

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

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

|  | Locations               | Hand Hygiene             | Gown and Gloves Use      |
|--|-------------------------|--------------------------|--------------------------|
|  | 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 *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

OMB No. 0920-0666  
Exp. Date: 01-31-2015  
www.cdc.gov/nhsn

## Laboratory-identified MDRO or CDI Event for LTCF

Page 1 of 1

|  |  |
|--|--|
| *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><br><input type="checkbox"/> CephR-Klebsiella <input type="checkbox"/> CRE-E. coli <input type="checkbox"/> CRE-Klebsiella <input type="checkbox"/> MDR-Acinetobacter                               |  |
| *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<br><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  |
| _____  | _____  |
| _____  | _____  |

# Entering Denominator Data in NHSN



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[Summary Data](#)

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- [Incomplete](#)

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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 Summary Data

Mandatory fields marked with \*

Fields required for record completion marked with \*\*

Facility ID\*:

Month\*:

Year\*:

### Denominators for Long Term Care Locations [HELP](#)

- No long term care locations selected on monthly reporting plan

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

| Location Code                                      |   | MRSA                                | VRE                      | CephR-Klebsiella         | CRE-Ecoli                | CRE-Klebsiella           | C. difficile                        | MDR-Acinetobacte         |
|--|---|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| <input type="text" value="FACWIDEIN - FacWideIN"/> | Resident Admissions: <input type="text"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|  | Resident Days: <input type="text"/>       | <input type="checkbox"/> **         | <input 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  $\leq 8$  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?



YES

Duplicate-Not LabID Event

NO

LAB ID EVENT: Complete Form

|  |  |
|--|--|
| <b>Laboratory-identified MDRO or CDI Event for LTCF</b> <div style="float: right; font-size: 0.8em;">                     Form Ad<br/>                     CMS No. 202<br/>                     Exp. Date: 09-1                 </div> |  |
| Page 1 of 1  |  |
| *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: <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 *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 ( $\beta$ )-lactams and $\beta$ -lactam/ $\beta$ -lactamase inhibitor combinations | Piperacillin,<br>Piperacillin/tazobactam          |
| Sulbactam   | Ampicillin/sulbactam                              |
| Cephalosporins  | Ceftazidime, Cefotaxime, Ceftriaxone, or Cefepime |
| Carbapenems   | Imipenem, Meropenem, Doripenem                    |
| Aminoglycosides   | Amikacin, Gentamicin, Tobramycin                  |
| Fluoroquinolones  | Ciprofloxacin, Levofloxacin                       |

# MDRO Definitions

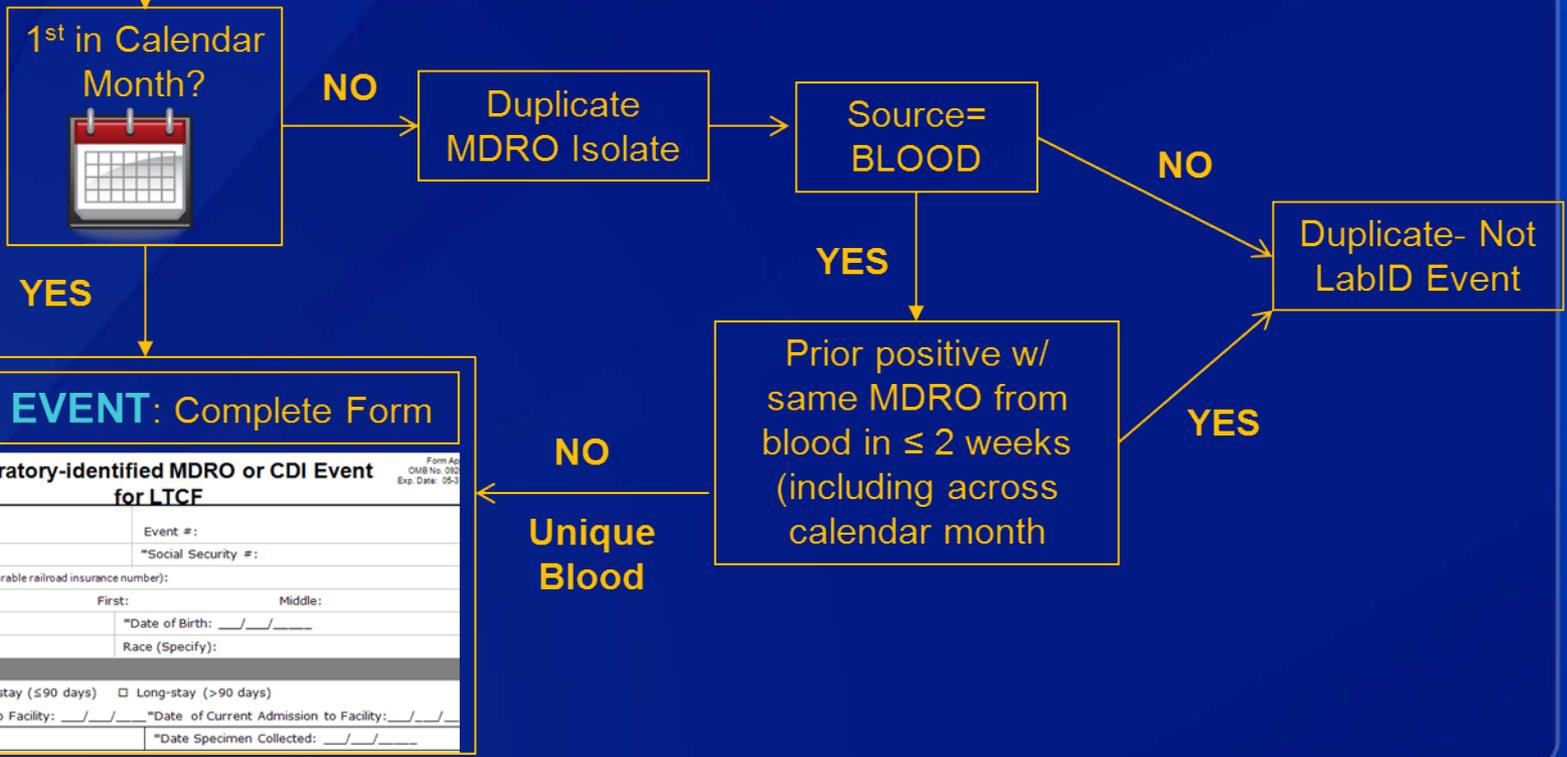
- ❑ **MDRO positive laboratory isolate:** Any laboratory culture specimen, from which a MDRO is identified, that was obtained for clinical decision making while a resident is receiving care in the facility
  - Results from Active Surveillance Culture/Testing (e.g., nasal swabs for MRSA or perirectal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

MDRO from any specimen source



**LAB ID EVENT: Complete Form**

**NHSN** Laboratory-identified MDRO or CDI Event for LTCF Form App. 01/15 No. 102 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: <u>LabID</u>  | *Date Specimen Collected: __/__/____               |

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.)

# 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 header with the NHSN logo on the left and OMB No. 0920-0666, Exp. Date: 01-31-2015, and www.cdc.gov/nhsn on the right. The main title is 'Laboratory-identified MDRO or CDI Event for LTCF'. Below the title is a 'Page 1 of 1' indicator. The 'Custom Fields' section is a table with two rows of input fields.

| Custom Fields |                      |
|---------------|----------------------|
| Label         | <input type="text"/> |
| Data          | <input type="text"/> |

## 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/>