

Clostridium difficile LabID Event Reporting to NHSN: Are You Ready?

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Using the National Healthcare Safety Network (NHSN) for *Clostridium difficile* Laboratory-identified (LabID) Event Reporting

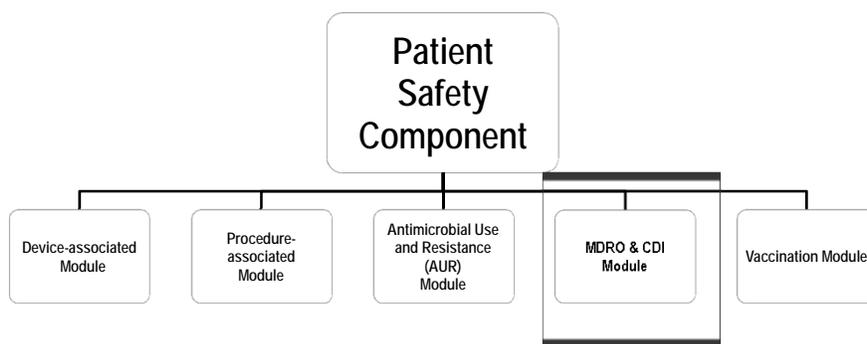
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April 2012

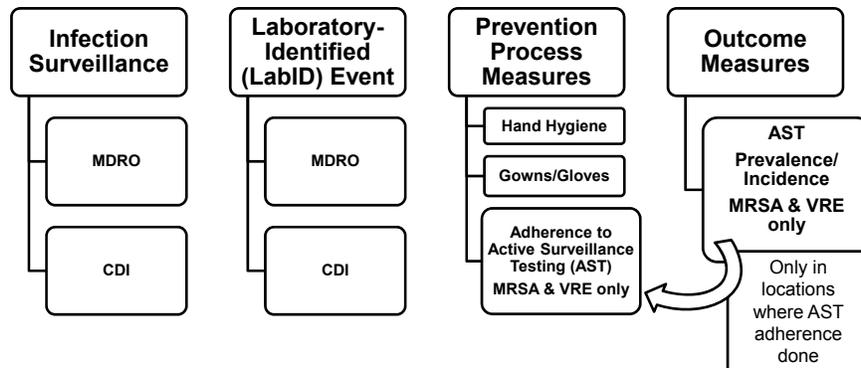
Objectives

- Review the structure of the Multidrug-Resistant Organism & Clostridium *difficile* Infection (MDRO/CDI) Module within the Patient Safety Component of NHSN
- Describe the rationale for monitoring *C. difficile* infection
- Review requirements for CDI LabID Event reporting to CMS through NHSN
- Describe the methodology, protocols, and definitions used in data collection and reporting under the CDI LabID Event Reporting in NHSN
- Review the correct method for entering CDI LabID Events into NHSN
- Apply knowledge through case studies

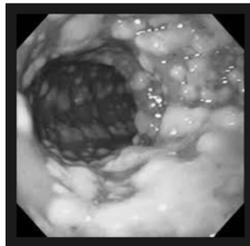
Patient Safety Component 5 Modules



Multidrug-Resistant Organism & *Clostridium difficile* Infection Module (MDRO/CDI)

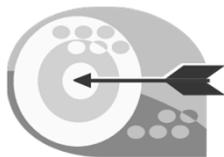


Background



Goal of the MDRO and CDI Module

- Monitoring of MDROs and *C. difficile* infection (CDI) helps to evaluate local trends and changes in the occurrence of these pathogens and related infections.
- This module provides a mechanism for facilities to report and analyze MDRO and CDI data, in order to inform infection control staff of the impact of targeted prevention efforts.



Why *C. difficile*?

- Unlike many causes of healthcare associated infections (HAIs), *C. difficile* diarrheal infections have increased, and are now at **historic highs**.
- *C. difficile* infections are linked to about **14,000 deaths** each year, with approximately 90% being among the elderly.
- Antibiotic use and healthcare exposure are two of the greatest risk factors.
- Careful attention to surface cleaning, and wearing gowns and gloves when treating those known to be infected, can reduce spread by 20%.
- Renewed interest:
 - Reporting to CMS via NHSN



CDC. (2012). Vital signs: Preventing clostridium difficile infections, MMWR, 61.

Making Health Care Safer

Stopping *C. difficile* Infections

3X

94%

20%

Vitalsigns™
March 2012

On this Page

- Introduction
- Problem
- Who's at Risk?
- What Can Be Done
- Science Behind this Issue
- Related Links
- Social Media
- Read Associated MMWR

Centers for Disease Control and Prevention

MMWR

Morbidity and Mortality Weekly Report
Early Release / Vol. 61 March 6, 2012

Vital Signs: Preventing Clostridium difficile Infections

Abstract

Background: *Clostridium difficile* infection (CDI) is a common and sometimes fatal health-care-associated infection; the incidence, deaths, and excess health-care costs resulting from CDIs in hospitalized patients are all at historic highs. Meanwhile, the contribution of nonhospital health-care exposures to the overall burden of CDI, and the ability of programs to prevent CDIs by implementing CDC recommendations across a range of hospitals, have not been demonstrated previously.

Methods: Population-based data from the Emerging Infections Program were analyzed by location and antecedent health-care exposures. Present-on-admission and hospital-onset, laboratory-identified CDIs reported to the National Healthcare Safety Network (NHSN) were analyzed. Rates of hospital-onset CDIs were compared between two 8-month periods near the beginning and end of three CDI prevention programs that focused primarily on measures to prevent intrahospital transmission of *C. difficile* in three states (Illinois, Massachusetts, and New York).

Results: Among CDIs identified in Emerging Infections Program data in 2010, 94% were associated with receiving health care; of these, 75% had onset among persons not currently hospitalized, including recently discharged patients, outpatients, and nursing home residents. Among CDIs reported to NHSN in 2010, 52% were already present on hospital admission, although they were largely health-care related. The pooled CDI rate declined 20% among 71 hospitals participating in the CDI prevention programs.

Conclusions: Nearly all CDIs are related to various health-care settings where predisposing antibiotics are prescribed and *C. difficile* transmission occurs. Hospital-onset CDIs were prevented through an emphasis on infection control.

Implications for Public Health: More needs to be done to prevent CDIs; major reductions will require antibiotic stewardship along with infection control applied to nursing homes and ambulatory-care settings as well as hospitals. State health departments and partner organizations have shown leadership in preventing CDIs in hospitals and can prevent more CDIs by extending their programs to cover other health-care settings.

<http://www.cdc.gov/mmwr/pdf/wk/mm61e0306.pdf>

Overview

CDI LabID

Event Reporting in NHSN

LabID Event Reporting Introduction

LabID Event reporting of **proxy** infection measures of MDRO and *C. difficile* **healthcare acquisition, exposure burden, and infection burden** by using primarily laboratory data. Laboratory testing results can be used without clinical evaluation of the patient, allowing for a much less labor-intensive means to track MDROs and CDI

Location Reporting Methods

Location Specific:

- Select only a few locations or every location for full facility coverage
- Report separately from each selected location in the facility
- Separate denominators for each location:
 - Patient days and admissions for inpatient locations
 - Encounters for outpatient locations

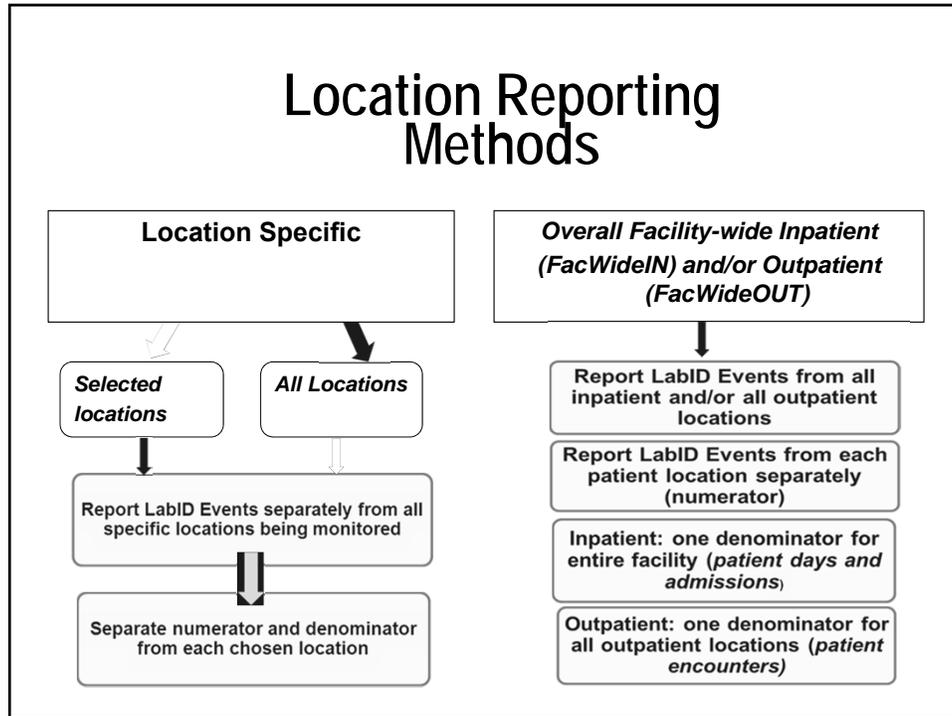
Facility-Wide Inpatient or Facility-Wide Outpatient:

- Options currently available only for LabID Event reporting
- Report from throughout all of a facility's inpatient or outpatient locations
 - Numerator (CDI Events)- report separately for each location in facility
 - Single denominators for entire facility:
 - FacWideIN – patient days and admissions
 - FacWideOUT – encounters

Exclude
NICU/Baby
locations



Location Reporting Methods

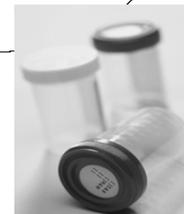


Definition CDI Positive Laboratory Assay

- A positive laboratory test result for *C. difficile* toxin A and/or B
- OR**
- A toxin-producing *C. difficile* organism detected by culture or other laboratory means performed on a stool sample.



*Remember..
C. difficile testing
only on unformed
stool samples
(should conform
to shape of
container)*



Definition LabID Event



A toxin-positive / toxin-producing *C. difficile* stool specimen for a patient in a location with no prior *C. difficile* LabID Event reported within 14 days for the patient and location, and having a full 14-day interval with no toxin-positive *C. difficile* stool specimen identified by the lab since the prior *C. difficile* LabID Event.

Provision to LabID Event Reporting

A LabID Event for an inpatient location can include specimens collected during an emergency department or other outpatient clinic visit, if collected same day as patient admission.

**Location will be assigned to the admitting inpatient location (for FacWideIN).

***If participating in both inpatient and outpatient LabID reporting, report the CDI LabID Event in both locations as two separate Events, ED and admitting location.

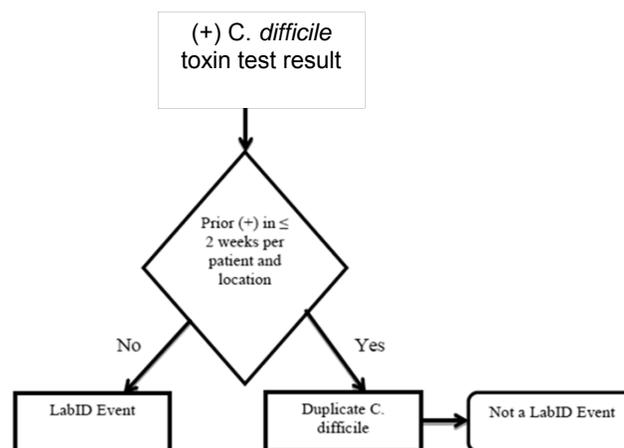
Definition

Duplicate *C. difficile* Positive Test

Any *C. difficile* toxin-positive laboratory result from the same patient and same location, following a previous *C. difficile* toxin-positive laboratory result within the past 14 days.

Identifying a *C. difficile* LabID Event

Figure 2. *C. difficile* test Results Algorithm for Laboratory-Identified (LabID) Events



LabID Event Report Form

NHSN Laboratory-identified MDRO or CDI Event OMB No. 0920-0666
Exp. Date: xx-xx-xxxx

*required for saving

Facility ID: _____ Event #: _____
 *Patient ID: _____ Social Security #: _____
 Secondary ID: _____
 Patient Name, Last: _____ First: _____ Middle: _____
 *Gender: M F _____ *Date of Birth: _____
 Ethnicity (Specify): _____ Race (Specify): _____

Event Details

*Event Type: LabID _____ *Date Specimen Collected: _____
 *Specific Organism Type: (Check one)
 MRSA MSSA VRE *C. difficile*
 CephR-Klebsiella *CRE-Ecoli* *CRE-Klebsiella* *MDR-Acinetobacter*
 *Outpatient: Yes No _____ *Specimen Body Site/System: _____ *Specimen Source: _____
 *Date Admitted to Facility: _____ *Location: _____ *Date Admitted to Location: _____
 *Has patient been discharged from your facility in the past 3 months? Yes No _____
 If Yes, date of last discharge from your facility: _____

Custom Fields

Label _____ Label _____

MDRO/CDI Summary Form (Denominators)

NHSN MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring OMB No. 0920-0666
Exp. Date: xx-xx-xxxx

Page 1 of 2

*required for saving **conditionally required based upon monitoring selection in Monthly Reporting Plan

Facility ID #: _____ *Month: _____ *Year: _____ *Location Code: _____
 Setting: Inpatient **Total Patient Days: _____ **Total Admissions: _____
 Setting: Outpatient (or Emergency Room) **Total Encounters: _____

If monitoring *C. difficile* in a FACWIDE location, then subtract NICU & Well Baby counts from Totals:
 **\$Patient Days: _____ **\$Admissions: _____ **\$Encounters: _____

Specific Organism Type	MRSA	VRE	<i>CephR-Klebsiella</i>	<i>CRE-Ecoli</i>	<i>CRE-Klebsiella</i>	<i>MDR-Acinetobacter</i>	<i>C. difficile</i>
Infection Surveillance	<input type="checkbox"/>						
LabID Event (All specimens)	<input type="checkbox"/>						
LabID Event (Blood specimens only)	<input type="checkbox"/>						

Process Measures (Optional)

Hand Hygiene **Performed: _____ **Indicated: _____ **Gown and Gloves** **Used: _____ **Indicated: _____

Active Surveillance Testing (AST)
 **Active Surveillance Testing per _____

Summary

Purpose:

To calculate proxy measures of *C. difficile* infections, exposures burdens, and healthcare acquisitions through monitoring and reporting data from positive clinical cultures (unformed stool only).

LabID Event:

A laboratory-identified event. A toxin-positive / toxin-producing *C. difficile* stool specimen for a patient in a location with no prior *C. difficile* LabID Event reported within 14 days for the patient and location, and having a full 14-day interval with no toxin-positive *C. difficile* stool specimen identified by the lab since the prior *C. difficile* LabID Event. Also referred to as non-duplicate *C. difficile* toxin-positive laboratory result.

- LabID Events (numerators) are reported by specific location where the specimen was collected.
- Monthly Monitoring Summary Data (denominators) for Patient Days and Admissions (*minus all NICU and Well Baby locations, including LDRP*) are reported for the overall inpatient facility (FacWideIN).

Categorization of LabID Events

NHSN Application Categorizes* LabID Events As:

- Healthcare Facility-Onset (HO): LabID Event specimen collected > 3 days after admission to the facility (i.e., on or after day 4).
- Community-Onset (CO): LabID Event specimen collected as an inpatient **≤ 3 days** after admission to the facility (i.e., days 1 (admission), 2, or 3).
- Community-Onset Healthcare Facility-Associated (CO-HCFA): CO LabID Event collected from a patient who was discharged from the facility **≤ 4 weeks** prior to the date current stool specimen was collected.

*Based on Inpatient Admission & Specimen Collection Dates

Categorization of LabID Events

NHSN Application will Further Categorize** LabID Events As:

- Incident CDI Assay: Any CDI LabID Event from a specimen obtained **> 8 weeks** after the most recent CDI LabID Event (or with no previous CDI LabID Event documented) for that patient.
- Recurrent CDI Assay: Any CDI LabID Event from a specimen obtained **> 2 weeks** and **≤ 8 weeks** after the most recent CDI LabID Event for that patient.

**Based on Current Specimen Collection Date & Prior Specimen Collection Date of a previous CDI LabID Event (entered into NHSN)

CMS Reporting Requirements *C. difficile* LabID Event FacWideIN



Healthcare Facility HAI Reporting to CMS via NHSN – Current and Proposed Requirements

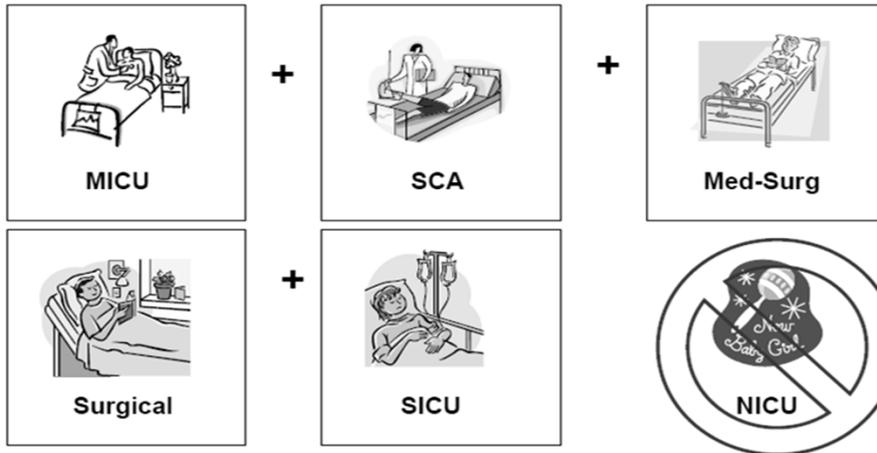
DRAFT (11/23/2011)

HAI Event	Facility Type	Reporting Start Date
CLABSI	Acute Care Hospitals Adult, Pediatric, and Neonatal ICUs	January 2011
CAUTI	Acute Care Hospitals Adult and Pediatric ICUs	January 2012
SSI	Acute Care Hospitals Colon and abdominal hysterectomy	January 2012
I.V. antimicrobial start	Dialysis Facilities	January 2012
Positive blood culture	Dialysis Facilities	January 2012
Signs of vascular access infection	Dialysis Facilities	January 2012
CLABSI	Long Term Care Hospitals *	October 2012
CAUTI	Long Term Care Hospitals *	October 2012
CAUTI	Inpatient Rehabilitation Facilities	October 2012
MRSA Bacteremia LabID Event	Acute Care Hospitals	January 2013
C. difficile LabID Event	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	Outpatient Surgery/ASCs	October 2014
SSI (future proposal)	Outpatient Surgery/ASCs	TBD
* Long Term Care Hospitals are called Long Term Acute Care Hospitals in NHSN		

CMS 2013 Clostridium *difficile* LabID Event Reporting

- Organism:
 - Clostridium *difficile* (C. diff) Infection (CDI)
- Data Collection:
 - CDC NHSN - MDRO/CDI Module (LabID Event)
- Required Locations:
 - All inpatient locations at Facility-wide Inpatient level (FacWideIN)
 - Do not include Neonatal Intensive Care Units (NICU) or other Well Baby locations (e.g. Nurseries, babies in LDRP)
- Required Data:
 - **Community-Onset (CO) and Healthcare-Onset (HO)**
 - **All** LabID Event C. diff unformed stool specimens at the Facility-wide Inpatient level

Facility-wide Inpatient Reporting FacWideIN



CMS 2013 What Data Will NHSN Report to CMS?

Healthcare Facility-Onset (HO)

Incident CDI LabID Events (facility level)

LabID Event specimen collected > 3 days after admission to the facility and > 8 weeks after the most recent CDI LabID Event (or with no previous CDI LabID Event documented) for that patient

Getting Ready for Reporting Adding Locations into NHSN

Why do I Need to Add Locations?

- LabID Event reporting of *C. difficile* toxin-positive stool specimens is going to be required at the facility-wide inpatient level (FacWideIN).
- Each LabID Event (numerator) is reported according to the patient's location when the specimen is collected.
- This means that any inpatient unit could potentially house a patient who has a *C. difficile* stool specimen LabID Event.
- Two choices available to ensure that a location is available for reporting when a LabID Event is identified:
 1. Add all inpatient locations before reporting begins in 2013.
**This must be done if reporting via CDA.
 2. Add each inpatient location as it is identified as a location where a qualifying LabID Event was collected from a patient.

PS Home Page: Facility > Locations

Locations Page: Specify Location Info

Find Locations: All or Specific Search

Instructions

- To **Add** a record, fill in the form with the required fields and any desired optional values. Then click on the **Add** button.
- To **Find** a record, click on the **Find** button. One or more fields can be filled in to restrict the search to those values.
- To **Edit** a record, perform a **Find** on the desired record. Click on the desired record to fill in its values into the form and edit the values. To save the changes, click on the **Save** button.
- To **Delete** one or more records, perform a **Find** on the desired record(s). Check the corresponding box(es), then click on the **Delete** button.
- Press the **Clear** button to start over with a new form.

Mandatory fields to "Add" or "Edit" a record marked with *

Your Code*:

Your Label*:

CDC Location Description*: Inpatient Medical Ward

Status: Active

Bed Size*: 0 A bed size greater than zero is required for most inpatient locations.

Location Table

Display All Print Location List
First | Previous | Next | Last Displaying 1 - 2 of 2

Delete	Status	Your Code	Your Label	CDC Description	CDC Code <input checked="" type="checkbox"/>	Bed Size
<input type="checkbox"/>	Active	SW	MED WARD	Inpatient Medical Ward	IN:ACUTE:WARD:M	22
<input type="checkbox"/>	Active	INMEDWARD	IN:ACUTE:WARD:M	Inpatient Medical Ward	IN:ACUTE:WARD:M	42

First | Previous | Next | Last Displaying 1 - 2 of 2

Ready to Report?

Let's Get Started

Monthly Reporting Plan

- *C. difficile* LabID must be included in Monthly Reporting Plan each month for data to be reported on behalf of the hospital/facility to CMS.

CDI Surveillance

- Must follow the NHSN protocol exactly and report complete and accurate data for CDI LabID Events by specific collection location for the facility-wide inpatient level (FacWideIN).

Summary Data – FacWideIN Location

- Each monthly Summary Data (denominator) is reported at the inpatient facility-wide level = “FacWideIN”
- FacWideIN is a ‘virtual’ location within NHSN, which means the user does not define it like other specific units/locations.
- The FacWideIN location choice becomes available within NHSN only when applicable: Monthly Reporting Plan, Summary Data reporting form, and on the Confer Rights Screen

MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring

Mandatory fields marked with *

Facility ID*: 10000 (CHOP Memorial Hospital)

Location Code*: FACWIDEIN-FacWideIN

Month*: January

Year*: 2012

General

Settings: Inpatient Total Patient Days*: Total Admissions*:
 Settings: Outpatient (or Emergency Room) Total Encounters:

If monitoring C. difficile in a FACWIDE location, then subtract NCU and Well Baby counts from Totals:
 Patient Days*: Admissions*: Encounters:

Specific Organism Type	MRSA Report No. Events	VRE Report No. Events	CapSA- Klebsella Report No. Events	CSE- Ecol Report No. Events	CSE- Klebsella Report No. Events	MDA- Acinetobacter Report No. Events	C. difficile Report No. Events
Infection Surveillance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LabID Event (All specimens)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LabID Event (Blood specimens only)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Important Dates

- Data must be submitted monthly (within 30 days of the end of the month which is collected).
- For data to be shared with CMS, each quarter’s data must be entered into NHSN no later than 4 ½ months after the end of the quarter.
 E.g. Q1 (January-March) data must be entered into NHSN by August 15; Q2 by November 15; Q 3 by February 15 and Q4 by May 15.



Entry of *C. difficile* Stool Specimen LabID Events into NHSN



Let's Review

- *C. difficile* toxin-positive specimens MUST be monitored throughout all inpatient locations within a facility, except for NICUs and Well Baby locations (e.g. nurseries and babies in LDRP) for FacWideIN reporting.
- A *C. difficile* stool specimen LabID Event MUST be entered whether it is community-onset (CO) or healthcare facility-onset (HO).
 - If a specimen collected in the emergency department is positive for *C. difficile*, and the patient it is collected from is admitted to the facility on the SAME date into an inpatient location, then that specimen can be reported as the first specimen for the patient in that ADMITTING INPATIENT LOCATION.



Let's Review

- A *C. difficile* stool specimen qualifies as a LabID Event if there has not been a previous one reported for the patient and location within the previous 14 days.
 - Remember the 14-day rule means there must be a full 14-days with no *C. difficile* toxin-positive lab result before another CDI LabID Event gets reported for the patient in that specific location.



Add Patient Information

- The top section of data collection form is used to collect patient demographics. Required fields have an asterisk (*).
- There are 4 required fields:
 - Facility ID
 - Patient ID
 - Gender
 - Date of Birth



Add Event Information

The screenshot shows a web form titled "Event Information" with a "HELP" icon. The form contains several fields with annotations:

- Event Type*:** LABID - Laboratory-identified MDRO or CDI Event (circled in red)
- Date Specimen Collected*:** 01/13/2013 (calendar icon)
- Specific Organism Type*:** CDIF - C. difficile
- Outpatient*:** N - No
- Specimen Body Site/Source*:** DIGEST - Digestive System (boxed in red)
- Specimen Source*:** STOOL - Stool specimen (boxed in red)
- Date Admitted to Facility*:** 01/11/2013 (calendar icon)
- Location*:** INGI(WARD) - IN:ACUTE.WARD(GI) (boxed in red)
- Date Admitted to Location*:** 01/11/2013 (calendar icon)
- Documented prior evidence of previous infection or colonization with this specific organism type from a previously reported LabID Event?:** N - No (boxed in red, with "Auto-filled" label pointing to it)
- Has patient been discharged from your facility in the past 3 months?*** Y - Yes
- Date of last discharge from your facility*:** 12/19/2012 (calendar icon)

Annotations include:

- "Auto-filled when LabID and CDIF selected" pointing to the Event Type, Date Specimen Collected, and Specimen Source fields.
- "Patient Location when Specimen Collected" pointing to the Location* field.

Entry of Monthly Denominator Data for FacWideIN LabID Event Reporting

Choose Summary Data and Add Select Summary Data Type > Continue

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

NHSN - National Healthcare Safety Network (15D-CLFT-NHSN1) | NHSN Home | My Info | Contact us | Help | Log Out

NHSN Home Logged into Pleasant Valley Hospital (ID 10312) as DSIEVERT.
 Facility Pleasant Valley Hospital (ID 10312) is following the PS component.

Add Patient Safety Summary Data

Summary Data Type: MDRO and CDAD Prevention Process and Outcome Measures Monthly Monitoring

Enter Location Code = FacWideIN plus Month and Year

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

NHSN - National Healthcare Safety Network (ppt-v-nhsn-tarz-7002) | NHSN Home | My Info | Contact us | Help | Log Out

NHSN Home Logged into Pleasant Valley Hospital (ID 10312) as DSIEVERT.
 Facility Pleasant Valley Hospital (ID 10312) is following the PS component.

MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring

Save of Summary Data successful.

[Print PDF Form](#)

Mandatory fields marked with *

Facility ID*: 10312 (Pleasant Valley Hospital)
 Location Code*: FACWIDEIN - FacWideIN
 Month*: January
 Year*: 2013

General

Enter All Required Facility-Wide Inpatient Counts



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

NHSN - National Healthcare Safety Network (apt-v-nhsn-test:7002) | NHSN Home | My Info | Contact us | Help | Log Out

Logged into Pleasant Valley Hospital (ID 10312) as DSIEVERT.
Facility Pleasant Valley Hospital (ID 10312) is following the PS component.

MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring

Save of Summary Data successful.

@HELP Print PDF Report

Mandatory fields marked with *

Facility ID*: 10312 (Pleasant Valley Hospital)
Location Code*: FACWIDEIN - FacWideIN
Month*: January
Year*: 2013

General
Setting: Inpatient Total Patient Days*: 680 Total Admissions*: 135
Setting: Outpatient (or Emergency Room) Total Encounters: _____

If monitoring *C. difficile* in a FACWIDE location, then subtract NICU and Well Baby counts from Totals:
Patient Days*: 478 Admissions*: 98 Encounters: _____

Specific Organism Type	MRSA	VRE	CephR-Klebsiella	CRE-E.coli	CRE-Klebsiella	MDR-Acinetobacter	C. difficile
Infection Surveillance							
LabID Event (All specimens)							Auto-filled * X
LabID Event (Blood specimens only)							

Resources

Resources for NHSN

The screenshot shows the CDC National Healthcare Safety Network (NHSN) website. The header includes the CDC logo and the tagline 'CDC 24/7 Saving Lives. Protecting People. Saving Money through Prevention.' Below the header is a navigation menu with letters A-Z and a search bar. The main content area is titled 'National Healthcare Safety Network (NHSN)' and contains a detailed description of the network. A central banner features a video player for 'Dialysis Modules' with the text 'Infections are a leading cause of death.' To the right of the banner are links for 'NHSN Training', 'SIR Reports', and 'Dialysis Module'. Below the banner are several columns of links categorized under 'Topics', 'Dialysis Facilities', 'Data & Statistics', and 'Communication Updates'. A sidebar on the right provides contact information for the CDC and NHSN, including a phone number and a 'More contact info' link.

<http://www.cdc.gov/nhsn/index.html>

Resources for CDI LabID Event Reporting

- NHSN Patient Safety Component Manual
 - Ch 12: MDRO and CDI Module (January 2012); pages 18-21
http://www.cdc.gov/nhsn/PDFs/pscManual/12pscMDRO_CDADcurrent.pdf
 - Ch 14: Tables of Instructions, Table 19, 21
http://www.cdc.gov/nhsn/PDFs/pscManual/14pscForm_Instructions_current.pdf
- Determining Patient Days for Summary Data Collection: Observation vs. Inpatients
http://www.cdc.gov/nhsn/PDFs/PatientDay_SumData_Guide.pdf

http://www.cdc.gov/nhsn/TOC_PSCManual.html

Resources for CDI LabID

- NHSN Forms (January 2012)
 - 57.106: Monthly Reporting Plan
 - 57.128: LabID MDRO or CDI Event Form (numerator)
 - 57.127: MDRO and CDI Prevention Process and Outcomes Measures Monthly Reporting (denominator)

<http://www.cdc.gov/nhsn/forms/Patient-Safety-forms.html#mdro>

Available Training

- C. difficile Guidelines for Clinicians
 - http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_clinicians.html
- Training
 - Lectoras (coming soon)
- NHSN Training Website: <http://www.cdc.gov/nhsn/training/>
 - Currently updating site with updated LabID Event Reporting presentations

Thank You

Email help desk: nhsn@cdc.gov

NHSN website:

<http://www.cdc.gov/nhsn/>

Case Studies



Ground Rules for Case Studies

- Purposes:
 - Training on use of definitions AS THEY EXIST
 - Surveillance ≠ clinical
- Examples highlight common errors/difficult issues
- Lab ID Event reporting is a **proxy measure** to lighten the load of surveillance, but this reduction in burden is traded off with a decreased specificity as it relates to true infection and attribution

Case 1

- 2/1: 56 year old male admitted to ICU bed with pneumonia. Central IV inserted for antibiotics.
- 2/2: Patient voiding without difficulty. Cough with moderate sputum production. Patient complains of lower abdominal cramps, relieved with medication.
- 2/3: Patient transfers to 2E. Later that day, patient has fever of 38.2 and complains of worsening lower abdominal pain. BM with loose unformed stool.

Case 1

- 2/4: While on 2E, the patient continues to complain of lower abdominal pain and loose stools. Over the course of 24 hours, the patient had three loose stools. Unformed stool specimen collected and sent for testing.
- 2/5: Lab results identified toxin positive *C. difficile* toxin stool samples.



Case 1

For FacWideIN LabID reporting, would you consider this to be a CDI LabID Event?

1. No. His symptoms started <4 days after admission.
2. Yes. This is the first positive CDI isolate collected in this inpatient location within 14 days.
3. No. *C. difficile* toxin assay is not an accurate test for CDI.

Case 1

#2..YES- This is a CDI LabID Event and should be entered into NHSN

A toxin positive *C. difficile* stool specimen for a patient in a location with no prior *C. difficile* event reported within 14 days for the patient and the location.

****Remember NHSN application will categorize as community-onset (CO) or healthcare-onset (HO)**

Case 1

**What Location is CDI
Attributed?**

1. ICU
2. 2E
3. Lab
4. FacWideIN

Case 1

#2...2E

Location attribution is based solely on where the patient is assigned when the specimen is collected. There is no thought process or subjective decisions allowed for location attribution for LabID event reporting.

****NHSN “transfer rule” does NOT apply for LabID Events**

Case 2

3/1: Patient presents to the emergency department with complaints of diarrhea and lower abdominal pain for the past three days. Patient states that he has been on antibiotics for 10 days for tooth abscess. A stool specimen is collected while the patient is in the emergency department and toxin assay is positive for *C. difficile*.

3/1: Patient admitted to 2S medical unit for intravenous hydrations and medical management.

Case 2

For FacWideIN LabID reporting. Can this result be entered as a LabID Event and, if so, what location would be entered?

1. No. ED is an outpatient location and I am only monitoring inpatient locations.
2. Yes. Location would be the ED since specimen was collected there.
-  3. Yes. Location would be 2S, the admitting location.
4. Yes. Location would be FacWideIN.

Case 2

#3...YES, 2S

If a specimen collected in the emergency department is positive for CDI, and the patient it is collected from is admitted to the facility on the SAME date into an location that is monitoring LabID events for CDI, then that specimen can be reported as the first specimen for the patient in that ADMITTING INPATIENT LOCATION

Case 2

What if you are participating in both FacWideIN and ED location specific reporting?

1.  Report the positive CDI LabID Event separately, once for ED and again for 2S.
2. Report only as FacWideIN.
3. Report only as FacWideOUT.
4. Toss a coin to make location selection.

Case 2

#1..Report in both places

If your monthly reporting plan includes both FacWideIN and ED location specific reporting, then you should report the positive CDI LabID Event separately, once as 2S (*select NO for outpatient*) and then again for ED (*select YES for outpatient*).

Event Information [HELP](#)

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

Date Specimen Collected*: 02/11/2011 [\[X\]](#)

Specific Organism Type*: CDIF - C. difficile

Outpatient*: N - No

Specimen Body Site/Source*: DIGEST - Digestive System

Specimen Source*: STOOL - Stool specimen

Date Admitted to Facility*: 01/29/2010 [\[X\]](#)

Location*: 5W - 5 WEST - ICU

Date Admitted to Location*: 02/10/2011 [\[X\]](#)

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

Has patient been discharged from your facility in the past 3 months?*: N - No

Case 3

- 2/15: 55 year old patient with end stage pancreatic cancer with liver & bone mets transferred to inpatient unit, 3E, from hospice facility. The patient has no previous history of inpatient admission to this facility. Upon admission to 3E, patient is noted to have foul loose stools. After three episodes of loose stools over the course of 24 hours, an unformed specimen was collected and tested positive for *C. difficile* toxin.

Case 3

For FacWideIN LabID reporting
Should this be entered into NHSN as a
LabID Event?

1. YES. Specimen was collected from 3E inpatient location
2. NO. This infection belongs to the Hospice

Case 3

YES.. This is a CDI LabID Event and should be entered into NHSN

A toxin positive *C. difficile* stool specimen for a patient in a location with no prior *C. difficile* Event reported within 14 days for the patient and the location. Both community-onset and healthcare-onset events should be reported.

Recommend the use of "Optional Field" to document history of Hospice if you want to track internally.

Case 3

How will NHSN Categorize the CDI Event?

1.  Community-onset (CO)
2. Healthcare-Facility onset (HO)
3. Community-Onset Healthcare Facility-Associated (CO-HCFA)
4. NHSN will not categorize the event, the user will need to make the decision

Case 3

#1..Community-onset (CO)

This patient has no previous history of admission to this facility and the stool specimen was collected as an inpatient less than 4 days after admission to the facility

**Community-Onset Healthcare Facility-Associated (CO-HCFA) is based on previous discharge from index facility.

Case 3

What if the Stool Specimen was Collected 4 Days after Admission to the Hospital?

1. Community-onset (CO) since the patient was admitted with symptoms of foul stool.
2.  Healthcare-Facility onset (HO) since the specimen was collected more than 3 days after admission.
3. Community-Onset Healthcare Facility-Associated (CO-HCFA) since the patient was admitted from another healthcare facility.

Case 3

#2..Healthcare Facility Onset (HO)

Healthcare Facility Onset (HO) since the stool was collected more than 3 days after admission.

Case 4

A toxin positive *C. difficile* stool specimen collected from a inpatient on day 4 of admission would be categorized as:

- 
1. Healthcare Facility-Onset (HO)
 2. Community-Onset (CO)
 3. Community-Onset Healthcare Facility-Associated (CO-HCFA)
 4. It depends on the patients history

Case 4

#1..Healthcare Facility-Onset (HO)

NHSN Categorizes CDI LabID Events Based on Date Admitted to Facility and Date Specimen Collected

- **Community-Onset (CO):** LabID Event collected as an outpatient or an inpatient ≤ 3 days after admission to the facility (i.e., days 1, 2, or 3 of admission).
- **Healthcare Facility-Onset (HO):** LabID Event collected > 3 days after admission to the facility (i.e., on or after day 4).
- **Community-Onset Healthcare Facility-Associated (CO-HCFA):** CO LabID Event collected from a patient who was discharged from the facility ≤ 4 weeks prior to current date of stool specimen collection.

Case 4

What if the patient was symptomatic on admission, but the toxin was negative on admission and positive on day 4 of admission?

1. I can over-ride NHSN and categorize the event as community-onset
2. NHSN will categorize as community-onset
- ✓ 3. NHSN will categorize as healthcare-onset

Case 4

#3..Healthcare-Onset

NHSN would still categorize the event as healthcare-onset since the first positive stool specimen was collected on or after day 4 of admission

**Lab ID Event reporting is a proxy measure to lighten the load of surveillance, but this reduction in burden is traded off with a decreased specificity as it relates to true infection and attribution

A small graphic of a white sticky note with a red pushpin at the top right corner. The word "Reminder!" is written on the note in a black, sans-serif font.

Case 5

In preparation for upcoming CMS reporting requirements, you are completing your NHSN monthly reporting plan. What location(s) will you select if you are only reporting based on CMS?

1. ICU, NICU, medical-surgical units, emergency department, oncology.
2. Emergency department, outpatient surgery, and affiliated physician offices.
3.  FacWideIN, which includes all inpatient locations, except NICU and Well Baby locations.
4. FacWideOUT, which includes all outpatient locations affiliated with the facility.

Case 5

#3.....FacWideIN

Healthcare facility HAI reporting to CMS via NHSN requires acute care hospitals to report *C. difficile* LabID Events for all inpatient locations at the facility-wide inpatient level where stools specimens may be collected.

NHSN Home Reporting Plan Add Monthly Reporting Plan

Logged into DHQP Memorial Hospital (ID 10000) as ANGELA. Facility DHQP Memorial Hospital (ID 10000) is following the 24 component.

Add Monthly Reporting Plan

No data found for January, 2013

Mandatory fields marked with *

Facility ID*: [DHQP Memorial Hospital (ID:10000)]

Month*: [January] Year*: [2013]

No NHSN Patient Safety Modules Followed this Month

Multi-Drug Resistant Organism Module @HELP

Locations: [FACWIDEN - FacWideIN] Specific Organism Type: [GEN#Cdifficile]

Process and Outcome Measures

Infection Surveillance	AST-Timing	AST-Eligible	Incidence Prevalence	Lab ID Event All Specimens	Lab ID Event Blood Specimens Only	HH	GG
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

[Add Rows] [Clear All Rows] [Copy from Previous Month]

Case 5



FacWideIN is a 'virtual' location within NHSN, which means the user does not define it like other specific units/locations, and it is only used in the Monthly Reporting Plan, Summary Data Reporting Form (denominator), and for Conferring Rights.

Case 6

What denominator data is entered for FacWideIN?

1. Patient admissions by each unit and total patient days by unit.
2.  C. diff patient days and admissions for all inpatient locations minus NICU and Well Baby locations.
3. Total patient days and total admissions for all inpatient locations.
4. Total patient encounters

Case 6

#2....Patient days and admissions for all inpatient locations minus NICU and Well Baby locations

Facility: DHQP Memorial Hospital (100000) is reporting the following components:

MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring

Reporting Plan: Patient Event Procedure
 Summary Data: Add, Edit, Incomplete
 Import/Export Analysis Surveys Users Facility Group Log Out

Mandatory fields marked with *

Facility ID*: 10000 (DHQP Memorial Hospital)
 Location Code*: FACWIDEIN - FacWideIN
 Month*: January
 Year*: 2012

General
 Setting: Inpatient Total Patient Days: Total Admissions:
 Setting: Outpatient (or Emergency Room) Total Encounters:

If monitoring *C. difficile* in a FACWIDE location, then subtract NICU and Well Baby counts from Totals:
 Patient Days*: Admissions*: Encounters:

MDRO & CDI Infection Surveillance or LabID Event Reporting														
Specific Organism Type	MRSA	Report No Events	VRE	Report No Events	CephR- Klebsiella	Report No Events	CRE- Ecoli	Report No Events	CRE- Klebsiella	Report No Events	MDR- Acinetobacter	Report No Events	C. difficile	Report No Events
Infection Surveillance	<input type="checkbox"/>	<input type="checkbox"/>												
LabID Event (All Specimens)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
LabID Event (Blood)	<input type="checkbox"/>	<input type="checkbox"/>												

Great Job!!!

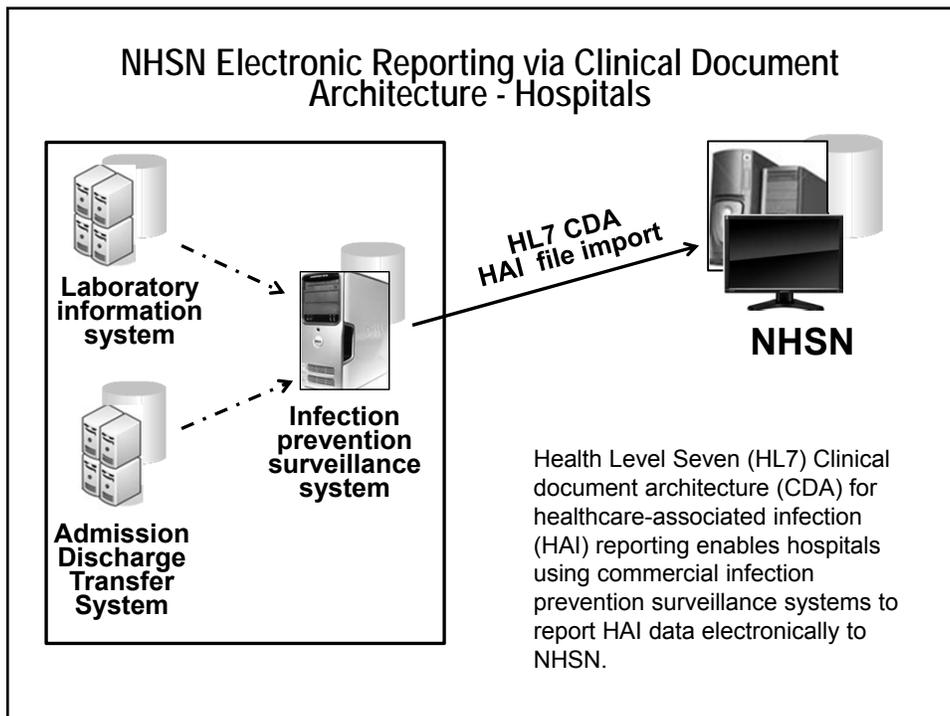
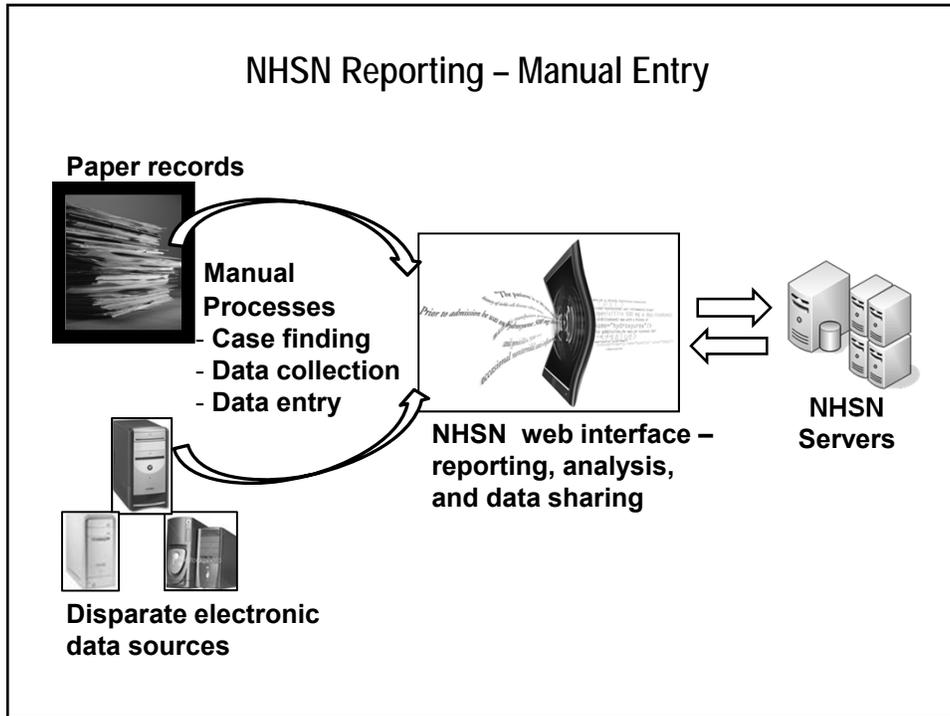


**Reporting Data to NHSN Electronically using Clinical
Document Architecture**

**Paul Malpiedi
Health Scientist**

**Centers for Disease Control and Prevention
Division of Healthcare Quality Promotion**

Division of Healthcare Quality Promotion
National Center for Emerging and Zoonotic Infectious Diseases



What is CDA?

- ❑ **Clinical Document Architecture (CDA) is a Health Level 7 (HL7) standard that provides a framework for the encoding, formatting and semantics of electronic documents**
- ❑ **NHSN supports CDA import of certain healthcare-associated infection data**
- ❑ **To assist programmers at vendor companies and hospital IT departments in creating standards for reporting via CDA import, NHSN offers an Implementation Guide (IG) and associated materials based fully on HL7-balloted CDA document specifications**
- ❑ **The great majority of facilities reporting to NHSN via CDA do so via an infection prevention vendor system (see list on website)**

What is CDA?

NHSN BSI Form – central line question:

Risk Factors	
*If ICU/Other locations, Central line:	<input checked="" type="radio"/> Yes <input type="radio"/> No
*If Specialty Care Area,	
Permanent central line:	<input type="radio"/> Yes <input type="radio"/> No
Temporary central line:	<input type="radio"/> Yes <input type="radio"/> No
*If NICU,	
Central line, including umbilical catheter:	<input type="radio"/> Yes <input type="radio"/> No
Birth weight (grams):	

CDA translates the question and answer into XML code:

```
<entry typeCode="DRIV">
  <observation classCode="OBS" moodCode="EVN" negationInd="false">
    <templateId root="2.16.840.1.113883.10.20.5.2.1.1.1"/>
    <code codeSystem="2.16.840.1.113883.5.4" code="ASSERTION"/>
    <statusCode code="completed"/>
    <value xsi:type="CD"
      codeSystem="2.16.840.1.113883.6.277" codeSystemName="cdcNHSN"
      code="1002-5" displayName="central line"/>
  </observation>
</entry>
```

CDA – Data Currently Accepted

- **Device-Associated Module:**
 - CLABSI event
 - CAUTI event
 - CLIP event
 - DA Module summary data form (patient days/line days)
 - Dialysis Event and denominator coming in August 2012 release
- **Procedure-Associated Module:**
 - SSI event
 - Surgical procedure denominator form
- **MDRO/CDI Module:**
 - LabID event
 - Denominator form coming in August 2012 release
- **Antimicrobial Use and Resistance Module:**
 - Antimicrobial Use (pilot at a small number of facilities)

CDA – How Does It Work?

- **Step One – use your vendor system or IT staff to get data into the appropriate format for NHSN import**
 - Usually an “Export to NHSN” button, or something along those lines
 - One CDA file is produced for each event, summary data, or procedure record that is going into NHSN
 - A bunch of individual CDA files can be packaged into one .zip file for import at the same time
- **Step Two – get an Object Identifier (OID)**
 - OID = a long series of numbers that serves as your facility’s unique identifier (ex - 2.16.840.1.113883.6.277)
 - Your CDA files contain your facility’s OID – when they come in to NHSN, we use the OID to match the data in your CDA files to your 5-digit NHSN OrgID number
 - Visit the NHSN CDA website for more information

CDA – How Does It Work?

- ❑ **Step Three – find an NHSN user with administrative rights**
 - **NOTE: only users with administrative rights can import CDA files into NHSN**
 - **There may be many users at a facility with administrative rights, but there can only be one Facility Administrator**
- ❑ **Step Four – check your plan**
 - **Only data for events/locations in your monthly reporting plan can come in via CDA**
- ❑ **Step Five – import your zip file of CDAs**

CDA – How Does It Work?

The screenshot shows the NHSN web interface. At the top, it displays the CDC logo and the text "Department of Health and Human Services Centers for Disease Control and Prevention". Below this is the NHSN logo and "National Healthcare Safety Network". The user is logged in as PAULM. The main content area is titled "Import/Export Data". On the left is a navigation menu with options: NHSN Home, Reporting Plan, Patient, Event, Procedure, Summary Data, Import/Export, Analysis, Surveys, Users, Facility, Group, and Log Out. The "Import/Export" option is selected. In the center, there is a dropdown menu labeled "Import/Export Type:" with a list of options: "CSV Import" (Patients, Procedures, Surveys), "CDA Import" (Events, Summary Data, Procedure Denominators, SSI events (requires link to procedure)), and "Export" (Export Facility Data).

- ❑ **To import a CDA zip file, click on Import/Export in the navigation bar, then select the appropriate import (for SSI, events and procedures go in separately)**

CDA – How Does It Work?

Logged into DHQP Memorial Hospital (ID 10000) as PAULM.
 Facility DHQP Memorial Hospital (ID 10000) is following the PS component.

Import/Export Data

Import/Export Type:

Events, Summary Data, Procedure Denominators

Select Data file

- ❑ After selecting the kind of import, use the “Select Data File” area of the screen to select the .zip file that you have created from your vendor system

CDA – Successful Import

Import BSI events, Procedures and/or Summary Data

Records processed

Record Type	# of Records	# Passed
Events	1	1
Summary Data	0	0
Procedures	0	0

Validation results

Events					
Event Type	Event Date	Patient ID	Location	Set ID	Status
BSI	06/17/2009	IDT6-BSIC	#ISURGCC	2.16.840.1.113883.3.117.1.1.5.2.1.1.6994-31	Ready for Import

- ❑ NHSN validates the CDA for structure and criteria
- ❑ If file passes validation, all records show up in the “# passed” column of the table. The Submit button is used to finalize the import.

CDA – Errors in Import File

Import/Export Data

File did not pass schematron validations. Click the Error Details button for more information.

Import/Export Type:

The screenshot shows a dialog box titled "Error Details" with a button labeled "ErrorDetails" and an arrow pointing to it with the text "click button to get .pdf of error report to send to vendor". Below the button, the file name "RS_TC-CDA-212B.xml" is displayed. The main content area is titled "HAI Schematron Errors" and contains the following text:

```
*SHALL contain 1..1 effectiveTime (CONF:2100)
Location: /ClinicalDocument[1]/component[1]/structuredBody[1]/component[1]/section
[1]/entry[1]/observation[1]
Test: cda:effectiveTime
```

- ❑ If any CDAs in the zip file do not pass validation, you'll get a somewhat scary error message
- ❑ Contact your vendor or nhsncda@cdc.gov for troubleshooting, send .pdf error report along

More Information

- ❑ **NHSN CDA Website:**
 - List of vendors able to submit to NHSN via CDA (at APIC site)
 - Steps for obtaining an OID
 - Information about data accepted via CDA import
 - Training slideset – how to import data via CDA
 - More coming this summer
 - http://www.cdc.gov/nhsn/CDA_eSurveillance.html
- ❑ **NHSN CDA Help Desk**
 - nhsncda@cdc.gov
 - Questions about CDA in general and getting started
 - Issues with NHSN accepting your CDA zip files (note – please initiate conversation with your vendor and then escalate to NHSN CDA if necessary)
 - Additional information if you are interested in creating “home grown” CDAs in your IT department