



NHSN Monthly Training: CLABSI Case Definition and Entering CLABSI Events

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Outline

- NHSN definition of a Healthcare Associated Infection
- CLABSI case definition
 - Including definition of a central line and great vessels
- Denominator data – counting central line days and patient days
- Entering CLABSI events in NHSN



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Healthcare-Associated Infection

- A localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s)
- There must be no evidence that the infection was present or incubating at the time of admission
- Clinical evidence may be derived from direct observation of the infection site or review of information in the patient chart or other clinical records



What is NOT Healthcare Associated

- The following infections are NOT considered to be healthcare associated:
 - Infections associated with complications or extensions of infections already present on admission, unless there is an indication that it is a new infection
 - Transplacentally acquired infections in infants that become evident ≤ 48 hours after birth
 - Reactivation of a latent infection

What is NOT an Infection

- The following conditions are NOT infections:
 - Colonization – the presence of microorganisms on skin, on mucous membranes in open wounds, or in excretions or secretions but which are not causing adverse clinical signs or symptoms
 - Inflammation resulting from tissue response to injury or stimulation of by noninfectious agents, such as chemicals

NHSN CLABSI Definition

- A primary bloodstream infection (BSI) in a patient that had a central line at the time of, or in the 48 hour period before, the development of the BSI
 - There is NO minimal amount of time that a central line needs to be in place for the BSI to be attributed to the central line
- A primary BSI is a laboratory confirmed bloodstream infection that is not secondary to an infection meeting CDC/NHSN criteria at another body site



Location of Attribution

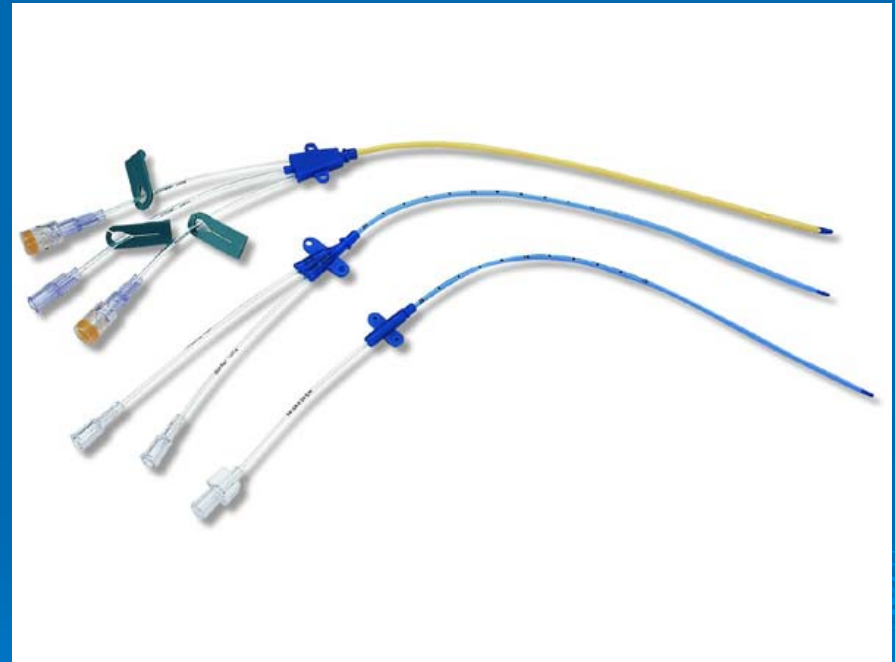
- CLABSIs are attributed to the patient location at the onset of the BSI
 - Onset = the date when the first clinical evidence appeared, or the date the specimen used to meet the BSI criteria was collected, whichever came first
- EXCEPTION: If the BSI develops within 48 hours of transfer from one inpatient location to another in the same facility, indicate the transferring location on the infection report (this is called the Transfer Rule)

Location of Attribution Examples

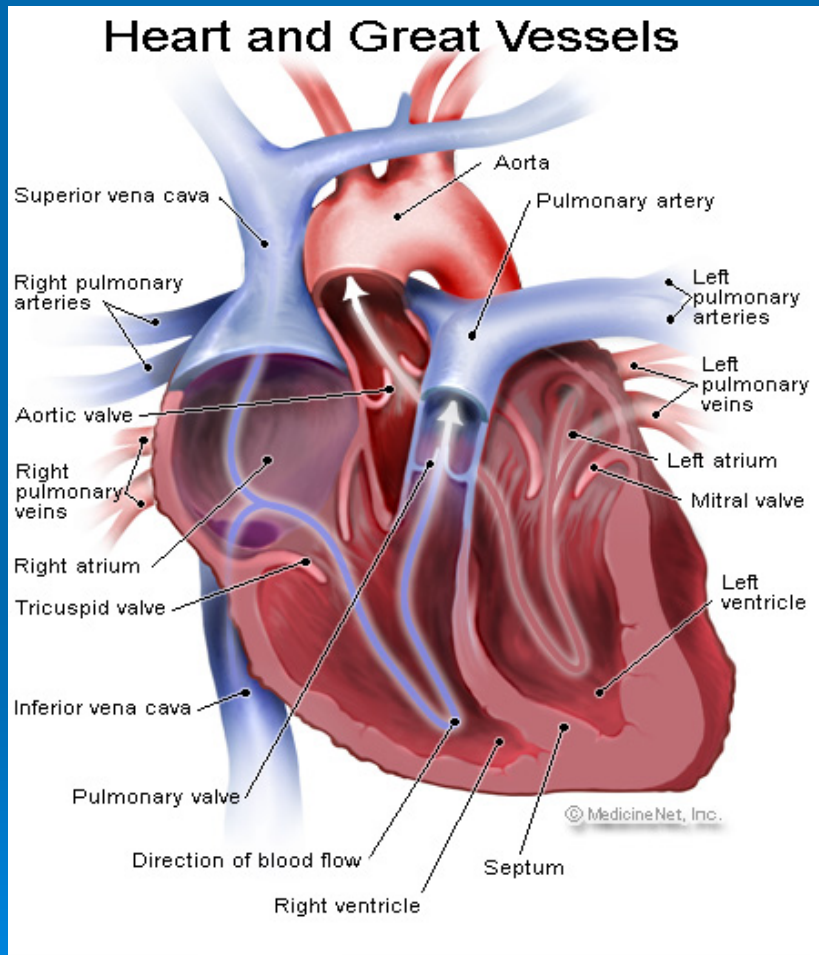
- Patient with a central line is transferred from the SICU to the surgical ward. 36 hours later, the patient spikes a fever and blood cultures are drawn. Two days later, the blood culture results return indicating *S. aureus*.
 - The location of attribution is the SICU
- Patient has a central line inserted in the ED and then is admitted to the ICU. Within 24 hrs of admission patient meets criteria for a BSI.
 - The location of attribution is the MICU because the ED is not an inpatient location
- Patient with a central line in place is transferred from the medical ward to the coronary care ICU. After 4 days the patient meets the criteria for a BSI.
 - The location of attribution is the coronary care ICU

Central Line

- Definition: A vascular infusion device that terminates at or close to the heart or in one of the great vessels which is used for infusion, withdrawal of blood, or hemodynamic monitoring

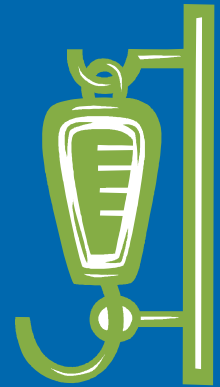


Great Vessels



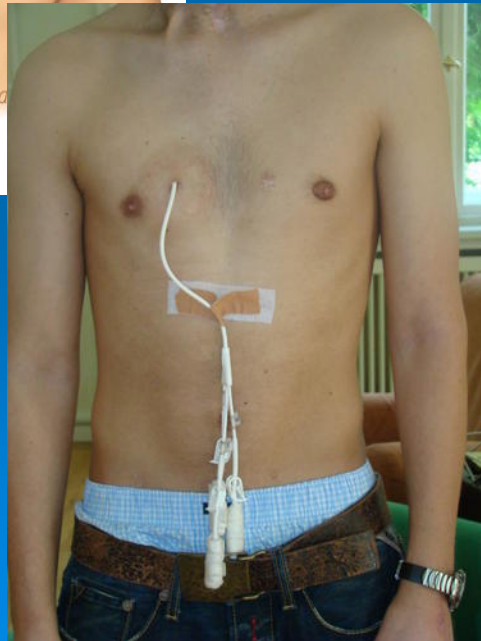
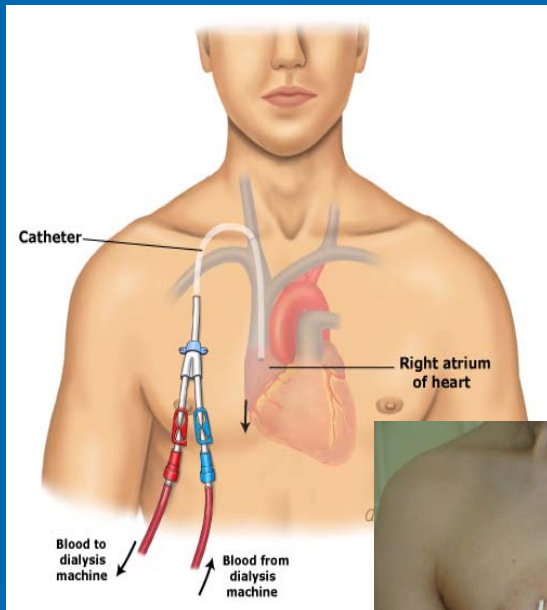
- Aorta
- Superior vena cava
- Inferior vena cava
- Brachiocephalic vein
- Internal jugular vein
- Subclavian vein
- Pulmonary artery
- External iliac vein
- Common femoral vein
- **In neonates, the umbilical artery/vein is considered a great vessel**

Definition: Infusion



- Introduction of a solution through a blood vessel via a catheter lumen
- Includes:
 - Continuous infusions such as nutritious fluids or medications;
 - Intermittent infusions such as flushes or IV antimicrobial administration;
 - Administration of blood or blood products in the case of transfusion or hemodialysis

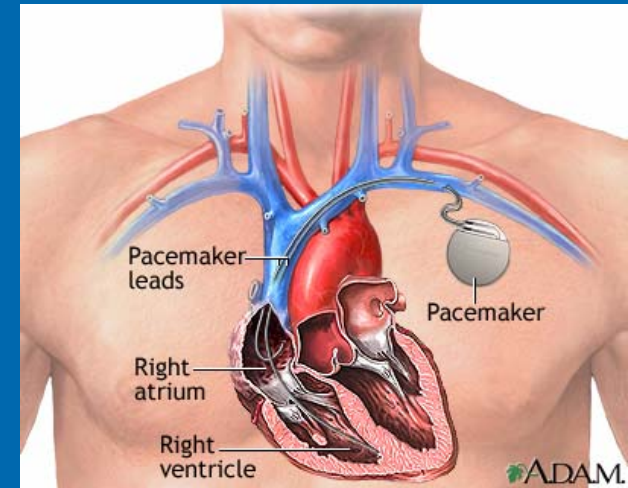
Types of Central Lines



- Temporary central lines are non-tunneled catheters
 - May include Single, Double, or Triple Lumen Catheters that are placed in a great vessel
- Permanent central lines include tunneled or implanted catheters
 - May include Broviac, Hickman, Groshong
 - Dialysis catheters, ports

What are NOT Central Lines

- Arterial lines or long catheters that do not terminate in or near the heart
- Pacemaker wires, Intraortic balloon pumps (IABPs) and other non-infusion devices inserted into central blood vessels or the heart



Remember:

- Neither the location of the insertion site nor the type of device may be used to determine if a line qualifies as a central line



LCBI Criterion 1

Criterion 1: Patient has a recognized pathogen cultured from one or more blood cultures
and
organism cultured from blood is not related to an infection at another site. (See Notes 1 and 2 below.)

1. The phrase “one or more blood cultures” means that at least one bottle from a blood draw is reported by the laboratory as having grown organisms (i.e., is a positive blood culture)
2. The term “recognized pathogen” does not include organisms considered common skin contaminants

LCBI Criterion 2

Criterion 2: Patient has at least one of the following signs or symptoms: fever (>38°C), chills, or hypotension

and

signs and symptoms and positive laboratory results are not related to an infection at another site

and

common skin contaminant (i.e., diphtheroids [*Corynebacterium* spp.], *Bacillus* [not *B. anthracis*] spp., *Propionibacterium* spp., coagulase-negative staphylococci [including *S. epidermidis*], viridans group streptococci, *Aerococcus* spp., *Micrococcus* spp.) is cultured from two or more blood cultures drawn on separate occasions.

LCBI Criterion 3

Criterion 3: Patient \leq 1 year of age has at least one of the following signs or symptoms: fever ($>38^{\circ}\text{C}$ core) hypothermia ($<36^{\circ}\text{C}$ core), apnea, or bradycardia and signs and symptoms and positive laboratory results are not related to an infection at another site and common skin contaminant (i.e., diphtheroids [*Corynebacterium* spp.], *Bacillus* [not *B. anthracis*] spp., *Propionibacterium* spp., coagulase-negative staphylococci [including *S. epidermidis*], viridans group streptococci, *Aerococcus* spp., *Micrococcus* spp.) is cultured from two or more blood cultures drawn on separate occasions. (See Notes 3, 4 and 5 below.)

Common Skin Contaminants

- *Aerococcus* sp.
- *Bacillus cereus*
- *Bacillus subtilis*
- *Staphylococcus* – coag negative
- *Corynebacterium* sp.
- Gram + cocci unspecified
- *Propionibacterium* sp.
- *Rhodococcus* sp.
- *Streptococcus bovis*
- *Streptococcus epidermidis*
- *Staphylococcus auricularis*
- *Streptococcus mitis*
- *Streptococcus viridans*

- *Staph aureus* is NOT considered a common skin contaminant

Notes for criteria 2 and 3: “on two separate occasions”

- The phrase “on two separate occasions” means
 - That blood from at least 2 blood draws were collected within 2 days of each other (e.g. blood draws on Mon & Tues or on Mon & Wed, but not Mon & Thurs)
 - That at least one bottle from each blood draw is reported by the laboratory as having grown the same common skin contaminant organism
- “2 separate occasions” can be 2 blood draws collected at the same time as long as they were collected from different venipuncture sites

Specimen Collection

- Ideally, blood specimens for culture should be obtained from 2-4 blood draws from separate venipuncture sites, NOT through a vascular catheter
- These blood draws should be performed simultaneously over a short period of time
- If your facility does not currently do this, you must still report BSIs, but you should work with appropriate personnel to facilitate better specimen collection practices for blood cultures
- **A positive catheter tip IS NOT a blood culture**



Notes for criteria 2 and 3: “same organism”

- If the common skin contaminant is identified to the species level from one culture and only a genus level from the companion culture
 - The organisms are assumed to be the same
 - Report the speciated organism
- If the common skin contaminant organisms are both speciated but no antibiograms are done, or they are only done for one of the isolates
 - The organisms are assumed to be the same

Surveillance

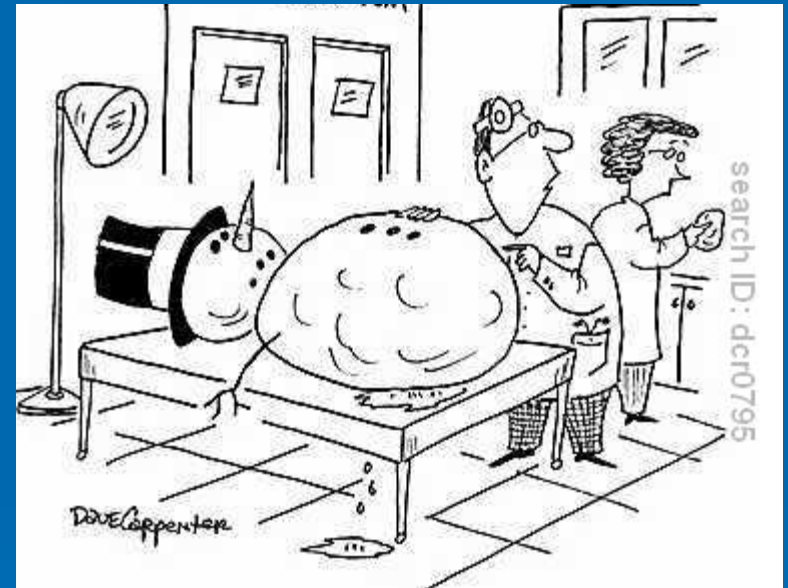


➤ Look for Signs and Symptoms

- Fever $>38^{\circ}\text{C}$ (100°F) – look on vital sign graphs, nursing flow sheet, electronically under vital signs
 - Older results respond differently!
- Chills – look in nursing notes, MD or multidisciplinary progress notes
- Hypotension – look on graphics flow sheets or electronically in vital signs, nursing and MD notes

Hypothermia Could Indicate BSI

- Extremes in age
- NICU patients
- Older ICU patients
- Other indicators:
 - Apnea
 - Bradycardia



No Other Site

- All 3 criteria specify that the BSI must NOT be related to an infection at another site!
- Check that there is no infection at another site that:
 - Is positive for that organism;
 - Thought to be the source of the BSI; and
 - Meets the NHSN definition for infection at that other site



Surveillance

- NOTE: Surveillance for CLABSIs after the patient is discharged from the facility is not required, however, if discovered, these infections should be reported to NHSN. No additional central line days are reported.

Summary Data

- For each day of the month, at the same time each day, record the number of patients on the unit and the number who have ≥ 1 central line(s)
- At the end of the month, sum the total number of patient days and central line days and report the total
- Patient Days: at the same time every day count the number of patients on the unit
- Device Days: at the same time every day, count the number of patients with ≥ 1 central line(s)

Counting Central Line Days

- Specific data collected differs according to surveillance location.
 - For SCAs, count number of patients with permanent central lines and number with temporary central lines
 - If a patient has both, count only in the temporary line
 - For NICUs, count number of patients with central lines and number with umbilical lines
 - If a patient has both, count only the umbilical catheter
 - Stratify counts by 5 categories of birth weight
 - For ICUs and other locations, just count the number of patients with ≥ 1 central line

Counting Central Line Days

- Remember: A patient with ≥ 2 lines gets counted for 1 central line day – a single patient cannot contribute more than 1 central line day!
- (May require staff education!)



NHSN Forms



Primary Bloodstream Infection (BSI)

OMB No. 0920-0666
Exp. Date: 09-30-2012

Page 1 of 3

*required for saving **required for completion		Event #:	
Facility ID:		Social Security #:	
*Patient ID:		Secondary ID:	
Patient Name, Last:		First:	Middle:
*Gender: F M	*Date of Birth:		
Ethnicity (specify):		Race (specify):	
*Event Type: BSI		*Date of Event:	
Post-procedure BSI: Yes No	Date of Procedure:		
NHSN Procedure Code:		ICD-9-CM Procedure Code:	
*MDRO Infection Surveillance: <input type="checkbox"/> Yes, this event's pathogen & location are in-plan for the MDRO/CDAD Module			
<input type="checkbox"/> No, this event's pathogen & location are not in-plan for the MDRO/CDAD Module			
*Date Admitted to Facility:		*Location:	
Risk Factors			
*If ICU/Other locations, Central line:	Yes	No	
*If Specialty Care Area,			Location of Device Insertion: _____
Permanent central line:	Yes	No	
Temporary central line:	Yes	No	Date of Device Insertion: ___/___/_____
*If NICU,			

NHSN Forms



Denominators for Intensive Care Unit (ICU)/ Other locations (not NICU or SCA)

OMB No. 0920-0666
Exp. Date: 09-30-2012

* required for saving

Facility ID:		*Location Code:	*Month:	*Year:
Date	*Number of patients	**Number of patients with 1 or more central lines	**Number of patients with a urinary catheter	**Number of patients on a ventilator
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				



Data Entry in NHSN





Monthly Workflow

Each month you need to:

- Submit a Monthly Reporting Plan
- Report Events
- Report Summary Data
- Generate New Datasets
- Run Analysis Reports (as you wish)



Data Entry Generalities

- Data entered into NHSN is available to both the CDC and the facility as soon as it is saved
- Data can be edited after it is saved (with the exception of a Patient ID)
- Records can be deleted



Requirements for Data Fields

➤ Required:

- Must be completed on every data field
- A red asterisk (*) appears next to the field label

➤ Conditionally required: when the requirement depends on one of these conditions

- Response given in another field
- Events identified in your Monthly Reporting Plan

➤ Optional:

- NHSN does not require the data and the information will not be used (e.g., surgeon code)

Report Events

- 2 keys to successful reporting of events:
 1. Reliable, consistent surveillance methods to identify infections → we will discuss this later
 2. Faithful application of the NHSN case definitions → keep the NHSN manuals handy and don't be afraid to ask questions!

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



*Device-associated Module
CLABSI*

Central Line-Associated Bloodstream Infection (CLABSI) Event

Introduction: An estimated 248,000 bloodstream infections occur in U.S. hospitals each year¹. It is believed that a large proportion of these are associated with the presence of a central vascular catheter, though this is an area where more study is needed. For the

Adding a CLABSI Event (Infection)



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NHSN - National Healthcare Safety Network

NHSN Home | M

- NHSN Home
- Reporting Plan
- Patient
- Event
 - Add
 - Find
 - Incomplete
- Procedure
- Summary Data
- Import/Export
- Analysis
- Surveys
- Users
- Facility
- Group
- Log Out

Add Event

Mandatory fields marked with *

Fields required for record completion marked with **

Fields required when in Plan marked with >

3 Patient Information [HELP](#)

Facility ID*: State Users of NHSN Memorial (ID 15634) Event #: 4274751

Patient ID*: 198136 Secondary ID:

Social Security #: First Name:

Last Name:

Middle Name:

Gender*: F - Female Date of Birth*: 08/14/1976

Ethnicity:

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


Patient ID should be an ID that will follow the patient from visit to visit (i.e. MRN)

Only required Patient Information fields are Patient ID, Gender, and DOB – optional fields are for your use and benefit only

Adding a CLABSI – Event Information

Event Information


Event Type*: BSI - Bloodstream Infection

Date of Event*: 02/09/2011 

Post-procedure: N - No

MDRO Infection Surveillance*: No, this event pathogen/location is not in-plan for MDRO/CDAD Module

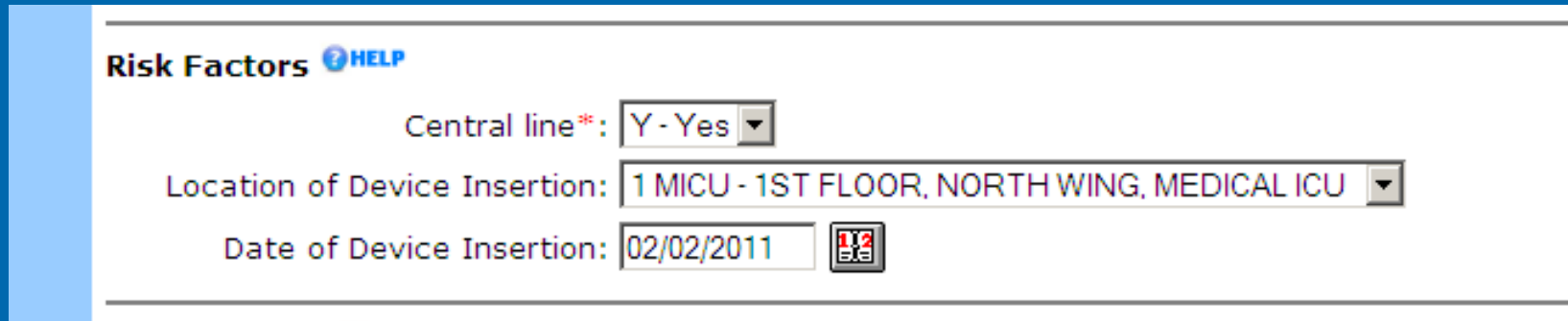
Location*: 1 MICU - 1ST FLOOR, NORTH WING, MEDICAL ICU

Date Admitted to Facility*: 02/01/2011 

Use this button to enter the date by clicking a calendar

- Event Type = “BSI”
- MDRO Infection Surveillance – are you doing surveillance in the MDRO module for the organism that caused this infection?
 - Probably “No”
- Location – where was the patient when the first signs/symptoms appeared?
 - Remember the Transfer Rule!

Adding a CLABSI – Risk Factors



The screenshot shows a web form titled "Risk Factors" with a "HELP" icon. It contains three input fields: "Central line*:" with a dropdown menu set to "Y-Yes"; "Location of Device Insertion:" with a dropdown menu set to "1 MICU - 1ST FLOOR, NORTH WING, MEDICAL ICU"; and "Date of Device Insertion:" with a text box containing "02/02/2011" and a calendar icon.

- Central Line = “Yes”
- Other fields appear after you select “Yes”
- If Location of Device Insertion is somewhere other than your ICU, you will need to first Add and new Location to get it to be an option in the drop down
- Location and Date of Device Insertion are not required – NHSN understands you may not know them

Adding a CLABSI – NICU Risk Factors

Event Information [?HELP](#)

Event Type*: BSI - Bloodstream Infection Date of Event*: 02/09/2011

Post-procedure: N - No

MDRO Infection Surveillance*: No, this event pathogen/location is not in-plan for MDRO/CDAD Module

Location*: 8585 - NICU II/III

Date Admitted to Facility*: 02/01/2011

Risk Factors [?HELP](#)

Non-umbilical Central line*: Y - Yes

Umbilical Catheter*: N - No

Birth Weight (grams)*: 750

Location of Device Insertion: 8585 - NICU II/III

Date of Device Insertion: 02/02/2011

Notice you get different risk factors if the Location is a NICU (or SCA)

Adding a CLABSI – Event Details

Event Details [HELP](#)

Specific Event*: LCBI - Laboratory confirmed bloodstream infection

Specify Criteria Used*

Signs & Symptoms (check all that apply)

Any patient

Fever

Chills

Hypotension

<=1 year old

Fever

Hypothermia

Apnea

Bradycardia

Laboratory (check one)

Recognized pathogen from one or more blood cultures

Common skin contaminant from >=2 blood cultures

Died***: Y-Yes

BSI Contributed to Death*: N-No

Discharge Date: 02/15/2011

Pathogens Identified: Y-Yes

- Only Specific Event you can choose is “LCBI”
- Specific Criteria Used appear when you select Specific Event
- Pathogens Identified can only be “Yes”



Adding a CLABSI – Case Definition

- You will not be allowed to save an event if the Specific Criteria Used do not meet the case definition
- HOWEVER – it is up to YOU to make sure you have collected all the evidence correctly and that the laboratory evidence meets the case definition for “on two separate occasions” and “same organism”

Adding a CLABSI – Pathogens

Pathogens [?HELP](#)

Pathogen 1: Search 10 drugs required

Drug	Result
* CLIND - Clindamycin	<input type="text"/>
* DAPTO - Daptomycin	<input type="text"/>
* <input type="text"/>	<input type="text"/>
* ERYTH - Erythromycin	<input type="text"/>
* GENT - Gentamicin	<input type="text"/>
* LNZ - Linezolid	<input type="text"/>
* OX - Oxacillin	<input type="text"/>
* QUIDAL - Quinupristin/dalfopristin	<input type="text"/>
* RIF - Rifampin	<input type="text"/>
* TMZ - Trimethoprim/sulfamethoxazole	<input type="text"/>
* VANC - Vancomycin	<input type="text"/>
* <input type="text"/>	<input type="text"/>
* <input type="text"/>	<input type="text"/>

Pathogen list will change based on whether you checked “Recognized Pathogen” or “Common Skin Contaminant”

Options are S/I/R and “Not Tested”

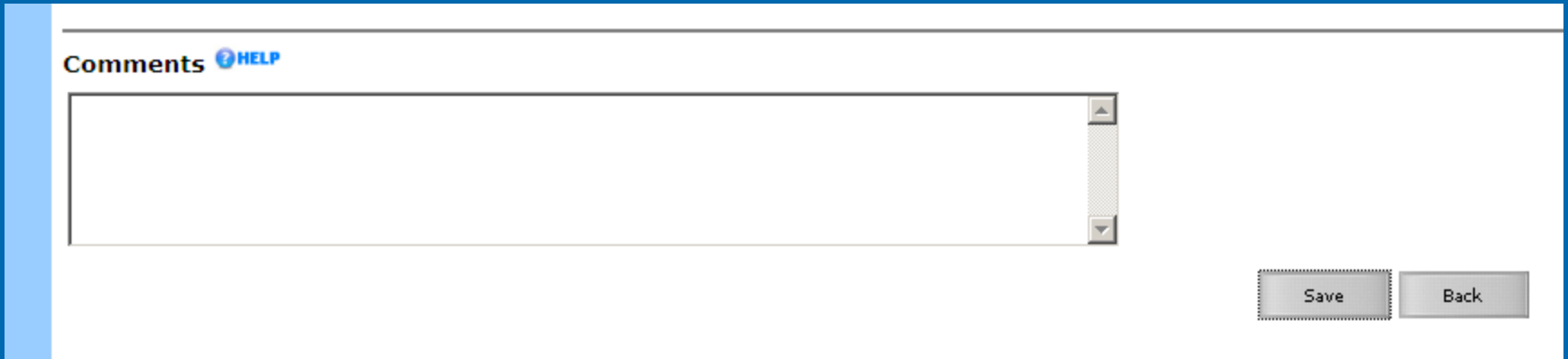
Number of required drugs and specific drugs will change based on pathogen

Add Row

Pathogen 2: Search

Pathogen 3: Search

Adding a CLABSI – Comments



The screenshot shows a web interface for adding comments. At the top left, the word "Comments" is displayed next to a blue "HELP" icon. Below this is a large, empty text input field with a vertical scrollbar on the right side. At the bottom right of the form, there are two buttons: "Save" and "Back".

- Comments are not available for analysis, but can be helpful for you if you come back to look at a case
- When done, click Save

Adding a CLABSI – You did it!



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NHSN Home

Reporting Plan

Patient

Event

▸ Add

▸ Find

▸ Incomplete

Procedure

Summary Data

Import/Export

Logged into State Users of NHSN Memorial (ID 15634) as KATIEFL.
Facility State Users of NHSN Memorial (ID 15634) is following the PS component.

Add Event

✔ Event 4274751 created successfully. Record is complete.

Mandatory fields marked with *

Fields required for record completion marked with **

Fields required when in Plan marked with >

- Once you click Save, you get a confirmation that your Event was created successfully

Report Summary Data

- Summary data MUST be submitted every month even if you have 0 infections
- Submitting Summary Data
 - From the left-hand navigation bar, choose *Summary Data > Add*
 - Select the appropriate type from the Summary Data Type dropdown and click *Continue*



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Logged into State Users of NHSN Memorial (ID 15634) as KATIEFL.
Facility State Users of NHSN Memorial (ID 15634) is following the PS component.

- NHSN Home
- Reporting Plan
- Patient
- Event
- Procedure
- Summary Data
 - ▢ Add
 - ▢ Find
 - ▢ Incomplete
- Import/Export
- Analysis
- Surveys

Add Patient Safety Summary Data

Summary Data Type:

- Device Associated - Intensive Care Unit / Other Locations
- Device Associated - Neonatal Intensive Care Unit
- Device Associated - Specialty Care Area
- Device Associated - Outpatient Dialysis - Census Form
- MDRO and CDAD Prevention Process and Outcome Measures Monthly Monitoring
- Vaccination Monthly Summary Method
- Denominators for Patient-Level Vaccination Method

Report Summary Data

- Enter the Location Code, Month & Year
 - The screen will refresh as it checks your Monthly Reporting Plan
 - Once refreshed, required fields will be marked with a red asterisk
- Enter your Summary Data for that unit only
 - Make sure that your source for summary data matches your locations as they are defined in NHSN

Mandatory fields marked with *

Facility ID*: 15634 (State Users of NHSN Memorial)

Location Code*: 1 MICU - 1ST FLOOR, NORTH WING, MEDICAL ICU

Month*: December

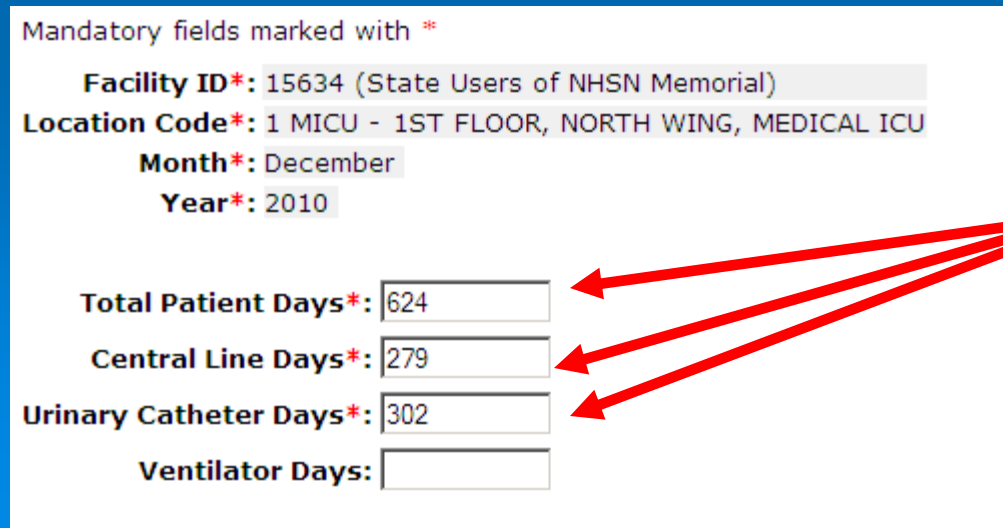
Year*: 2010

Total Patient Days*:

Central Line Days*:

Urinary Catheter Days*:

Ventilator Days:



Questions?

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