

Central Line-associated Bloodstream Infection (CLABSI) Criteria and Case Studies

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Central Line-associated Bloodstream Infections (CLABSI)


- Estimated 92,011 CLABSIs occur in the United States each year¹
- Most bloodstream infections are associated with the presence of a central line or umbilical catheter (in neonates) at the time of or before the onset of the infection
- Estimated mortality is 12-25% for each CLABSI²



Attributable cost estimated \$29,156/CLABSI
→ \$2.7 billion in US/year¹

Objectives

1. Review CDC/NHSN criteria for primary bloodstream infection (BSI)
2. Define key terms for classifying BSI and central line-associated BSI (CLABSI) appropriately
3. Identify CLABSI using case studies
4. Review method for counting patient days and device days
5. Review CLABSI metrics and NHSN output



*Definition of HAI and Criteria
For Specific Types of Infections*

CDC/NHSN Surveillance Definition of Healthcare-Associated Infection and Criteria for Specific Types of Infections in the Acute Care Setting

This chapter contains the CDC/NHSN surveillance definition of healthcare-associated infection (HAI) and criteria for all specific types of HAI. These criteria include those for the “Big Four” infection types (surgical site infection [SSI], pneumonia [PNEU], bloodstream infection [BSI] and urinary tract infection [UTI]), outlined in earlier chapters of this manual, as well as criteria for other types of HAI. Of particular importance, this chapter provides further required criteria for the specific type of HAI, such as mediastinitis [MED] that may follow [IAB] after colon surgery). Additionally, when determining whether a positive culture is due to a different type of HAI, a BSI that must meet one of the criteria of HAI as separate events in NHSN, nor can

AJIC

major articles

CDC/NHSN surveillance definition of health care-associated infection and criteria for specific types of infections in the acute care setting

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BACKGROUND

Since 1988, the Centers for Disease Control and Prevention (CDC) has published 2 articles in which nosocomial SSI descriptions have been expanded to specify whether an SSI affects the primary or a secondary wound site. Another example is that the population for which clinical sepsis is used has been restricted to patients ≤ 1 year old. Another example is that

population for which clinical sepsis is used has been restricted to patients ≤ 1 year old. Another example is that incisional SSI descriptions have been expanded to specify whether an SSI affects the primary or a secondary wound site.

http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

Healthcare-associated Infection (HAI)

- A localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that
 - Occurs in a patient in a healthcare setting and
 - Was not present or incubating at the time of admission, unless the infection was related to a previous admission
- When the setting is a hospital, meets the criteria for a specific infection (body) site as defined by CDC
- When the setting is a hospital, may also be called a nosocomial infection

http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

Not HAI

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

http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

Major & Specific Infection Types

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Table 1. CDC/NHSN major and specific types of health care-associated infections

BSI	Bloodstream infection	Laboratory-confirmed bloodstream infection
	LCBI	Clinical sepsis
PNEU	Pneumonia	
	PNU1	Clinically defined pneumonia
	PNU2	Pneumonia with specific laboratory findings
	PNU3	Pneumonia in immunocompromised patient
BJ	Bone and joint infection	
	BONE	Osteomyelitis
	JNT	Joint or bursa
	DISC	Disc space
CNS	Central nervous system	
	IC	Intracranial infection
	MEN	Meningitis or ventriculitis
	SA	Spinal abscess without meningitis
CVS	Cardiovascular system infection	
	VASC	Arterial or venous infection
	ENDO	Endocarditis
	CARD	Myocarditis or pericarditis
	MED	Mediastinitis

CSEP removed 1/1/2010

BSI-BLOODSTREAM INFECTION

LCBI-Laboratory-confirmed bloodstream infection

LCBI criteria 1 and 2 may be used for patients of any age, including patients ≤ 1 year of age.


LCBI must meet at least 1 of the following criteria:

1. Patient has a recognized pathogen cultured from 1 or more blood cultures *and* organism cultured from blood is *not* related to an infection at another site. (See Notes 1 and 2.)
2. Patient has at least 1 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 (ie, 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 2 or more blood cultures drawn on separate occasions. (See Notes 3 and 4.)

http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

LCBI 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.



Example: Jon Smith had a PICC line inserted on admission (June 1). On hospital day 4, he became confused and experienced chills. Blood cultures were drawn which grew *E. faecalis*.

Mr. Smith meets the criteria for LCBI Criterion 1.

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).



Recognized pathogen does not include organisms considered common skin contaminants/commensals. A few of the recognized pathogens are *Staphylococcus aureus*, *Enterococcus* spp., *E. coli*, *Pseudomonas* spp., *Klebsiella* spp., *Candida* spp., etc.

LCBI 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 **commensal** 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

Patient \leq 1 yr of age has at least one of the following signs or symptoms: fever (>38 °C core), hypothermia (<36 °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~~ **commensal** (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.

Note



While LCBI Criterion 3 only applies to patients 1 year of age or less, Criteria 1 and 2 may be used for patients of ANY age, including infants.

Criteria 2 and 3

The phrase "two or more blood cultures (BC) drawn on separate occasions" means:

1. That blood from at least two blood draws were collected within two days of each other, and
2. That at least one bottle from each blood draw is reported by the laboratory as having grown the same common skin contaminant organism (i.e., is a positive BC)

Criteria 2 & 3 Determining "Sameness" of Two Organisms

If the organism from one culture is identified to both genus and species level (e.g., *S. epidermidis*) and the companion culture identifies only the genus with or without other attributes (in this example, coagulase-negative staphylococci), then it is assumed that the organisms are the same.

Report the genus/species to NHSN, i.e., in this example, report *S. epidermidis*. See other examples below:

Culture	Companion Culture	Report as...
<i>Bacillus</i> spp. (not <i>anthracis</i>)	<i>B. cereus</i>	<i>B. cereus</i>
<i>S. salivarius</i>	<i>Strep viridans</i>	<i>S. salivarius</i>

Criteria 2
& 3

Determining "Sameness" of Two Organisms

If organisms are speciated (e.g., both are *B. cereus*), but no antibiograms are done, or they are done for only one of the isolates, it is assumed that the organisms are the same.

Criteria 2
& 3

Determining "Sameness" of Two Organisms

If the organisms from the cultures have antibiograms that are different for two or more antimicrobial agents, it is assumed that the organisms are not the same.

Examples:

Organism Name	Isolate A	Isolate B	Interpret as...
<i>S. epidermidis</i>	All drugs S	All drugs S	Same
<i>S. epidermidis</i>	OX R GENT R	OX S GENT S	Different
<i>Corynebacterium</i> spp.	PENG R CIPRO S	PENG S CIPRO R	Different
<i>Strep viridans</i>	All drugs S	All drugs S except ERYTH (R)	Same

Collecting Blood Culture Specimens

Ideally, blood specimens for culture should be obtained from two to four blood draws from separate venipuncture sites (e.g., right and left antecubital veins), not through a vascular catheter.



These blood draws should be performed simultaneously or over a short period of time (i.e., within a few hours).

If your facility does not currently obtain specimens using this technique, you may still report BSIs using the NHSN criteria, but you should work with appropriate personnel to facilitate better specimen collection practices for blood cultures.

Central Line-associated Bloodstream Infection (CLABSI)

- Primary BSI that develops in a patient that had a central line at the time of or within the 48 hours prior to infection onset
- Primary BSI is a BSI that is not secondary to an infection at another site

NOTE: There is no minimum time period that the central line must be in place in order for the BSI to be considered central line-associated.

Secondary BSI

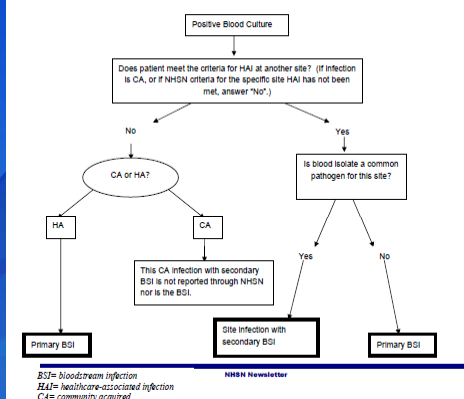
- If the primary HAI site is cultured, the secondary BSI must yield culture of the same organism and exhibit the same antibiogram as that of the primary site
 - Patient with identical *E coli* isolates from urine and blood specimens meets criteria for an SUTI HAI; report as SUTI with secondary BSI
- If the primary HAI site is not cultured, the secondary BSI must be a pathogen appropriate for the primary site
 - Patient with post-op abscess detected by CT scan meets criteria for GI tract infection and has positive blood culture for *Bacteroides fragilis*; report as SSI-GIT with secondary BSI
- HAI definition and site-specific criteria found in Chapter 17 of NHSN Manual (latest version July 2010)

http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

What is the meaning of the statement "not related to infection at another site" in relation to a positive blood culture?

The goal of NHSN (CDC) infection site criteria is to identify and consistently categorize infections that are healthcare-associated into major and specific infection sites or types. Several of the criteria include the caveat that signs, symptoms, and laboratory findings may not be related to infection at another site. When assessing positive blood cultures in particular, one must be sure that there is no other CDC-defined primary source of HAI that may have seeded the bloodstream secondarily, otherwise the infection may be misclassified as a primary BSI or erroneously associated with the use of a central line.

If the CDC criteria for the remote infection require a culture, then the organism(s) cultured from that site must match the organism(s) in the blood culture. In instances where a culture of the involved site is not required for NHSN criteria, and no such culture is collected, it may be necessary to use clinical judgment regarding the likelihood of it causing a secondary blood stream infection (BSI). In these instances, the following guidance may be used to help determine the relevance of remote source of infection to a positive blood culture:



<http://www.cdc.gov/nhsn/PDFs/Newsletters/May09.pdf>

Central Line

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

Great Vessels

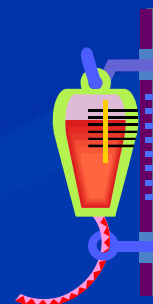
The following are considered great vessels for the purpose of reporting CLABSI and counting central-line days

- Internal jugular veins
- Subclavian veins
- Brachiocephalic veins
- Superior vena cava
- Aorta
- Pulmonary artery
- Inferior vena cava
- Common Iliac veins
- External iliac veins
- Femoral veins



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



Key Terms

- Location of attribution
 - CLABSIs are attributed to the inpatient location where the patient was assigned on the date the HAI was identified.
- Transfer rule
 - If a device-associated infection develops within 48 hours of transfer from one inpatient location to another, the infection is attributed to the transferring location.

http://www.cdc.gov/nhsn/PDFs/pscManual/16pscKeyTerms_current.pdf

Case Studies

Case 1



James is a 28 year old patient with a central line who is 3 days post colon surgery. He spikes a fever and has blood cultures x2 drawn; 1 set is negative, 1 bottle from the second set is positive for *Bacillus cereus*. His doctor orders antibiotics and notes "postop sepsis" in the chart.

How should this be reported?

Not an HAI

Case 2

- A patient with a PICC placed in another facility has been in our hospital for the past week and now has a blood culture growing *Acinetobacter baumannii*.

Is this a BSI?

Yes, Criterion 1

Is this a CLABSI?

Yes

Should it be attributed to our hospital or to the facility that placed the PICC?

Our hospital



Case 3

- Day 1: One-day-old twin male infant admitted and emergently transferred to Neonatal Intensive Care Unit. Vented in isolette during transport. Peripheral IV in scalp, IV fluid at 1cc/hr with Prostin (0.05mcg/kg/min) started prior to transport, and umbilical catheter inserted upon admission to NICU.
- Neonatal History: Gestational age = term infant, birth wt. 1810 grams, Apgars 8 & 9. A cardiac echocardiogram showed transposition of the great vessels of the heart.

Case 3

- Day 3: Repair of Patent Ductus Arteriosus and Atrial Septal Defect performed; later that day the umbilical catheter site was noted to be slightly red.
- Day 4: Umbilical catheter site remained slightly red and a low grade temperature developed.
- Day 5: Umbilical line was pulled, blood cultures were drawn and the umbilical catheter tip was sent for culture.
- Day 6: Continued elevated temp of 38.1°C and antibiotics were started.

Case 3

- Day 7: Blood cultures and umbilical catheter tip all were positive for *Staphylococcus aureus* (MSSA). Antibiotics adjusted.
- Does this patient have an HAI?
 - **Yes, LCBI criterion 1**
- Is it central line-associated?
 - **Yes, to the umbilical catheter**
- If the patient also had a non-umbilical central line at the same time, how would the device-day data be recorded?
 - **As 1 umbilical catheter day (see PS Manual chapter 14, p 22, May 2010)**

Case 4

An 81 year old patient was in MICU for a week with a central line in place the entire time. Just prior to discharge from the MICU to a medical ward, the line was pulled. Within 36 hours, she became disoriented and hypotensive. Blood cultures x 2 were drawn and 3 of 4 bottles grew micrococci and coagulase-negative staphylococci.

Is this a BSI?	Yes, Criterion 2
Is this a CLABSI?	Yes
Location of attribution?	MICU
Organism(s)?	Micrococci and CoNS

Case 5

- Patient admitted to MICU on 1/21 due to GI bleed
- L subclavian line placed on 1/22
- 1/28 patient spikes fever (102.1°F); blood specimen for culture drawn through the line x 1; line removed and tip sent for culture
- 1/30 blood and tip cultures positive for coagulase-negative staphylococci

Is this a CLABSI? **No**

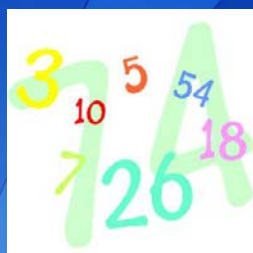
Case 6

- Patient had a tunneled central line placed in your hospital due to failure of a hemodialysis fistula on April 8. He was discharged after 3 days and continued on outpatient hemodialysis in the community.
- Patient was readmitted on August 22 with overwhelming sepsis with positive VRE blood cultures, and expired in the ICU.
- Would this be a CLABSI attributed to your hospital because the tunneled central line was inserted in your hospital and the infection occurred within one year of insertion?
 - No; tunneled lines are not implants since they are accessed routinely and the infection occurred more than 48 hours after discharge from your hospital.
 - This is likely attributable to the outpatient dialysis facility and you should notify them.

CLABSI Summary Data

Summary data are used to calculate HAI incidence density rates, device utilization ratios, and standardized infection ratios

1. Patient days
2. Central line-days



Incidence density rate for CLABSI =
 $\frac{\# \text{ CLABSI}}{\# \text{ Central line-days}} \times 1000$

CL utilization ratio = $\frac{\# \text{ Central line-days}}{\# \text{ Patient days}}$

Standardized infection ratio (SIR) = O / E

Collecting Summary Data

Patient Days: At the same time every day, count the number of patients on the unit.

Device Days: Data collected differs according to surveillance location, however the constants are:

- Count at the same time every day
- Count the number of patients with one or more devices (e.g., pt with 2 central lines gets counted as 1 day)

Collecting Summary Data

- Specialty Care Area (SCA)*:
 - # patients with permanent central lines
 - # patients with temporary central lines
 - Patients with both, count as temporary line day*

*Adult and pediatric SCA locations: Long Term Acute Care, Bone Marrow Transplant, Acute Dialysis, Hematology/Oncology, Solid Organ Transplant

Collecting Summary Data

- Neonatal Intensive Care Unit (NICU): stratified by birthweight:
 - # patients with central line
 - # patients with umbilical line
 - Patients with both, count as umbilical line day*

Patient days must be stratified by birthweight also.

Collecting Summary Data

If count at noon, how many central line-days?

A.6

B.5

C.3

D.2

E.0

Patient	ADT	Vascular
101 Smith	Home @ 9 am	PICC home w/ pt
102 Washington	Day 3	Peripheral IV
103 Doe	Adm 10 am	IJ CL inserted at 2 pm
104 -----		
105 Chen	Day 2	Swan Ganz and PICC
106 Jones	Day 8	Subclavian CL cont
107 Gonzales	D/C to nursing home @ 4 pm	Peripheral line d/c at 1 pm

Entering ICU/Other Locations Summary Data into NHSN

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

Mandatory fields marked with *

Facility ID*: 10000 (DHQP Memorial Hospital)

Location Code*: BICU3 - BURN ICU 3

Month*: January

Year*: 2010

Total Patient Days*: 505

Central Line Days*: 100

Urinary Catheter Days:

Ventilator Days:

Buttons: Edit, Delete, Back

Entering SCA Summary Data

Denominators for Specialty Care Area (SCA)

Save of Summary Data successful.

Mandatory fields marked with *

Facility ID*: 10000 (DHQP Memorial Hospital)

Location Code*: SCA - SPECIALTY CARE AREA

Month*: January

Year*: 2010

Total Patient Days*: 100

Temporary Central Line Days*: 20

Permanent Central Line Days*: 60

Urinary Catheter Days*: 100

Ventilator Days:

Buttons: Edit, Delete, Back

Entering NICU Summary Data

[NHSN Home](#) | Logged into DHQP Memorial Hospital (ID 10000) as KATHY.
 Facility DHQP Memorial Hospital (ID 10000) is following the PS component.

Neonatal Intensive Care Unit

HELP
Print PDF Form

Mandatory fields marked with *

Facility ID*: 10000 (DHQP Memorial Hospital)
Location Code*: NICU 3 - LEVEL 3 NICU
Month*: January
Year*: 2010

Umbilical catheters

Other central lines

Birth Wt.	Patient Days*	U/C Days*	CL Days*	Vent Days*
<=750	10	5	5	10
751-1000	10	5	5	10
1001-1500	10	5	5	10
1501-2500	101	5	5	10
>2500	10	5	5	10

CLABSI Analysis: Standardized Infection Ratio (SIR)

Using the Standardized Infection Ratio (SIR) as an HAI Metric

- Based on Standardized Mortality Ratio (SMR)
 - Used extensively to report public health data
 - Compares the mortality experience in one facility to that in a standard population (referent population)
 - SIR compares the HAI experience
- SIR = Number observed HAI / number expected HAI**
SIR = O / E

If the observed # of HAI = expected # HAI, the SIR will be 1
SIR >1 = more HAI than expected
SIR <1 = fewer HAI than expected

Advantages of SIR as a Device-associated HAI Metric

- **Adjusts for factors most often affecting infection risk**
 - Location type
 - Facility characteristics (for some location types)
 - For NICU, birthweight category
- **Easier to understand than incidence density rates**

Computing a Facility's SIR for Device-associated HAI

- **Number of Observed (O)**
 - Number of DA-HAI at that facility during time period
- **Number of Expected (E)**
 - Multiply the referent stratum-specific rates by the number of device-days in each stratum; divide by 1000
 - Sum the number of expected HAI across the strata



Computing a Facility's CLABSI SIR: Example

Type of ICU Location	# CLABSI	# Central line-days	CLABSI Rate	NHSN Rate (referent)	p-value	Expected # of CLABSI ^a
Medical cardiac	2	380	5.26	2.0	0.09	0.76
Medical	1	257	3.89	2.6	0.15	0.67
Med/Surg	3	627	4.78	1.5	0.11	0.94
Neurosurg	2	712	2.81	2.5	0.32	1.78
Total	8	1976	4.05	---	---	4.15

SIR = 1.98^b

^aCalculated as the NHSN rate x # of central line-days / 1000 ; for Medical cardiac ICU, $2.0 \times 380 / 1000 = 0.76$

^bCalculated as the total # of CLABSI observed divided by the total # CLABSI expected; $8 / 4.15 = 1.98$ (i.e., 98% more CLABSI than expected)

CLABSI Data Analysis in NHSN

Event

Procedure

Summary Data

Import/Export

Analysis

- Generate Data Sets
- Output Options**
- Statistics Calculator

Surveys

Users

Facility

Group

Log Out

Analysis Output Options

Expand All Collapse All

- Device-Associated Module
 - All Device-Associated Events
 - Central Line-Associated BSI
 - CDC Defined Output
 - Line Listing - All CLAB Events Run Modify
 - Frequency Table - All CLAB Events Run Modify
 - Bar Chart - All CLAB Events Run Modify
 - Pie Chart - All CLAB Events Run Modify
 - Rate Table - CLAB Data for ICU-Other Run Modify
 - Control Chart - CLAB Data for ICU-Other Run Modify
 - Rate Table - UCAB/CLAB Data for NICU Run Modify
 - Control Chart - UCAB/CLAB Data for NICU Run Modify
 - Rate Table - CLAB Data for SCA Run Modify
 - Control Chart - CLAB Data for SCA Run Modify
 - SIR - In-Plan CLAB Data Run Modify
 - SIR - All CLAB Data Run Modify
- Ventilator-Associated PNEU

4 Range:CLAB_RATESICU/summary/yr 2010 to 2010

orgID=10000 loccd=IN:ACUTE:CC:M

location	summary/yr	CLABcount	numCLDays	CLABRate	CLAB_Mean	IDR_pval	IDR_pctl	numPatDays	LineDU	LineDU_Mean	P_pval	P_pctl
AUNIT	2010M01	0	25	0.0	2.6	0.9378	0	100	0.25	0.61	0.0000	7

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
Data contained in this report were last generated on July 29, 2010 at 2:38 PM.

National Healthcare Safety Network
Rate Table for Central Line-Associated BSI Data for ICU-Other
As of: July 29, 2010 at 3:09 PM
Date Range: CLAB_RATESICU/summary/yr 2010 to 2010

orgID=10000 loccd=IN:ACUTE:CC:MS

location	summary/yr	CLABcount	numCLDays	CLABRate	CLAB_Mean	IDR_pval	IDR_pctl	numPatDays	LineDU	LineDU_Mean	P_pval	P_pctl
3 MS	2010M01	0	200	0.0	2.1	0.6560	10	584	0.34	0.59	0.0000	9
3 MS	2010M02	1	403	2.5	2.1	0.5724	67	591	0.68	0.59	0.0000	73

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
Data contained in this report were last generated on July 29, 2010 at 2:38 PM.

National Healthcare Safety Network
Rate Table for Central Line-Associated BSI Data for ICU-Other
As of: July 29, 2010 at 3:09 PM
Date Range: CLAB_RATESICU/summary/yr 2010 to 2010

orgID=10000 loccd=IN:ACUTE:WARD:BHV

location	summary/yr	CLABcount	numCLDays	CLABRate	CLAB_Mean	IDR_pval	IDR_pctl	numPatDays	LineDU	LineDU_Mean	P_pval	P_pctl
BHV	2010M04	0	100	0.0	0.0					0.02		

CLABSI Rate Table
for ICU/Other

Rate Table for Umb Cath/Central Line-Associated BSI Data for NICU

CLAB Rate Data

As of: July 29, 2010 at 3:13 PM

Date Range: All CLAB_RATESNICU

CLABSI Rate Table for NICU

OrgID=10000 loccdc=IN:ACUTE:CC:NURS

Location	Birthwtcode	summaryYr	CLABCount	numCLDays	CLABRate	CLAB_Mean	IDR1_pval	IDR1_pctl	numPatDays	LineDU	LineDU_Mean	P1_pval	P1_pctl
956800	A	2009M08	0	2	0.0	3.9	0.9922	25	6	0.33	0.35	0.5000	32
956800	A	2009M12	0	8	0.0	3.9	0.9690	25	13	0.62	0.35	0.0467	91
956800	B	2009M08	0	2	0.0	3.4	0.9933	25	6	0.33	0.32	0.5000	50
956800	B	2009M12	0	5	0.0	3.4	0.9834	25	10	0.50	0.32	0.1869	85
956800	C	2009M08	0	2	0.0	2.4	0.9951	25	6	0.33	0.24	0.4747	68
956800	C	2009M12	0	0	.	2.4	.	.	4	0.00	0.24	0.3354	0
956800	D	2009M08	0	2	0.0	2.4	0.9952	25	6	0.33	0.16	0.2591	83
956800	D	2009M12	0	0	.	2.4	.	.	8	0.00	0.16	0.2174	0
956800	E	2009M08	0	2	0.0	1.9	0.9962	50	6	0.33	0.20	0.3715	85
956800	E	2009M12	0	5	0.0	1.9	0.9906	50	15	0.33	0.20	0.1574	85
NICU 3	A	2005M01	0	13	0.0	3.9	0.9501	25	28	0.46	0.35	0.1541	81
NICU 3	A	2005M04	0	7	0.0	3.9	0.9728	25	28	0.25	0.35	0.1694	32
NICU 3	A	2005M06	0	3	0.0	3.9	0.9883	25	21	0.14	0.35	0.0361	5
NICU 3	A	2005M07	0	8	0.0	3.9	0.9690	25	16	0.50	0.35	0.1693	81
NICU 3	A	2005M09	0	13	0.0	3.9	0.9501	25	113	0.12	0.35	0.0000	5
NICU 3	A	2005M12	0	3	0.0	3.9	0.9883	25	14	0.21	0.35	0.2072	12
NICU 3	A	2006M01	0	17	0.0	3.9	0.9353	25	45	0.38	0.35	0.4313	61
NICU 3	A	2006M02	0	3	0.0	3.9	0.9883	25	10	0.30	0.35	0.4886	32
NICU 3	A	2006M04	0	2	0.0	3.9	0.9922	25	12	0.17	0.35	0.1452	12
NICU 3	A	2006M05	0	14	0.0	3.9	0.9464	25	45	0.31	0.35	0.3263	32
NICU 3	A	2006M06	0	35	0.0	3.9	0.8714	25	56	0.63	0.35	0.0000	91
NICU 3	A	2007M05	0	55	0.0	3.9	0.8054	25	76	0.72	0.35	0.0000	95
NICU 3	A	2007M06	0	75	0.0	3.9	0.7445	25	88	0.85	0.35	0.0000	100
NICU 3	A	2007M12	0	10	0.0	3.9	0.9614	25	11	0.91	0.35	0.0002	100
NICU 3	A	2009M04	0	0	.	3.9	.	.	0	.	0.35	.	.
NICU 3	A	2010M01	0	5	0.0	3.9	0.9805	25	10	0.50	0.35	0.2635	81

Sample SIR CLABSI Output

National Healthcare Safety Network

SIR for In-Plan Central Line-Associated BSI Data - By OrgID

As of: October 4, 2010 at 1:03 PM

Date Range: All CLAB_RATESNICU

if (((bsiPlan = "Y"))

Orgid=10018

orgid	summaryYr	infCount	numExp	numCLDays	SIR	SIR_pval	SIR95CI
10018	2009H1	9	5.640	3213	1.60	0.1179	0.832, 2.784
10018	2010H1	0	1.095	464	0.00	0.1179	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
 Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
 Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
 Data contained in this report were last generated on September 29, 2010 at 11:20 AM.

http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010_final.pdf

References

- ¹Scott, RD. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf accessed April 12, 2010.
- ² Kluger DM, Maki DG. The relative risk of intravascular device related bloodstream infections in adults (Abstract). In: Abstracts of the 39th Interscience Conference on Antimicrobial Agents and Chemotherapy. San Francisco, CA: American Society for Microbiology. 1999; p514.



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