

2011 Louisiana NHSN Statewide Training



Surgical Site Infections (SSI)

Infectious Disease
Epidemiology
Section

Louisiana Office of
Public Health

1450 Poydras
Street, Ste. 2155

New Orleans, LA
70112

Catheter-associated Urinary Tract Infections
(CAUTI)

Central Line-associated Bloodstream
Infections (CLABSI)

Standardized Infection Ratio (SIR)

CMS Inpatient Prospective Payment System
(IPPS) 2012



**Protocols and Definitions
Procedure-associated Module**

Surgical Site Infections (SSI)
Post-Procedure Pneumonia (PPP)

Target Audience

This training is designed for those who will collect and analyze Patient Safety Component data or enroll a hospital into NHSN.

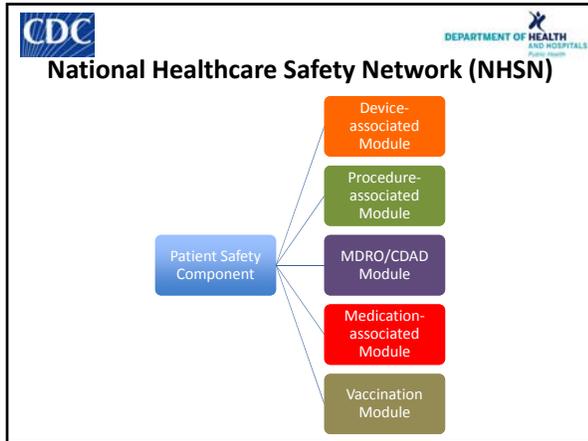
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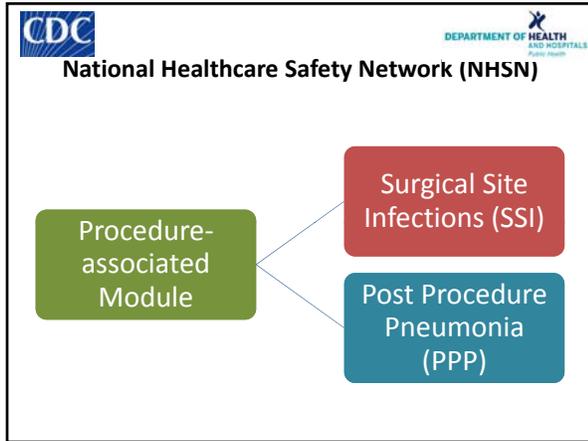
- NHSN Facility Administrator
- Patient Safety Primary Contact
- Infection Control Professional (ICP)
- Epidemiologist
- Microbiologist
- Pharmacist
- Data entry staff

Objectives

1. Describe the NHSN Procedure-associated Module
2. Review key terms and definitions of infection data fields used for reporting surgical site infection (SSI) and post-procedure pneumonia (PPP) events
3. Define the rates obtained using this module





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- The diagram lists the NHSN Surveillance Methodology, which includes: Active, Patient-based, Prospective, Priority-directed, and Risk-adjusted, incidence rates.
- Active
 - Patient-based
 - Prospective
 - Priority-directed
 - Risk-adjusted, incidence rates

 **Epidemiology** 

- SSIs are the third most frequently reported HAI
- Account for 14-16% of all HAIs among hospitalized patients
- Remains a substantial cause of morbidity and mortality even with recent advances in prevention

 **Procedure-associated Module Protocol** 

- First, choose which procedures* will be monitored during the month
 - Indicate the procedure category
 - Indicate whether the procedure was performed on inpatients only, or outpatients only, or both in- and outpatients
 - Example: Cholecystectomy procedures (CHOL) for in- and outpatients (BOTH)

*Currently, the only procedures included in the protocol are "NHSN Operative Procedures"

 **Procedure-associated Module Protocol** 

- Second, for the procedure(s) selected, choose which events will be monitored
 - Surgical site infections (SSI)
 - Post-procedure pneumonia (PPP)




Monthly Reporting Plan

- When following the Procedure-associated module, enter the procedures and events into the Monthly Reporting Plan
- Remember, the Monthly Reporting Plan informs CDC which modules a facility is following during a given month
- A facility must enter a Plan for every month of the year, even those in which no modules are followed
- A facility may enter data only for months in which Plans are on file




Monitoring of Device- and Procedure associated Events

Device-Associated Module

Locations	CLA	BSI	DI	VAP	CAUTI
2 EAST - HEM/ONC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SICU - SURGICAL ICU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NICU3 - LEVEL 3 NICU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OUTDIAL - OUTPATIENT DIALYSIS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Procedure-Associated Module

Procedures	SSI	Post-procedure PNEU
CRAN - Craniotomy	IN - Inpatient	IN - Inpatient
CHOL - Gallbladder surgery	BOTH - In and outpatient	
HIPRO - Hip prosthesis	IN - Inpatient	




NHSN Operative Procedure

- An operative procedure...
 - Is performed on a patient who is an NHSN inpatient or an NHSN outpatient
 - Takes place during an operation where a surgeon makes a skin or mucous membrane incision (including laparoscopic approach) and primarily closes the incision before the patient leaves the operating room
 - Surgery conducted in defined operating room suite
 - Is represented by an NHSN operative procedure code
 - Laparoscopic & traditional approaches included

 **NHSN Operative Procedure** 

- Each NHSN operative procedure category consists of a group of ICD-9-CM codes

Example: CBGB (CABG with chest and donor site incisions) = ICD-9 codes 36.10 – 36.14, 36.19

- When monitoring a specific NHSN operative procedure category, all the ICD-9 codes within that category that are done in your facility must be followed

*Table 11 in the NHSN Patient Safety Component Protocol document

 **NHSN Inpatient** 

- A patient whose date of admission to the healthcare facility and the date of discharge are different calendar days

 **NHSN Outpatient** 

- A patient whose date of admission to the healthcare facility and the date of discharge are the same calendar day

 **Operating Room** 

- A patient care area that meets the American Institute of Architects (AIA) criteria for an operating room
- May include an operating room, c-section room, interventional radiology room, or cardiac cath lab

 **Examples of SSI Data Sources** 

- Microbiology reports
- Infection control rounds on nursing units
- Pharmacy reports for antimicrobial use
- Temperature chart
- Operating room report of surgeries
- Use post-discharge surveillance methods for SSI

 **Examples of SSI – Post discharge Sources** 

- Readmission to hospital
- Emergency Department or Clinic records
- Health care system/ HMO may have pharmacy records for antimicrobial agents
- Surgeon surveys – phone or mail
- Patient surveys – less reliable

 **Superficial Incisional SSI** 

Infection occurs within 30 days after the operative procedure and involves only skin and subcutaneous tissue of the incision and patient has at least one of the following:

- purulent drainage from the superficial incision.
- organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision.
- at least one of the following signs or symptoms of infection: pain or tenderness, localized swelling, redness, or heat, and superficial incision is deliberately opened by surgeon, and is culture-positive or not cultured. A culture-negative finding does not meet this criterion.
- diagnosis of superficial incisional SSI by the surgeon or attending physician.

 **Deep Incisional SSI** 

Infection occurs within 30 days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure and involves deep soft tissues (e.g., fascial and muscle layers) of the incision and patient has at least one of the following:

- purulent drainage from the deep incision but not from the organ/space component of the surgical site
- deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured when the patient has at least one of the following signs or symptoms: fever (>38°C), or localized pain or tenderness. A culture-negative finding does not meet this criterion.
- an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination
- diagnosis of a deep incisional SSI by a surgeon or attending physician.

 **Definitions** 

- **Superficial Incisional Primary (SIP)**— a superficial incisional SSI that is identified in the primary incision in the patient that has had an operation with one or more incisions (e.g., C-section incision or chest incision for CBGB)
- **Deep Incisional Primary (DIP)**— a deep incisional SSI that is identified in a primary incision in the patient that has had an operation with one or more incisions

 **Definitions** 

- Superficial Incisional Secondary (SIS) – a superficial incisional SSI that is identified in the secondary incision in the patient that has had an operation with more than one incisions (e.g., donor site [leg] incision for CBGB)
- Deep Incisional Secondary (DIS) – a deep incisional SSI that is identified in the secondary incision in the patient that has had an operation with more than one incisions (e.g., donor site [leg] incision for CBGB)

 **Organ/ Space SSI** 

Infection occurs within 30 days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure

and

infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure

and

patient has at least one of the following:

- purulent drainage from a drain that is placed through a stab wound into the organ/space
- organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space
- an abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination
- diagnosis of an organ/space SSI by a surgeon or attending physician.

 **Organ/ Space SSI** 

- Specific sites are assigned to organ/space SSI to further identify the location of the infection
- Example: Report appendectomy with subsequent subdiaphragmatic abscess as an organ/space SSI at the intraabdominal specific site (SSI-IAB)





Organ/ Space SSI

- Occasionally an organ/space infection drains through the incision. Such infection generally does not involve reoperation and is considered a complication of the incision. Therefore, classify it as a deep incisional SSI.
- Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as SSI-MED rather than SSI-BONE.
- Report CSF shunt infection as SSI-MEN if it occurs ≤ 1 year of placement; if later or after manipulation/ access, it is considered CNS-MEN and is not reportable under this manual
- Report spinal abscess with meningitis as SSI-MEN following spinal surgery.





Organ/ Space SSI

- If a patient has several NHSN operative procedures prior to an infection, report the operative procedure code of the operation that was performed most closely in time prior to the infection date, unless there is evidence that the infection is associated with a different operation.
- If more than one NHSN procedure was done through a single incision, attempt to determine the procedure that is thought to be associated with the infection. If it is not clear (as is often the case when the infection is a superficial incisional SSI), use the NHSN Principal Operative Procedure Selection Lists (Table 3) to select which operative procedure to report.





Specific Sites of an Organ/Space SSI

BONE	Osteomyelitis	JNT	Joint or bursa
BRST	Breast abscess or mastitis	LUNG	Other infections of the respiratory tract
CARD	Myocarditis or pericarditis	MED	Mediastinitis
DISC	Disc space	ORAL	Oral cavity
EAR	Ear, mastoid	OREP	Other reproductive tract
EMET	Endometritis	OUTI	Other urinary tract
ENDO	Endocarditis	SA	Spinal abscess without meningitis
EYE	Eye, other than conjunctivitis	SINU	Sinusitis
GIT	GI tract	UR	Upper respiratory tract
IAB	Intraabdominal, NOS	VASC	Arterial or venous
IC	Intracranial, brain abscess or dura	VCUF	Vaginal cuff





SSI Numerator Data

- Use Surgical Site Infection (SSI) form for each SSI that is identified during the month
- Indicate the specific site of the SSI
 - SIP
 - DIP
 - SIS
 - DIS
 - Organ/Space





Completed SSI Form

NHSN Page 1 of 3 **Surgical Site Infection (SSI)** OMB No. 0920-0011 Rev. 06/10/2011

*Required for saving **Required for completion

Facility ID:	Event #:
*Patient ID: 1131353	Social Security #:
Secondary ID:	
Patient Name, Last: Green	First: Kelly
Middle:	
*Gender: F	*Date of Birth: 04/13/62
Ethnicity (Specify):	Race (Specify):
*Event Type: SSI	*Date of Event: 10/25/09
*NHSN Procedure Code: C00.0	ICD-9-CM Procedure Code:
*Date of Procedure: 10/11/09	*Outpatient Procedure: <input checked="" type="radio"/> Yes <input type="radio"/> No
*MICRO Infection Surveillance: <input type="checkbox"/> Yes, this event's pathogen & location are in plan for the MICRO/CDAD Module <input checked="" type="checkbox"/> No, this event's pathogen & location are not in plan for the MICRO/CDAD Module	
MICRO/CDAD Module	
*Date Admitted to Facility: 10/11/09	Location:

*Specify Event:

<input type="checkbox"/> Superficial Incisional Primary (SIP)	<input checked="" type="checkbox"/> Deep Incisional Primary (DIP)
<input type="checkbox"/> Superficial Incisional Secondary (SIS)	<input type="checkbox"/> Deep Incisional Secondary (DIS)
<input type="checkbox"/> Organ/Space (specify site):	

*Specify Criteria Used (check all that apply):

<input type="checkbox"/> Signs & Symptoms	<input type="checkbox"/> Lab/cultures
<input type="checkbox"/> Purulent drainage or material	<input checked="" type="checkbox"/> Positive culture
<input checked="" type="checkbox"/> Pain or tenderness	<input type="checkbox"/> Not cultured
<input type="checkbox"/> Localized swelling	<input type="checkbox"/> Positive blood culture
<input type="checkbox"/> Redness	





Pathogen Data

- List up to 3 pathogens for each SSI identified (in rank order of importance)
- For each pathogen, complete information about antimicrobial susceptibles
- Only certain bug/drug combinations are required, but up to 20 drugs can be listed with susceptibles

 **Data Sources for Denominators - Procedures** 

- Operating room record review – patient medical record
- OR logs
- ICD-9-CM procedure codes

 **SSI Denominator Data** 

- Complete a Denominator for Procedure form for each procedure that is selected for surveillance

– Example : If you are monitoring APPY, complete a Denominator for Procedure form for every patient that has an appendectomy during the month

 **SSI Denominator Data** 

- Some operative procedures have more than one incision
- Example: CBGB in which an incision to harvest a donor vessel is made that is separate from the primary incision
- Record these procedures only one time – this is no separate procedure code for the donor harvest site

 **Duration** 

- Record the hours and minutes between the skin incision and skin closure
- Do not record anesthesia time
- If the patient goes to the OR more than once during the same admission and another procedure is performed through the same incision within 24 hours of the original incision, report the combined duration of operation for both procedures

 **Wound Classification** 

- Clean (I)
 - Uninfected wound, no inflammation; respiratory, alimentary, genital or uninfected urinary tracts not entered; primarily closed; closed drainage, if needed
- Clean contaminated (II)
 - Respiratory, alimentary, genital, or urinary tracts entered under controlled conditions and without unusual contamination; include operations on biliary tract, appendix, vagina, oropharynx

 **Wound Classification Cont'd.** 

- Contaminated (III)
 - Open, fresh, accidental wounds; major breaks in sterile technique or gross spillage from GI tract; includes incisions into acute, nonpurulent inflamed tissues
- Dirty/ Infected (IV)
 - Old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera

 **ASA* Class** 

1 = Normally healthy patient
2 = Patient with mild systemic disease
3 = Patient with severe systemic disease that is not incapacitating
4 = Patient with an incapacitating systemic disease that is a constant threat to life
5 = Moribund patient not expected to survive for 24 hours with or without operation

*American Society of Anesthesiologists

 **Endoscope** 

- If the entire operative procedure was performed using an endoscope/ laparoscope, select "Yes"
- Otherwise select "No"
- For CBGB, if the donor vessel was harvested using a laparoscope, select "Yes"

 **Implant** 

- A nonhuman-derived implantable foreign body (e.g., prosthetic heart valve, hip prosthesis) that is permanently placed in a patient during an NHSN operative procedure and is not routinely manipulated for diagnostic or therapeutic purposes
- Screws, wires, and mesh that are left in place are considered implants (currently staples are also considered implants). This list is not all inclusive.

 **Non-autologous Transplant** 

- Transplant: Human cells, tissues, organs, or cellular- or tissue-based products that are placed into a human recipient via grafting, infusing, or transfer. Examples include: heart valves, organs, ligaments, bone, blood vessels, sin, corneas, and bone marrow cells.
 - Autologous or “autograft” transplants are products that originate from the patient’s own bown.
 - Non-autologous or “allograft” transplants are tissues or other products derived form another human body, either a donor cadaver or a live donor.

 **More...** 

- Emergency
 - Nonelective, unscheduled operative procedure
- Trauma
 - Operative procedure performed because of blunt or penetrating injury to patient
- General anesthesia
 - Administration of drugs or gases that enter the general circulation and affect the central nervous system to render the patient pain-free, amnesic, unconscious, and often paralyzed with relaxed muscles

 **Surgeon Code** 

- Option field
- Select the code of the surgeon who performed the principal operative procedure



SSI Rate



$$\text{SSI Rate} = \frac{\text{\# SSI in patients during specified time*}}{\text{\# operation during specifies time}} \times 100$$

*Stratify by:

- Types of NHSN operative procedure
- NNIS basic or modified risk index



NHSN Basic Risk Index



- For each patient that has a specific NHSN procedure, assign a risk index based on the following:

Criteria	Points
Operation > duration cut point	1 point
Wound class III or IV	1 point
ASA score ≥ 3	1 point



Example of Assigning Risk Index Categories



Elements	Pt #1	Pt #2	Pt #3
Operation > duration cut point	Y	N	Y
Wound class	IV	I	II
ASA score	4	1	1
NHSN Risk Index category	3	0	1



Surgical Patient Component SSI Rates by Operation & Risk Index

DEPARTMENT OF HEALTH AND HOSPITALS
Public Health

Table 24. SSI rates* following inpatient coronary artery bypass graft procedure, by risk index category and specific site, PA module, 2006 through 2007

Infection site	0		1		2	
	No. SSI	Rate	No. SSI	Rate	No. SSI	Rate
Secondary (donor site)						
Secondary (donor site)	1	0.10	342	0.77	264	1.68
Superficial incisional	1	0.10	288	0.61	211	1.34
Deep incisional	0	0.00	74	0.16	55	0.35
Primary (chest site)						
Primary (chest site)	2	0.20	1037	2.19	591	3.19
Superficial incisional	1	0.10	451	0.95	197	1.26
Deep incisional	1	0.10	315	0.67	162	1.03
Cytopractice	0	0.00	271	0.57	142	0.90
Total	3	0.30	1319	2.96	767	4.88

NOTE: Denominators for the risk categories are as follows: category 0 = 102; category 1 = 4129; category 2 = 11,706.
CICU, coronary artery bypass graft with primary (chest) and secondary (donor) incisions.
*Per 100 operations.

NHSN Report 2008; AJIC Jun 37(5) 425

- 
- ### Limitations of the Risk Index: Moving to Risk Modeling Methods
- DEPARTMENT OF HEALTH AND HOSPITALS
Public Health
- Risk index relies on three risk factors only
 - These same risk factors must differentiate risk for all types of procedures
 - The relative contribution of these factors are constrained to be equal
 - What can be done to improve risk adjustment?

- 
- ### Improved Risk Adjustment
- DEPARTMENT OF HEALTH AND HOSPITALS
Public Health
- *Risk index relies on three risk factors only*
 - Allow all available factors to be considered
 - *These same risk factors must differentiate risk for all types of procedures*
 - Allow the set of risk factors to be procedure-specific
 - *The relative contribution of these factors are constrained to be equal*
 - Allow each factor's contribution to vary according to its significant association with risk
 - *What can be done to improve risk adjustment?*
 - Build logistic regression models

CDC **Available NHSN Risk Factors** DEPARTMENT OF HEALTH AND HOSPITALS Public Health

For All Procedures		
Wound class	General anesthesia	Age
ASA score	Emergency	Gender
Duration of procedure	Trauma	Endoscope
Bed size	Med School Affiliation	
For C-section		
Weight	Height	Duration of labor
Estimated blood loss		
For Spinal Fusion		
Spinal level	Diabetes Mellitus	Approach/Technique
For Hip/Knee prosthesis		
Total/ Partial	Primary/ Revision	

CDC **Using the Standardized Infection Ratio for HAI Analysis** DEPARTMENT OF HEALTH AND HOSPITALS Public Health

- Based on Standardized Mortality Ratio (SMR)
 - Used extensively in public health research
- Compares the experience in one facility to that in a standard population (referent population)

Observed / # Expected

Quick and Dirty:
 If the expected # of infections = # observed, the ratio will = **1**
 >1 = more infections than expected
 <1 = fewer infections than expected

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Quick and Dirty:
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 <1 = fewer infections than expected

 **SSI Analysis Options** 

- SSI rates will still be available using the legacy NNIS risk index
- Advanced output section
- No NHSN pooled means available

 **October SIR Newsletter** 



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

 **PPP Numerator Data** 

- Hospital-associated pneumonia that occurs in post-operative inpatient
- Using the Pneumonia form, indicate the type and date of operative procedure
- Indicate the specific type of pneumonia
 - PNU1 – Clinically defined pneumonia
 - PNU2 – Pneumonia with common bacterial pathogens
 - PNU3 – Pneumonia in immunocompromised patients





PPP Numerator Data

- Indicate presence or absence of ventilator, secondary BSI, death
- Do not conduct post-discharge surveillance, report those detected only during initial hospitalization
- Do not report PPP following outpatient operative procedures





Pathogen Data

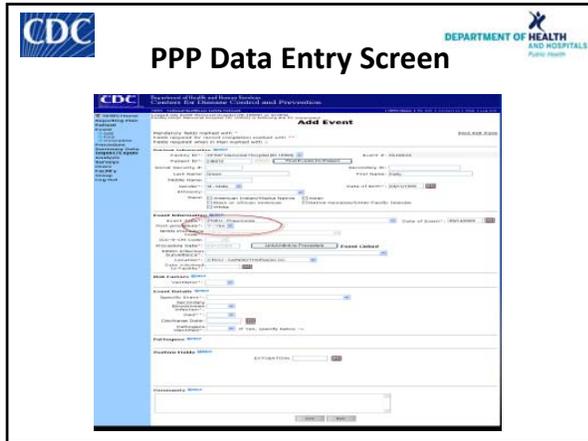
- List up to 3 pathogens for each PPP identified (in rank order of importance)
- For each pathogen, complete information about antimicrobial susceptibles
- Only certain bug/drug combinations are required but up to 20 drugs can be listed with susceptibilities

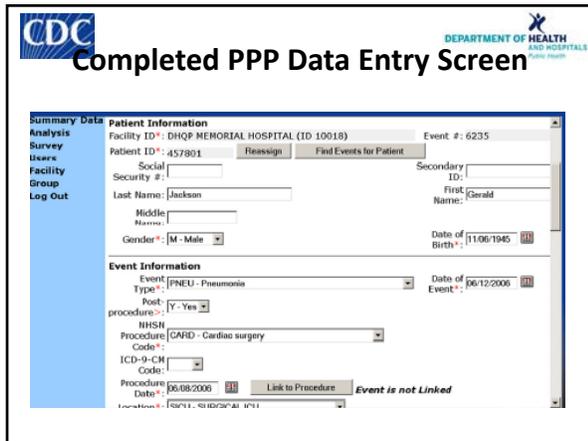


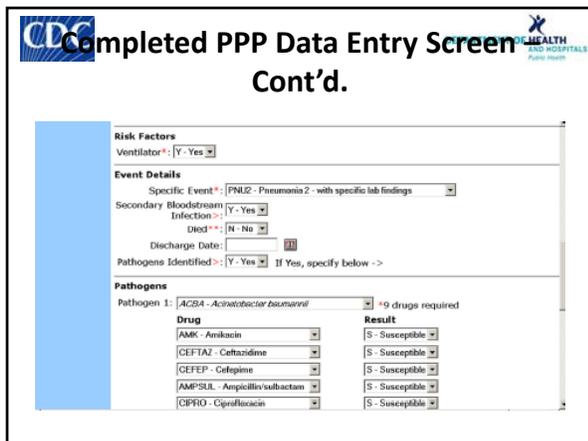


Completed PNEU Form

*Patient ID: 203768		Social Security #:	
Secondary ID:			
Patient Name, Last: Green		First: Kelly	
Middle:			
*Gender: <input checked="" type="radio"/> M	*Date of Birth:		
Ethnicity (Specify):	Race (Specify):		
*Event Type: PNEU	*Date of Event: 9/30/09		
*Post-procedure PNEU: <input checked="" type="radio"/> Yes <input type="radio"/> No	Date of Procedure: 9/12/09		
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 Mo			
<input checked="" type="checkbox"/> No, this event's pathogen & location are not in-plan for the MDRO/CDAC			
*Date Admitted to Facility:		*Location:	
Risk Factors			
*Ventilator: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Device Insertion: R1J		Date of Device Insertion:
9 / 12 / 2009			
*For NICU only: Birth weight: _____ grams			
Event Details			
*Specific Event: <input checked="" type="checkbox"/> PNU1 <input type="checkbox"/> PNU2 <input type="checkbox"/> PNU3		*Immunocompromised: Yes No <input checked="" type="checkbox"/>	
*Specify Criteria Used: (check all that apply)			
X-Ray			
<input checked="" type="checkbox"/> New or progressive and persistent infiltrate <input type="checkbox"/> Consolidation <input type="checkbox"/> Cavitation <input type="checkbox"/> Pneumatoceles (e			







 **PPP Rate** 

$$\text{PPP Rate}^* = \frac{\text{\# PPP identified}}{\text{\# of operative procedures}} \times 100$$

*Stratify by type of NHSN operative procedure

 **References** 

- For more information about these topics, refer to the NHSN website
 - NHSN Manual: Patient Safety Component Protocol located at www.cdc.gov/nhsn/
 - Tables of instructions for completing all forms
 - Key terms
 - Operative procedure codes
 - NHSN data collection forms

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

Surgical Site Infection (SSI)

*required for saving **required for completion	
Facility ID:	Event #:
*Patient ID:	Social Security #:
Secondary ID:	
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
*Event Type: SSI	*Date of Event:
*NHSN Procedure Code:	ICD-9-CM Procedure Code:
*Date of Procedure:	*Outpatient Procedure: Yes No
*MDRO Infection Surveillance:	
<input type="checkbox"/> Yes, this infection's pathogen & location are in-plan for Infection Surveillance in the MDRO/CDI Module <input type="checkbox"/> No, this infection's pathogen & location are not in-plan for Infection Surveillance in the MDRO/CDI Module	
*Date Admitted to Facility:	Location:
Event Details	
*Specific Event:	
<input type="checkbox"/> Superficial Incisional Primary (SIP) <input type="checkbox"/> Superficial Incisional Secondary (SIS) <input type="checkbox"/> Organ/Space (specify site): _____	<input type="checkbox"/> Deep Incisional Primary (DIP) <input type="checkbox"/> Deep Incisional Secondary (DIS)
*Specify Criteria Used (check all that apply):	
<u>Signs & Symptoms</u> <input type="checkbox"/> Purulent drainage or material <input type="checkbox"/> Pain or tenderness <input type="checkbox"/> Localized swelling <input type="checkbox"/> Redness <input type="checkbox"/> Heat <input type="checkbox"/> Fever <input type="checkbox"/> Incision deliberately opened by surgeon <input type="checkbox"/> Wound spontaneously dehisces <input type="checkbox"/> Abscess <input type="checkbox"/> Hypothermia <input type="checkbox"/> Apnea <input type="checkbox"/> Bradycardia <input type="checkbox"/> Lethargy <input type="checkbox"/> Cough <input type="checkbox"/> Nausea <input type="checkbox"/> Vomiting <input type="checkbox"/> Dysuria <input type="checkbox"/> Other evidence of infection found on direct exam, during surgery, or by diagnostic tests [‡] <input type="checkbox"/> Other signs & symptoms [‡]	<u>Laboratory</u> <input type="checkbox"/> Positive culture <input type="checkbox"/> Not cultured <input type="checkbox"/> Positive blood culture <input type="checkbox"/> Blood culture not done or no organisms detected in blood <input type="checkbox"/> Positive Gram stain when culture is negative or not done <input type="checkbox"/> Other positive laboratory tests [‡] <input type="checkbox"/> Radiographic evidence of infection <u>Clinical Diagnosis</u> <input type="checkbox"/> Physician diagnosis of this event type <input type="checkbox"/> Physician institutes appropriate antimicrobial therapy [‡]
[‡] per organ/space specific site criteria	
*Detected: <input type="checkbox"/> A (During admission) <input type="checkbox"/> P (Post-discharge surveillance) <input type="checkbox"/> R (Readmission)	
*Secondary Bloodstream Infection: Yes No	
**Died: Yes No	SSI Contributed to Death: Yes No
Discharge Date:	*Pathogens Identified: Yes No *If Yes, specify on pages 2-3.

Pathogen #	Gram-positive Organisms									
_____	<i>Staphylococcus</i> coagulase-negative (specify): _____	VANC S I R N								
_____	<i>Enterococcus</i> <i>spp.</i> (specify) _____	AMP S I R N	CIPRO/LEVO/MOXI S I R N	DAPTO S N S N	DOXY/MINO S I R N	GENTHL^s S R N	LNZ S I R N			
		STREPHL^s S R N	TETRA S I R N	TIG S N S N	VANC S I R N					
_____	<i>Enterococcus</i> <i>faecium</i>	AMP S I R N	CIPRO/LEVO/MOXI S I R N	DAPTO S N S N	DOXY/MINO S I R N	GENTHL^s S R N	LNZ S I R N	QUIDAL S I R N		
		STREPHL^s S R N	TETRA S I R N	TIG S N S N	VANC S I R N					
_____	<i>Staphylococcus</i> <i>aureus</i>	CHLOR S I R N	CIPRO/LEVO/MOXI S I R N	CLIND S I R N	DAPTO S N S N	DOXY/MINO S I R N	ERYTH S I R N	GENT S I R N		
		LNZ S R N	OX/CEFOX/METH S I R N	QUIDAL S I R N	RIF S I R N	TETRA S I R N	TIG S N S N	TMZ S I R N	VANC S I R N	
Pathogen #	Gram-negative Organisms									
_____	<i>Acinetobacter</i> <i>spp.</i> (specify) _____	AMK S I R N	AMPSUL S I R N	AZT S I R N	CEFEP S I R N	CEFTAZ S I R N	CIPRO/LEVO S I R N	COL/PB S I R N	GENT S I R N	
		IMI S I R N	MERO/DORI S I R N	PIP/PIPTAZ S I R N	TETRA/DOXY/MINO S I R N	TMZ S I R N	TOBRA S I R N			
_____	<i>Escherichia</i> <i>coli</i>	AMK S I R N	AMP S I R N	AMPSUL/AMXCLV S I R N	AZT S I R N	CEFAZ S I R N	CEFEP S I R N	CEFOT/CEFTRX S I R N		
		CEFTAZ S I R N	CEFUR S I R N	CEFOX/CETET S I R N	CHLOR S I R N	CIPRO/LEVO/MOXI S I R N	COL/PB S I R N	ERTA S I R N		
		GENT S I R N	IMI S I R N	MERO/DORI S I R N	PIPTAZ S I R N	TETRA/DOXY/MINO S I R N	TIG S I R N	TMZ S I R N	TOBRA S I R N	
_____	<i>Enterobacter</i> <i>spp.</i> (specify) _____	AMK S I R N	AMP S I R N	AMPSUL/AMXCLV S I R N	AZT S I R N	CEFAZ S I R N	CEFEP S I R N	CEFOT/CEFTRX S I R N		
		CEFTAZ S I R N	CEFUR S I R N	CEFOX/CETET S I R N	CHLOR S I R N	CIPRO/LEVO/MOXI S I R N	COL/PB S I R N	ERTA S I R N		
		GENT S I R N	IMI S I R N	MERO/DORI S I R N	PIPTAZ S I R N	TETRA/DOXY/MINO S I R N	TIG S I R N	TMZ S I R N	TOBRA S I R N	
_____	<i>Klebsiella</i> <i>spp.</i> (specify) _____	AMK S I R N	AMP S I R N	AMPSUL/AMXCLV S I R N	AZT S I R N	CEFAZ S I R N	CEFEP S I R N	CEFOT/CEFTRX S I R N		
		CEFTAZ S I R N	CEFUR S I R N	CEFOX/CETET S I R N	CHLOR S I R N	CIPRO/LEVO/MOXI S I R N	COL/PB S I R N	ERTA S I R N		
		GENT S I R N	IMI S I R N	MERO/DORI S I R N	PIPTAZ S I R N	TETRA/DOXY/MINO S I R N	TIG S I R N	TMZ S I R N	TOBRA S I R N	

Pathogen #	Gram-negative Organisms (continued)									
_____	<i>Serratia marcescens</i>	AMK S I R N	AMP S I R N	AMPSUL/AMXCLV S I R N	AZT S I R N	CEFAZ S I R N	CEFEP S I R N	CEFOT/CEFTRX S I R N		
		CEFTAZ S I R N	CEFUR S I R N	CEFOX/CETET S I R N	CHLOR S I R N	CIPRO/LEVO/MOXI S I R N	COL/PB S I R N	ERTA S I R N		
		GENT S I R N	IMI S I R N	MERO/DORI S I R N	PIPTAZ S I R N	TETRA/DOXY/MINO S I R N	TIG S I R N	TMZ S I R N	TOBRA S I R N	
_____	<i>Pseudomonas aeruginosa</i>	AMK S I R N	AZT S I R N	CEFEP S I R N	CEFTAZ S I R N	CIPRO/LEVO S I R N	COL/PB S I R N	GENT S I R N		
		IMI S I R N	MERO/DORI S I R N	PIP/PIPTAZ S I R N	TOBRA S I R N					
_____	<i>Stenotrophomonas maltophilia</i>	LEVO S I R N	TETRA/MINO S I R N	TICLAV S I R N	TMZ S I R N					
Pathogen #	Fungal Organisms									
_____	<i>Candida spp.</i> (specify) _____	ANID S N S N	CASPO S N S N	FLUCO S S-DD R N	FLUCY S I R N	ITRA S S-DD R N	MICA S N S N	VORI S S-DD R N		
Pathogen #	Other Organisms									
_____	Organism 1 (specify) _____	Drug 1 S I R N	Drug 2 S I R N	Drug 3 S I R N	Drug 4 S I R N	Drug 5 S I R N	Drug 6 S I R N	Drug 7 S I R N	Drug 8 S I R N	Drug 9 S I R N
_____	Organism 2 (specify) _____	Drug 1 S I R N	Drug 2 S I R N	Drug 3 S I R N	Drug 4 S I R N	Drug 5 S I R N	Drug 6 S I R N	Drug 7 S I R N	Drug 8 S I R N	Drug 9 S I R N
_____	Organism 3 (specify) _____	Drug 1 S I R N	Drug 2 S I R N	Drug 3 S I R N	Drug 4 S I R N	Drug 5 S I R N	Drug 6 S I R N	Drug 7 S I R N	Drug 8 S I R N	Drug 9 S I R N

Result Codes

S = Susceptible I = Intermediate R = Resistant NS = Non-susceptible S-DD = Susceptible-dose dependent N = Not tested
§ GENTHL and STREPHL results: S=Susceptible/Synergistic and R=Resistant/Not Synergistic

Drug Codes:

AMK = amikacin	CEFTRX = ceftriaxone	ERYTH = erythromycin	MICA = micafungin	STREPHL = streptomycin – high level test
AMP = ampicillin	CEFUR= cefuroxime	FLUCO = fluconazole	MINO = minocycline	TETRA = tetracycline
AMPSUL = ampicillin/sulbactam	CETET= cefotetan	FLUCY = flucytosine	MOXI = moxifloxacin	TICLAV = ticarcillin/clavulanic acid
AMXCLV = amoxicillin/clavulanic acid	CHLOR= chloramphenicol	GENT = gentamicin	OX = oxacillin	TIG = tigecycline
ANID = anidulafungin	CIPRO = ciprofloxacin	GENTHL = gentamicin – high level test	PB = polymyxin B	TMZ = trimethoprim/sulfamethoxazole
AZT = aztreonam	CLIND = clindamycin	IMI = imipenem	PIP = piperacillin	TOBRA = tobramycin
CASPO = caspofungin	COL = colistin	ITRA = itraconazole	PIPTAZ = piperacillin/tazobactam	VANC = vancomycin
CEFAZ= ceftazidime	DAPTO = daptomycin	LEVO = levofloxacin	QUIDAL = quinupristin/dalfopristin	VORI = voriconazole
CEFEP = cefepime	DORI = doripenem	LNZ = linezolid	RIF = rifampin	
CEFOT = cefotaxime	DOXY = doxycycline	MERO = meropenem		
CEFOX= ceftaxime	ERTA = ertapenem	METH = methicillin		
CEFTAZ = ceftazidime				

Custom Fields

Label	
_____	___/___/___
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Label	
_____	___/___/___
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Comments



**Protocols and Definitions
Device-associated Module**

Catheter-Associated Urinary Tract
Infections

Target Audience

- This training session is designed for those who will collect and analyze Catheter-associated UTIs in the Patient Safety Component of NHSN. This may include the following:
 - NHSN Facility Administrator
 - Patient Safety Primary Contact
 - Infection Control Professional (ICP)
 - Epidemiologist
 - Microbiologist
 - Data entry staff

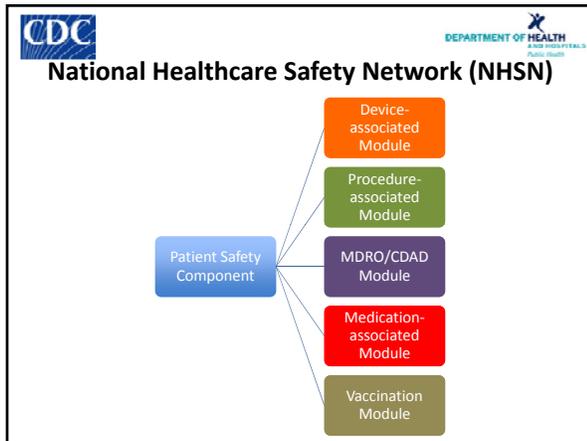
Objectives

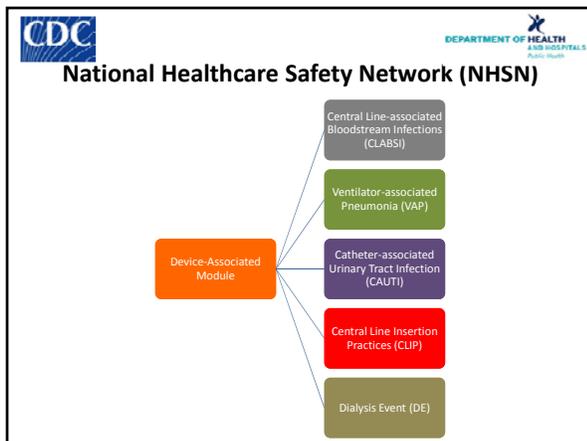
- Outline the structure, methodology and purpose of the Device-associated Module of NHSN
- Describe the protocols and definitions used in the CAUTI option within the Device-associated Module

www.cdc.gov/nhsn

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- **Active** (vs. passive)
 - Trained ICPs
 - Look for and identify infections
 - Accumulate information from multiple data sources
- **Patient-based** (vs. laboratory-based)
 - Not based solely on laboratory data
 - Identify risk factors, patient care procedures
- **Prospective** (vs. retrospective)
 - Monitor patients during their hospitalization when possible





 **CAUTI** 

- **CAUTI Characteristics:**
 - Most common site of HAI – more than 30% of all reported by acute care hospitals
 - Almost all are caused by instrumentation
- **CAUTI Complications:**
 - Discomfort
 - Prolonged hospital stay
 - Increased cost

CDC/HICPAC Guideline for Prevention of Catheter-associated Urinary Tract Infection
www.cdc.gov/ncidod/dhqp/gl_catheter_assoc.html

 **Use CDC Definitions for the Following:** 

- CAUTI
- Indwelling catheter
- Symptomatic Urinary Tract Infection (SUTI)
- Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)
- Other UTI (OUTI)
- **NOTE:** Asymptomatic Bacteremia (ASB) is no longer a CDC/NHSN infection type; cannot be reported



 **Definition: CAUTI** 

- UTI that occurs in a patient who had an indwelling urethral urinary catheter in place within the 48-hour period before the onset of the UTI.
- If the UTI develops in a patient within 48 hours of discharge from a location, indicate on the infection report the discharging location, not the current location of the patient (Transfer Rule).

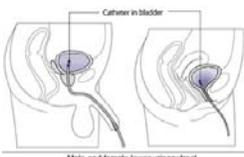
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Definition: CAUTI

- In addition to CAUTIs, some facilities are required by their state to report healthcare associated UTIs that are **NOT** associated with catheters.
- These should **NEVER** be included in CAUTI data reported through NHSN.
- Specific criteria will be reviewed later and more information on this issue provided.

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Definition: CAUTI

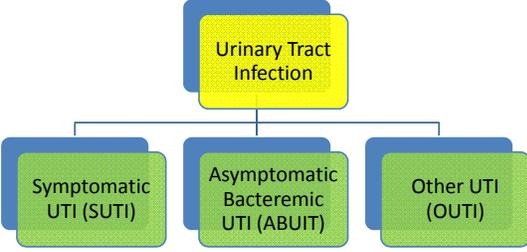


Male and female lower urinary tract

- A drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a closed collection system
 - Also called a Foley catheter
 - Does not include straight in and out catheters or urinary catheters that are not placed in the urethra (ex. suprapubic catheter).

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Definition: CAUTI



```
graph TD; A[Urinary Tract Infection] --> B[Symptomatic UTI (SUTI)]; A --> C[Asymptomatic Bacteremic UTI (ABUIT)]; A --> D[Other UTI (OUTI)];
```

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SUTI Criteria

- SUTI (Symptomatic UTI)
 - Criterion 1a: 10⁵ CFU/ml in urine*
 - Criterion 1b: 10³⁻⁵ CFU/ml in urine*
 - Criterion 2a: 10³⁻⁵ CFU/ml in urine*
 - Criterion 2b: 10³⁻⁵ CFU/ml in urine*
 - Criterion 3: 10⁵ CFU/ml in urine*
 - Criterion 4: 10³⁻⁵ CFU/ml in urine*

*Urine culture must have no more than 2 microorganism species.

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SUTI Criteria

- SUTI (Symptomatic UTI)
 - Criterion 1a: Had catheters in 48 hours prior to specimen collection
 - Criterion 1b: Had catheters in 48 hours prior to specimen collection
 - Criterion 2a: DIDN'T have catheters in 48 hours prior to specimen collection
 - Criterion 2b: DIDN'T have catheters in 48 hours prior to specimen collection
 - Criterion 3: With or without catheters in 48 hours prior to specimen
 - Criterion 4: With or without catheters in 48 hours prior to specimen

*Urine culture must have no more than 2 microorganism species.

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Symptomatic UTI (SUTI) – Any Patient

Criterion	Symptomatic Urinary Tract Infection (SUTI)
	Must meet at least 1 of the following criteria:
1a	Patient had an indwelling urinary catheter in place at the time of specimen collection and at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), suprapubic tenderness, or costovertebral angle pain or tenderness and a positive urine culture of ≥10 ⁵ colony-forming units (CFU)/ml with no more than 2 species of microorganisms.
	OR
	Patient had indwelling urinary catheter removed within the 48 hours prior to specimen collection and at least 1 of the following signs or symptoms with no other recognized cause: fever (>38°C), urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness and a positive urine culture of ≥10 ⁵ colony-forming units (CFU)/ml with no more than 2 species of microorganisms.

Note differing acceptable symptoms





Other UTI (OUTI)

- Infections of urinary tract not meeting SUTI or ABUTI criteria
- Most often a site of surgical site infection (SSI), specific event type: Organ/Space
- Positive urine culture is not a part of criteria
- See criteria on page 7-6 of the NHSN User Manual:
<http://www.cdc.gov/nhsn/pdfs/pscManual/7pscCAUTIcurrent.pdf>





CAUTI Infection Data

- Catheter-associated UTI (CAUTI) specific events must, by definition, involve an indwelling catheter. Therefore only the following specific event types can be CAUTI:
 - SUTI Criteria:
 - 1a
 - 2a
 - 3*
 - 4*
 - ABUTI*

*NOTE: SUTI criteria 1b, 2b and Other UTI (OUTI) are types of UTI-specific event, but they are not associated with a urinary catheter and are not used when collecting data for CAUTI events.





Example of Completed UTI Form

fields req'd... Pen in plan checked

Patient Information

Facility ID: Medical Center East (10000) Event #: 15527
 Patient ID: KB1225
 Social Security #: Secondary ID:
 Last Name: First Name:
 Middle Name:
 Gender: M - Male Date of Birth: 04/29/1958
 Ethnicity:
 Race: American Indian/Alaska Native Asian
 Black or African American Native Hawaiian/Other Pacific Islander
 White

Event Information

Event Type: UTI - Urinary Tract Infection Date of Event: 04/19/2009
 Post-procedure? No
 MDRG Infection Surveillance? No, this event pathogen/location is not in-plan for MDRG/CCAD Module
 Location: MSICU - MEDSURG ICU
 Date Admitted to Facility: 04/01/2009

Risk Factors

Catheter criteria: InPlace - in place Determine the appropriate criteria
 Location of Device Insertion:
 Date of Device Insertion:

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CAUTI Denominator Data

- ICU, SCA and Regular Ward locations data collection:
 - # patients on the unit, collected at the same time each day
 - # patients on the unit with an indwelling urinary catheter, collected at the same time each day
- Not monitored in NICU locations

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NHSN National Healthcare Safety Network

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

OMB No. 0920-0065 | Exp. Date: 03-31-2011 | *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				
...				
23				
24				
25				
26				
27				
28				
29				
30				
31				
*Totals				

Record the Number each day (points to rows 1-31)

Record the Total for the month (points to *Totals row)

Labels at bottom: Patient-days, Central-line days, Urinary catheter-days, Ventilator-days

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Analysis: CAUTI Rate

$$\text{CAUTI Rate} = \frac{\text{\# CAUTIs identified*}}{\text{\# indwelling urinary catheter days*}} \times 1000$$

* Stratify by Location Type

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Analysis: Device Utilization (DU) Ratio

Urinary Catheter DU Ratio = $\frac{\# \text{ Indwelling catheter days}}{\# \text{ Patient Days}}$

DU Ratio measures the proportion of total patient-days in which indwelling urinary catheters were used.

Inwelling catheter use is necessary for CAUTI. Therefore, reducing your facility/location's catheter device utilization ration, may lead to reduced CAUTI rates.

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Analysis: Device Utilization (DU) Ratio

National Healthcare Safety Network
Rate Table for Catheter-Associated UTI Data | CU-Other/SCA

NHSN pooled means:
CAUTI
Device Utilization

argID=10000 loccd=IN:ACUTE:CC:B

Location	summary	CAUCost	numcathdays	CAURate	CAU_Mean	IDR_pval	IDR_pct	numpatientdays	CathDU	CathDU_Mean	P_pval	P_pct
BICU	2005M11	0	387	0.0	7.7	0.0516		421	0.55	0.65	0.0000	
BICU	2005M12	0	377	0.0	7.7	0.0557		484	0.76	0.65	0.0000	
BICU	2006M01	0	299	0.0	7.7	0.1012		507	0.59	0.65	0.0015	
BICU	2006M05	2	300	6.7	7.7	0.5995		352	0.85	0.65	0.0000	
BICU	2006M03	1	205	5.0				500	0.33			
BURU	2005M01	3	304	9.9	7.7	0.4116		395	0.79	0.65	0.0000	
BURU	2006M08	0	10	0.0				100	0.10			

Source of aggregate data: NHSN Report, Am J Infect Control 2008;34:609-24
Data contained in this report were last generated on November 30, 2009 at 12:39 PM.

National Healthcare Safety Network

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Questions?

www.cdc.gov/nhsn



**Protocols and Definitions
Device-associated Module**

Central Line-associated Bloodstream
Infection (CLABSI)

Introduction

This course will review key concepts of surveillance for central line-associated bloodstream infections (CLABSI) in the Device-associated Module of the Patient Safety Component, as well as review certain definitions.

Objectives

By completing this lesson, you should be able to:

- Describe the scope of the problem of CLABSI
- Review the structure of the Device-associated Module in NHSN and the surveillance methodology used for data collection
- Define key terms and protocol used for collecting CLABSIs and their corresponding denominator data
- Describe how to collect CLABSI data using the BSI form
- Describe how CLABSI rates and device utilization ratios are calculated and reported to promote performance improvement

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Target Audience

- This training session is designed for those who will collect and analyze CLABSI and their associated denominators in the Patient Safety Component of NHSN.
- This may include:
 - Facility Administrator
 - Patient Safety Primary Contact
 - Infection Preventionist
 - Epidemiologist
 - Microbiologist
 - Data entry staff

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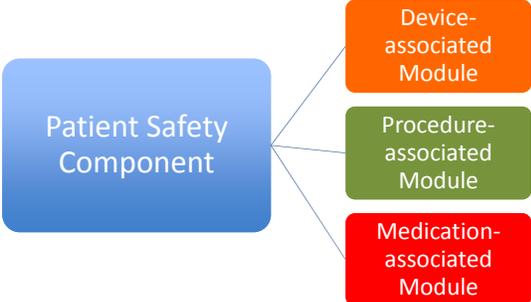
Background

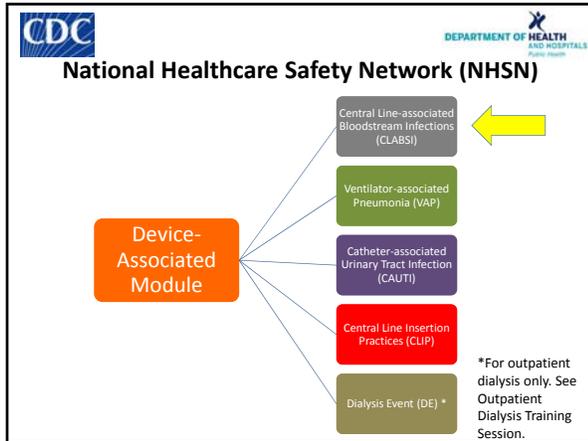
- 250,000 CLABSIs occur in the United States each year
- Most bloodstream infections are associated with the presence of a central line or umbilical catheter (in neonates) at the time of or before the onset of the infection
- Estimated mortality is 12-25% for each CLABSI
- Cost to healthcare system is approximately \$25,000 per episode



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Modules in the Patient Safety Component





- NHSN location types (patient care areas) where CLABSI events can be monitored**
- Intensive care units (ICU)
 - Specialty care areas (SCA)
 - Hematology/ Oncology unit
 - Bone marrow/ Stem cell transplant unit
 - Solid organ transplant unit
 - Acute inpatient dialysis unit
 - Long-term acute care
 - Neonatal intensive care units (NICU)
 - Any other inpatient care location in which central line days and patient days can be collected (e.g., surgical ward, etc.)

- Surveillance Methodology**
- CLABSI methodology requires
 - Active
 - Patient-based
 - Prospective
 - Priority-directed surveillance that will yield risk-adjusted incidence rates.

Sources of Data for Finding CLABSI

- Microbiology reports
- Infection control rounds on monitored units
- Pharmacy reports for antimicrobial use
- Networking with nursing staff
- Temperature chart
- List of patients with central lines

Key Terms

- Use CDC Definitions for the following:
 - CLABSI
 - Central line
 - Laboratory-confirmed BSI (LCBI)
 - Temporary Central Line
 - Permanent Central Line

Definition: CLABSI

- Central line-associated bloodstream infection (CLABSI) is a primary bloodstream infection (BSI) in a patient that had a central line *within* the 48-hour period before the development of the BSI.
- If the BSI develops in a patient within 48 hours of discharge from a location, indicate the discharging location on the infection report.

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.

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Definition: Central Line

A vascular infusion device that terminates at or close to the heart or in one of the great vessels.

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

•Aorta	•Brachiocephalic veins
•Pulmonary artery	•Internal jugular veins
•Superior vena cava	•Subclavian veins
•Inferior vena cava	•External iliac veins
	•Common femoral veins

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Infusion

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



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- In neonates, the umbilical artery is considered a great vessel
- 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
- Pacemaker wires and other non-lumened devices inserted into central blood vessels or the heart are not considered central lines, because fluids are not infused, pushed nor withdrawn through such devices.

Key Terms: Transfer Rules

- If the BSI develops in a patient within 48 hours of transfer from one inpatient location to another, indicate the transferring location on the infection report.

Example: A patient with a central line is transferred from the Orthopedic ward to the Medical/Surgical ICU on Monday. On Tuesday afternoon, he spikes a fever and is determined to have a CLABSI. The location of the CLABSI is recorded as the Orthopedic ward.

- NOTE: It is not required to monitor for CLABSIs after the patient is discharged from the facility. However, if discovered, they should be reported to NHSN. No additional central line days are recorded.

Key Terms: Types of Central Lines

- Temporary – a central line that is noncuffed and nontunneled
- Permanent – a central line that is cuffed and tunneled
- Umbilical Catheter – central vascular device inserted through the umbilical artery or vein in a neonate

Key Terms: Types of Central Lines

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CLABSI Numerator Data

- Use a Primary Bloodstream Infection (BSI) form for each CLABSI that is identified during the month (Form CDC 57.108).
- Indicate the specific criteria used to identify the BSI*
 - Note that laboratory-confirmed bloodstream infection (LCBI) criterion 3 is restricted to patients ≤ 1 year of age, but criteria 1 and 2 can be used for patients of any age, including those ≤ 1 year of age.

*See NHSN Manual: Patient Safety Component Protocol

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CLABSI Numerator Data

- Use a Primary Bloodstream Infection (BSI) form for each CLABSI that is identified during the month (Form CDC 57.108).
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*See NHSN Manual: Patient Safety Component Protocol

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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. On hospital day 4, he became confused and experienced chills. Blood cultures were drawn which grew *Enterococcus faecalis*. There was no infection at any other body site.*

Mr. Smith's infection meets LCBI criterion 1.

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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. A few of the recognized pathogens are *Staphylococcus aureus*, *Enterococcus* species, *Escherichia coli*, *Pseudomonas* species, *Klebsiella* species, *Candida* species, etc.

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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.

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The phrase “two or more blood cultures 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 blood culture)

Note: If special pediatric blood culture bottles are used, only one bottle may be inoculated per blood draw. Therefore, to meet this part of the criterion, two would have to be culture-positive.



LCBI – Criterion 3



Criterion 3: Patient \leq 1 year of age has at least one of the following signs or symptoms: fever ($>38^{\circ}\text{C}$, rectal), hypothermia ($<37^{\circ}\text{C}$, rectal), 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.

Note that although Criterion 3 can only be used for infants and neonates, criteria 1 and 2 can also be used in this age group.



Determining “sameness” of two organisms



If the common skin contaminant from one culture is identified to both genus and species level (e.g., *Staphylococcus 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.

The more specific organism should be reported in NHSN; in this example *S. epidermidis*, would be reported. 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>



Determining “sameness” of two organisms (cont.)



If common skin contaminant organisms are speciated (e.g., both are *Bacillus 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.



CDC **Determining “sameness” of two organisms (cont.)** DEPARTMENT OF HEALTH AND HOSPITALS Public Health

If the common skin contaminants 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 CEFAZ R	OX S CEFAZ 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

CDC **Determining “sameness” of two organisms (cont.)** DEPARTMENT OF HEALTH AND HOSPITALS Public Health

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 cultures.

CDC **Bloodstream Infection Criteria Summary** DEPARTMENT OF HEALTH AND HOSPITALS Public Health

Laboratory Confirmed Bloodstream Infection (LCBI)

1. Any age patient: ≥ 1 blood culture with recognized pathogen + no HAI at another site
2. Any age patient: ≥ 2 blood cultures drawn on separate occasions positive for the same skin contaminant organism + clinical symptoms + no HAI at another site
3. Infant/neonate: ≥ 2 blood cultures drawn on separate occasions positive for the same skin contaminant organism + clinical symptoms + no HAI at another site

Risk Factors – Specialty Care Area (SCA)

For SCA, note that a response is required for both “Permanent central line” and for “Temporary central line”.

Risk Factors – NICU

For NICU, the birth weight and the line type are required.

Risk Factors – Optional Fields

Location of Device Insertion and Date of Device Insertion are optional fields for identifying the patient care area on which the patient was located at the time of central line insertion.

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Event Details Section

Event Details
 *Specific Event: Laboratory-confirmed

***Specify Criteria Used:**
Signs & Symptoms (check all that apply)

<input checked="" type="checkbox"/> Any patient	<input type="checkbox"/> Fever	Laboratory (check one)
<input type="checkbox"/> Chills	<input type="checkbox"/> Hypotension	<input type="checkbox"/> Recultured organism from same or other wound
<input type="checkbox"/> Tachycardia	<input type="checkbox"/> Bradycardia	<input checked="" type="checkbox"/> Culture taken from blood, urine, or other sterile site
<input type="checkbox"/> Diarrhea	<input type="checkbox"/> Hematocrit	<input type="checkbox"/> Other

There is only one **Specific Event** type for BSI: **Laboratory-confirmed**. Check the elements of the **specific criterion** that were used to identify this CLABSI.

DEPARTMENT OF HEALTH AND HOSPITALS
 Public Health

Event Details Section

Event Details
 *Specific Event

***Specify Criteria Used:**
Signs & Symptoms (check all that apply)
Any patient

<input checked="" type="checkbox"/> Fever	<input type="checkbox"/> Chills	
<input type="checkbox"/> Hypotension		

Died: If the patient died before discharge, circle "Yes"; otherwise, circle "No".

BSI Contributed to Death: If "Died" is Yes, then circle "Yes" if the BSI caused the patient's death or exacerbated an existing disease which then lead to death; otherwise, circle "No".

Pathogens Identified: Yes: Specify organism and antibiogram on back of form.

****Died:** Yes No **BSI Contributed to Death:** Yes No
Discharge Date: _____ ***Pathogens Identified:** Yes *Specify on page 2

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 Public Health

Pathogen Data

- List up to 3 pathogens for each CLABSI identified (in rank order of importance)
- For each pathogen, complete information about antimicrobial susceptibles
- Only certain bug/drug combinations are required but up to 20 drugs can be listed with susceptibles




CLABSI Denominator Data for Specialty Care Areas (SCA)

- Use [Denominators for Specialty Care Areas \(SCA\)](#) form
- At the same time each day, count
 - # patients (i.e., patient days)
 - # patients with one or more central lines (i.e., central line-days) separated into
 - Temporary central lines and
 - Permanent central lines*
- Enter the totals within 30 days of the end of the month

***If a patient has both a temporary and permanent line, count as a patient with only a temporary line.**




Example of Completed Denominators for SCA Form

NHSN Denominators for Specialty Care Area (SCA) CMB No. 0305-0666 Exp. Date: 03-26-2008

* required for saving

*Facility ID#: 10000 *Month: Jan *Year: 2009 *Location Code: LTAC

Date	*Number of patients	**Number of patients with 1 or more central lines (if patient has both, count as Temporary)		**Number of patients with a urinary catheter	**Number of patients on a ventilator
		Temporary	Permanent		
1					
2	4	1	2		
3	6	4	1		
4	7	1	4		
5	4	2	0		
6	4	4	4		
7	6	4	2		
26					
27					
28					
29					
30	//		//		
31	//		//		
*Totals	141	64	14		




CLABSI Denominator Data for NICU

- Use [Denominators for NICU](#) form
- At the same time each day, count for each birth weight category:
 - # patient (i.e., patient days)
 - # patients with one or more central lines (i.e., central line-days) separated into central lines and umbilical catheters*
- Enter the totals within 30 days for the end of the month

***If an infant has both an umbilical catheter and a central count as a patient with only an umbilical line.**




NICU Birth Weight Categories

- ≤ 750 grams
- 751 – 1000 grams
- 1001 – 1500 grams
- 1501 – 2500 grams
- ≥ 2500 grams




NICU Birth Weight Categories

- ≤ 750 grams
- 751 – 1000 grams
- 1001 – 1500 grams
- 1501 – 2500 grams
- ≥ 2500 grams




Example of Completed Denominators for NICU Form



Denominators for Neonatal Intensive Care Unit (NICU)

ONS Form 1000-0000 Exp. Date: 02-29-2009

*Facility ID#: 10000 *Month: Jan *Year: 2009 *Location Code: NICUW

* required for saving

Date	≤750 gm				751-1000 gm				1001-1500 gm				1501-2500 gm				>2500 gm							
	pts	CL	CL	vent	pts	CL	CL	vent	pts	CL	CL	vent	pts	CL	CL	vent	pts	CL	CL	vent				
1	4	4	0		4	0	4		4	4	4		4	1	2		6	1	4					
2	6	2	3		6	0	6		6	6	6		4	1	2		6	1	4					
3	7	6	0		7	1	4		7	7	7		1	1	0		4	0	4					
4	4	4	0		4	0	4		4	1	2		4	1	2		4	0	4					
5	4	2	1		4	4	4		4	4	4		4	4	4		5	1	4					
6	6	3	3		5	3	1		1	1	0		6	1	4		4	0	4					
7	5	2	3		3	0	3		1	1	0		5	5	0		4	0	4					
8	4	0	4		0	0	0		1	1	0		5	5	0		4	0	4					
27																								
28																								
29																								
30																								
31																								
*Total	116	62	44		100	44	31		88	63	16		101	68	24		116	7	100					

*Total number of infants. CL=number of infants with umbilical clamped. CL=number of infants with 1 of more central lines
 VENT=number of infants on a ventilator. **Infant has both a UIC and CL, count as UIC infant only for the day.
 *** Provisional neonatal admission to the NICU initiated in 8am

Required Fields for Summary (Denominator) Data

- Based on the Monthly Reporting Plan

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

View Monthly Reporting Plan

Mandatory fields marked with *

Locations	CLA	BSI	DE	VAP	CAUTI	CLIP
CMICU - CARDIAC ICU	X				X	X

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

Note: Only the totals are entered into the data entry screen.

Total Patient Days*	123
Central Line Days*	29
Urinary Catheter Days*	76
Ventilator days*	63

CLABSI Rate

$$\text{CAUTI Rate} = \frac{\text{\# CLABSIs identified*}}{\text{\# central line days}} \times 1000$$

*Stratify by:

- Type of ICU/Other Location
- SCA
 - Catheter type (temporary or permanent)
- NICU
 - Birth weight category
 - Catheter type (umbilical or central)



Device Utilization (DU) Ratio

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$$\text{CL DU Ratio} = \frac{\# \text{ Central line days}}{\# \text{ Patient Days}}$$

DU Ratio is the proportion of total patient-days during which central lines were used.



CLABSI Rate Options

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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
 - Custom Output
 - Ventilator-Associated PNEU
 - Urinary Catheter-Associated UTI
 - Central Line Insertion Practices



CLABSI Rate Tables

DEPARTMENT OF HEALTH AND HOSPITALS
Public Health

National Healthcare Safety Network

Rate Table for Central Line-Associated BSI Data for ICU-Other

As of: September 22, 2009 at 1:38 PM
Data Range: All CLAB_RATEICU

orgID=10018 loccd=IN-ACUTE:CC-M

Summary	Summary YTD	CLABRate	numC Days	CT ARRate	CT AR_Mean	DR_pval	DR_pct	numPatDays	I_lineTU	I_lineTU_Mean	P_pval	P_pct
MICU	2005M05	0	110	0.0	2.4	0.7744	10	299	0.37	0.58	0.0000	23
MICU	2005M07	0	265	0.0	2.4	0.6339	10	401	0.66	0.58	0.0004	78
MICU	2005M08	1	238	4.2	2.4	0.4296	80	494	0.48	0.58	0.0000	39
MICU	2005M09	0	288	0.0	2.4	0.5069	10	447	0.64	0.58	0.0030	58
MICU	2006M01	0	214	0.0	2.4	0.6036	10	439	0.49	0.58	0.0001	39
MICU	2006M02	1	302	3.3	2.4	0.5095	71	481	0.63	0.58	0.0168	58
MICU	2006M03	2	169	11.8	2.4	0.9512	100	401	0.42	0.58	0.0000	23
MICU	2006M11	0	160	0.0	2.4	0.7899	10	380	0.26	0.58	0.0000	13
MICU	2007M01	0	115	0.0	2.4	0.7824	10	330	0.35	0.58	0.0000	13
MICU	2007M02	0	219	0.0	2.4	0.5965	10	309	0.71	0.58	0.0000	78
MICU	2007M03	0	114	0.0	2.4	0.7642	10	385	0.30	0.58	0.0000	13





Interpreting CLABSI Rates

Location	Birth Wt Code	CLA BSI Count	Central Line Days	CLA BSI Rate	NHSN CLAB Pooled Mean	Incidence Density p-value #1	Incidence Density Percentile #1	Patient Days	CL Util Ratio	NHSN Line DU Pooled Mean	Proportion p-value #1	Proportion Percentile #1
NICU3	A	0	248	0.0	6.4	0.2049	10	552	0.45	0.32	0.0000	68
NICU3	B	4	214	18.7	4.4	0.0158	97	549	0.39	0.31	0.0000	65
NICU3	C	1	240	4.2	4.8	0.6764	54	730	0.33	0.23	0.0000	67
NICU3	D	0	162	0.0	4.2	0.5068	50	490	0.33	0.17	0.0000	79
NICU3	E	0	61	0.0	3.1	0.8277	50	335	0.18	0.21	0.0893	66

- When compared to the NHSN mean rate of 4.4, this NICUs rate is at the 97th percentile, which means that 97% of all reporting NICUs in that birth weight category had a rate at or below this one.
- The p-value indicates that the difference in these two incidence density rates is statistically significant (p = 0.0158).





Interpreting CLABSI Rates

Location	Birth Wt Code	CLA BSI Count	Central Line Days	CLA BSI Rate	NHSN CLAB Pooled Mean	Incidence Density p-value #1	Incidence Density Percentile #1	Patient Days	CL Util Ratio	NHSN Line DU Pooled Mean	Proportion p-value #1	Proportion Percentile #1
NICU3	A	0	248	0.0	6.4	0.2049	10	552	0.45	0.32	0.0000	68
NICU3	B	4	214	18.7	4.4	0.0158	97	549	0.39	0.31	0.0000	65
NICU3	C	1	240	4.2	4.8	0.6764	54	730	0.33	0.23	0.0000	67
NICU3	D	0	162	0.0	4.2	0.5068	50	490	0.33	0.17	0.0000	79
NICU3	E	0	61	0.0	3.1	0.8277	50	335	0.18	0.21	0.0893	66

- There were 549 patient days reported for this birth weight category in the NICU during this time period.
- Dividing 214 (central line days) by 549 yields a device utilization ratio of 0.39.
- When compared to the NHSN mean device utilization ratio of 0.31, this NICU's device utilization ratio for birth weight category B is at the 65th percentile, which means that 65% of all reporting NICUs in this birth weight category had a ratio at or below this one.
- The p-value indicates that the difference in these two ratios is statistically significant (p<0.00001).





Information on CLABSI protocol and forms: www.cdc.gov/nhsn/psc_da.html

Questions: nhsn@cdc.gov

**Standardized Infection Ratio
Workshop**

Erica Washington, MPH
Erica.Washington@LA.GOV
504-568-8319
Healthcare-Associated Infections Coordinator
Infectious Disease Epidemiology Section
Louisiana Office of Public Health



Objectives: Background

- Review HAI Point Estimation
 - Incidence Density Rates
 - Proportion
 - Device Utilization Ratio
 - Risk Ratio
- Standardized Infection Ratio (SIR)
 - Describe
 - Calculate
 - Interpret

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>



Objectives: Facility Data Analysis

- Steps to successful analysis
 - CLABSIs
 - SSIs
- NHSN Version 6.4
 - Statistics calculator
- Create meaningful reports
 - Review process for creating output in the NHSN
 - Customize output
 - Export data

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>



Epidemiology Terms

- **Summary Statistic:** A descriptive statistic (e.g. odds ratio, relative risk, standardized infection ratio) that describes a set of observations
 - Odds ratios are used for retrospective studies (e.g., case-control studies)
 - Risks are used for prospective studies (e.g., longitudinal cohorts)
 - Ratios are used to compare a study group to a standard/ ideal population
- **Association:** statistics that express differences in disease frequency. Ratio associations measure relative (comparative) differences in frequencies
- **Incidence:** the number of new cases of a disease observed in a given amount of time

Sklo M and Nieto F. Epidemiology Beyond the Basics, Second Ed. Jones and Bartlett Publishers, Inc., 2007.



Epidemiology Terms

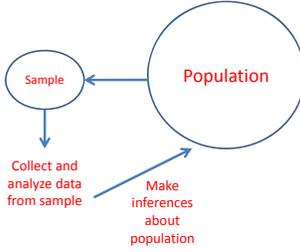
- **Standard Population:** used for the comparison of rates in two or more study groups; the absolute value of an adjusted rate is usually not the main focus because it depends on the choice of the standard population. For the SIR used in NHSN, the standard population is all of the hospitals reporting to the Network for a specific time period according to specific infection types
- **Indirect Adjustment:** the expected number of events (e.g., deaths) in a study group (e.g., an occupational cohort) is calculated by applying reference rates ("standard" rates) to the number of individuals in each stratum of the study group(s). Compares the study group with the population that served as the source of the reference rates

Sklo M and Nieto F. Epidemiology Beyond the Basics, Second Ed. Jones and Bartlett Publishers, Inc., 2007.



Point Estimates

$$\frac{\text{Numerator}}{\text{Denominator}} \times \text{Constant}$$



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HAI Point Estimates

- Central Line-Associated Bloodstream Infections (CLABSI)
 - CLABSI Rate
 - Central Line Utilization Ratio
 - CLABSI Standardized Infection Ratio (SIR)
 - NHSN Version 6.4 Feature
- Surgical Site Infections (SSI)
 - SSI Rate
 - *Available in “Advanced” section of the output option
 - SSI SIR
 - *NHSN Version 6.4 Feature

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HAI Incidence Density Rates

- The Incidence Density Rate is a measure of the risk of developing an HAI within a specified period of time
- The Numerator is the number of new cases of disease
- The Denominator is “person-time” units
- Example 1: CLABSI Rate

$$\frac{12 \text{ CLABSIs}}{4,000 \text{ CL days}} \times 1,000 = 3.0$$

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Example CLABSI Rate Table

National Healthcare Safety Network
Rate Table for Central Line-Associated BSI Data for ICU-Other
As of: July 11, 2011 at 2:51 PM
Date Range: All CLAB_RATE ICU

argID=15165 loccd=IN:ACUTE:CC:MS

location	summaryYTD	CLABCount	numCLDays	CLABRate	CLAB_Mean	IDR_pval	IDR_pct	numPctDays	LineDU	LineDU_Mean	P_pval	P_pct
ZT - MSICU	2010M01	0	200	0.0	1.7	0.7116	10	401	0.50	0.58	0.0009	33
ZT - MSICU	2010M09	0	75	0.0	1.7	0.8902	10	127	0.59	0.58	0.4147	53
ICU	2009M01	1	110	9.1	1.7	0.1707	100	220	0.50	0.58	0.0123	33
ICU	2009M02	0	120	0.0	1.7	0.8153	10	280	0.43	0.58	0.0000	19
ICU	2009M03	1	170	5.9	1.7	0.2511	97	250	0.68	0.58	0.0006	80
ICU	2009M04	0	140	0.0	1.7	0.7881	10	270	0.52	0.58	0.0296	33
ICU	2009M10	0	600	0.0	1.7	0.3603	10	700	0.86	0.58	0.0000	84
ICU	2010M07	0	4	0.0	1.7	0.9932	10	100	0.04	0.58	0.0000	0

Source of aggregate data: NHSN Report: Am J Infect Control 2011;38:348-367
Data contained in this report were last generated on July 11, 2011 at 2:51 PM

p-values for local v. aggregate



Proportion

- A proportion is a mean of individual binary values (e.g., 1 for presence of a certain characteristic, 0 if the characteristic is absent).²
- A fraction in which the numerator is included within the denominator¹
 - The Numerator is a sample of the total population
 - The Denominator is the total population
 - Often expressed as a percent

¹Hassell N. *Module 4: Data Analysis*. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>

²Szklo M and Nieto F. *Epidemiology Beyond the Basics*, Second Ed. Jones and Bartlett Publishers, Inc., 2007.



Proportion

- **Device Utilization Ratio:** measures the total patient days in which a device was used
- **Surgical Site Infection Rate:** measures the risk of SSI events by specific procedure and risk category

Urinary Catheter DU Ratio = $\frac{\text{\# indwelling catheter days}}{\text{\# patient days}}$

$\frac{4 \text{ SSI in hysterectomy patients}}{280 \text{ women undergoing hysterectomy}} \times 100 = 1.4\%$

Hassell N. *Module 4: Data Analysis*. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>



Risk Ratio Quick Guide

- The relative risk of developing the disease is expressed as the ratio of the risk (incidence) in exposed individuals to that in unexposed.

Szklo M and Nieto F. *Epidemiology Beyond the Basics*, Second Ed. Jones and Bartlett Publishers, Inc., 2007.



Risk Ratio Quick Guide

- **RR = 1:** association between exposure and disease unlikely to exist
- **RR >> 1:** increased risk of disease among those that have been exposed
- **RR << 1:** decreased risk of disease among those that have been exposed

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What is a standardized infection ratio (SIR)?

- **Summary statistic** used to track HAIs over time
- Adjusts for patients of varying risk within each facility.
- Compares the actual number of HAIs reported with the baseline U.S. experience (i.e., NHSN aggregate data are used as the **standard population**), **adjusting** for several risk factors that have been found to be **significantly associated** with differences in **infection incidence**.

CDC NHSN e-Newsletter. What is a standardized infection ratio (SIR)? Updated Dec 2010. Accessed 29 June 2011. Available at <http://1.usa.gov/kYSroK>.



Standardized Infection Ratio

- Ratio of Observed to Expected Infections
- Risk-adjusted summary measure
- Used to compare overall HAI rates or any two patient cohorts, groups, or hospitals

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>



Point Estimates

$$\frac{\text{Numerator}}{\text{Denominator}} \times \text{Constant}$$

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Calculating SIR

- To calculate (O), sum the number of HAIs among a group
- To calculate (E), requires the use of the appropriate aggregate data (risk adjusted rates)

$$\text{SIR} = \frac{\text{Observed (O) HAIs}}{\text{Expected (E) HAIs}}$$

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>

Calculation Method

- Similar to the method used to calculate the Standardized Mortality Ratio (SMR), a summary statistic widely used in public health to analyze mortality data
- In HAI data analysis, the SIR compares the actual number of HAIs reported with the baseline U.S. experience (i.e., NHSN aggregate data are used as the standard population), adjusting for several risk factors that have been found to be significantly associated with differences in infection incidence. In other words, an SIR greater than 1.0 indicates that more HAIs were observed than predicted, accounting for differences in the types of patients followed; conversely, an SIR less than 1.0 indicates that fewer HAIs were observed than predicted.

CDC NHSN e-Newsletter. What is a standardized infection ratio (SIR)? Updated Dec 2010. Accessed 29 June 2011. Available at <http://1.usa.gov/KYSrok>.

Calculation Scheme

"Your Hospital" =
Observed
Infection
Incidence

÷

"Standard Population" =
Expected
Infection
Incidence

Nationwide NHSN Reporters
 ↓
 "Standard Population" =
Expected Infection Incidence

You can look at your whole-house rates as well as look at stratum-specific (unit-level) data to compare infection rates to national aggregate data.

Annual NHSN Report

Table 3. Pooled means and key percentiles of the distribution of laboratory-confirmed central line-associated BSI rates and central line utilization ratios, by type of location, DA module, 2006 through 2008

Central line-associated BSI rate^a

Type of location	No. of locations ^b	No. of CLABSIs	Central line-days	Pooled mean	Percentile				
					10%	25%	50% (median)	75%	90%
Critical care units									
Burn	35	390	70,922	5.5	0.0	1.2	3.1	7.5	11.8
Medical cardiac	228 (221)	876	436,409	2.0	0.0	0.0	1.3	2.5	4.4
Medical major teaching	125	1410	549,088	2.6	0.1	1.1	2.3	3.7	5.2
Medical all others	153 (147)	687	262,388	1.9	0.0	0.0	1.0	2.4	4.3
Medicalsurgical major teaching	182 (181)	1474	699,200	2.1	0.0	0.6	1.7	2.9	4.6
Medicalsurgical all others <=15 beds	718 (650)	1130	755,437	1.5	0.0	0.0	0.0	1.8	3.7
Medicalsurgical all others >15 beds	280 (277)	1449	986,982	1.5	0.0	0.0	1.1	2.0	3.4
Neurologic	24 (23)	61	45,153	1.4	0.0	0.0	1.0	1.9	3.2
Neurosurgical	72	396	160,879	2.5	0.0	0.0	1.9	3.2	5.3
Pediatric cardiothoracic	18	195	58,626	3.3					
Pediatric medical	16 (15)	23	17,321	1.3					
Pediatric medical/surgical	129 (123)	929 ^c	314,306	3.0	0.0	1.1	2.5	4.3	5.8
Respiratory	8	29	17,223	1.7					
Surgical	208 (207)	1683	729,989	2.3	0.0	0.7	1.7	3.1	5.0
Surgical cardiothoracic	203 (202)	879	632,769	1.4	0.0	0.2	0.8	1.9	3.3
Trauma	62	814	224,864	3.6	0.0	1.4	3.0	5.5	9.3

Edwards JR et al. Am J Infect Control 2009; 37: 783-305. Accessed 12 July 2011.
Available at <http://1.usa.gov/pw9gnu>.

Example CLABSI Rate Table Hospital A

Type of Location	# CLABSIs	# Central line-days	CLABSI Rate	NHSN Rate	p-Value	Expected # of CLABSIs
Coronary	2	380	5.26	2.1	0.09	0.80
Cardiothoracic	1	257	3.89	1.4	0.15	0.36
Medical	3	627	4.78	2.4	0.11	1.15
Med/Surg, major teaching	2	712	2.81	2.0	0.32	1.42
Total	8	1976	4.05	---	---	3.73

Expected Number = 380 * (2.1 / 1,000) = 380 * 0.0021 = 0.8

Example CLABSI Rate Table Hospital A

Type of Location	# CLABSI	# Central line-days	CLABSI Rate	NHSN Rate	p-Value	Expected # of CLABSI
Coronary	2	380	5.26	2.1	0.09	0.80
Cardiothoracic	1	257	3.89	1.4	0.15	0.36
Medical	3	627	4.78	2.4	0.11	1.15
Med/Surg, major teaching	2	712	2.81	2.0	0.32	1.42
Total	8	1976	4.05	----	----	3.73

Standardized Infection Ratio (SIR) = Observed/ Expected
= 8/3.73 = 2.14



Interpreting an SIR

- If SIR = 1, or O = E
 - Observed CLABSIs equals the expected CLABSIs based on NHSN
- If SIR is significantly >1
 - This suggests the institution may need further investigation for the contributing ICUs/locations

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Hospitals SIRs Compared to 1

Hospital	SIR	p-Value	Status Group
A	1.2	0.12	Same
B	0.9	0.23	Same
C	2.7	0.001	High
D	0.7	0.002	Low
E	1.5	0.001	High

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Hospitals SIRs Compared to 1

Hospital	SIR	95% Confidence Interval	Status Group
A	1.2	0.7 – 2.4	Same
B	0.9	0.4 – 1.6	Same
C	2.7	2.3 – 3.8	High
D	0.7	0.3 – 0.9	Low
E	1.5	1.3 – 1.9	High

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Risk Ratio Quick Guide

- **RR = 1**: association between exposure and disease unlikely to exist
- **RR >> 1**: increased risk of disease among those that have been exposed
- **RR << 1**: decreased risk of disease among those that have been exposed

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Statistical Significance: p-Value

- The p-value is a statistic that is for hypothesis testing. The null hypothesis SIR statistical testing is that hospital/ unit-level data is not significantly different (higher or lower) than national data for a given period of time.
- The p-value tells whether or not the test statistic generated is due to chance.
- **p = 0.05** is the most commonly used value, and it corresponds to 5%, which is why we use **95% confidence intervals**. If we were to choose $p=0.01$, it would correspond to 10% and a 90% confidence interval.
- $P > 0.05$ means that the test statistic (SIR) is likely due to chance and is therefore statistically non-significant
- $P < 0.05$ means the SIR is likely not due to chance and is statistically significant

Szklo M and Nieto F. *Epidemiology Beyond the Basics*, Second Ed. Jones and Bartlett Publishers, Inc., 2007.



Hospital SIRs Compared to 1

Hospital	SIR	p-value	Status Group
A	1.2	0.12	SAME
B	0.9	0.23	SAME
C	2.7	0.001	HIGH
D	0.7	0.002	LOW
E	1.5	0.001	HIGH

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95% Confidence Interval

- 95% Confidence Interval:** a statistic that estimates **precision** and not a test for the statistical significance of a point estimate; however, when the 95% confidence interval of an association measure does not overlap the **null value**, it is often used as a proxy for the presence of statistical significance ($p < 0.05$). expresses the statistical uncertainty of the point estimate and should not be mechanically and interpreted as a range of equally likely possible values.
- Verbiage example:** SIR = 1.8 [95% CI: 1.6 – 2.1]. We are 95% certain that the resulting SIR is 1.8. While we are not 100% sure, we are confident that the true value lies within the 1.6 to 2.1 range. Since we do not have a p-value corresponding with this statistic, we can proxy statistical significance for this value as the 95% CI does not include the value 1.0.

Sklo M and Nieto F. Epidemiology Beyond the Basics, Second Ed. Jones and Bartlett Publishers, Inc., 2007.

Hospital SIRs Compared to 1

Hospital	SIR	95% Confidence Interval	Status Group
A	1.2	0.7 – 2.4	SAME
B	0.9	0.4 – 1.6	SAME
C	2.7	2.3 – 3.8	HIGH
D	0.7	0.3 – 0.9	LOW
E	1.5	1.3 – 1.9	HIGH

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/vg1cm>

Facility Data Analysis



Steps to Successful CLABSI Analysis

- Step 1
 - Log in to NHSN Patient Safety Component Home Page
- Step 2
 - Select Analysis
- Step 3
 - Generate Data Sets
- Step 4
 - Select Output Options

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Steps to Successful CLABSI Analysis

- Step 5
 - 5a. Expand “Device-Associated Module”
 - 5b. Expand “Central Line-Associated BSIs”
 - 5c. Expand “CDC Defined Output”
- Step 6
 - To change Output, select “Modify”
- Step 7
 - 7a. Perform a “Run” on Line Listing – All CLAB Events
 - 7b. Perform a “Run” on Frequency Table – All CLAB Events

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Steps to Successful CLABSI Analysis

- 7c. Perform a "Run" on Rate Table CLAB Data for ICU Other
- 7d. Perform a "Run" on SIR All CLAB Data
- Step 8 (optional)
 - 8a. Perform a "Run" on Bar Chart - All CLAB Events
 - 8b. Perform a "Run" on Pie Chart - All CLAB Events
 - 8c. Perform a "Run" on Control Chart CLAB Data for ICU Other

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CLABSI Steps 1-5



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CLABSI Step 6a

Analysis Rate Table

Analysis Data Set: CLAB_RateICU

Modify Attributes of the Output:

Last Modified On: 07/11/2011

Output Type: Rate Table

Output Name: Rate Table - CLAB Data for ICU-Other

Output Title: Rate Table for Central Line-Associated BSI Data for ICU

Select output format:

Output Format: HTML

Use Variable Labels

Select a time period or Leave Blank for Cumulative Time Period:

Date Variable: Beginning Ending

Enter Date variable/Time period at the time you click the Run button

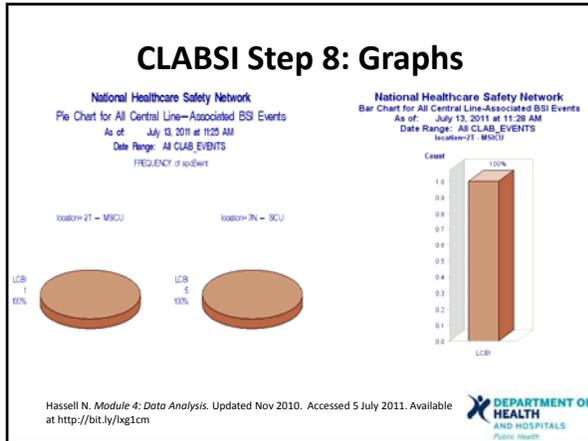
Example of Analysis Modification Screen:

Can export analysis and output datasets. Can change the design parameters of output here.

The top section allows you to modify output characteristics, such as output name, title, and format.

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Interpreting CLABSI Rates

- Step 1
 - If it is below the median, determine whether the rate (ratio) is below the 25th percentile
 - At the 25th percentile, 25% of the hospitals had lower rates (ratios) and 75% of the hospitals had higher rates (ratios)
- Step 2
 - If the rate (ratio) is below the 25th percentile, determine whether it is below the 10th percentile
 - If the rate is, then it is a low outlier. May be due to underreporting of infections

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Interpreting CLABSI Rates

- If the ratio is below the 10th percentile, it is a low outlier and may be due to infrequent and/or short duration of device use
- Note: Device-associated infection rates and device utilization ratios should be examined together so that preventive measures may be appropriately targeted

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Interpreting CLABSI Rates

- For example, you find that the CLABSI rate for a certain type of ICU is consistently above the 90th percentile and the CLABSI utilization ratio is routinely between the 75th and 90th percentiles
- Your facility may want to limit the duration of central lines whenever possible (i.e., decrease unnecessary use) while at the same time optimize infection prevention strategies in patients for which the use of a central line is required

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Steps to Successful SSI Analysis

- Step 1
 - Log in to NHSN Patient Safety Component Home Page
- Step 2
 - Select Analysis
- Step 3
 - Generate Data Sets
- Step 4
 - Select Output Options

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Steps to Successful SSI Analysis

- Step 5
 - 5a. Expand “Procedure-associated Module”
 - 5b. Expand “SSI”
 - 5c. Expand “CDC Defined Output”
- Step 6
 - To change Output, select “Modify”
- Step 7
 - 7a. Perform a “Run” on Line Listing – All SSI Events
 - 7b. Perform a “Run” on Frequency Table – All SSI Events

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Steps to Successful SSI Analysis

- 7c. Perform a "Run" on SIR - All SSI Data by Procedure
- Step 8
 - 8a. Expand "Advanced"
 - 8b. Expand "Procedure-level Data"
 - 8c. Expand "CDC Defined Output"
 - 8d. Perform a "Run" on Rate Table-Specific Event SSI Rates by Procedure
 - 8e. Perform a "Run" on Control Chart-Specific Event SSI Data by Procedure

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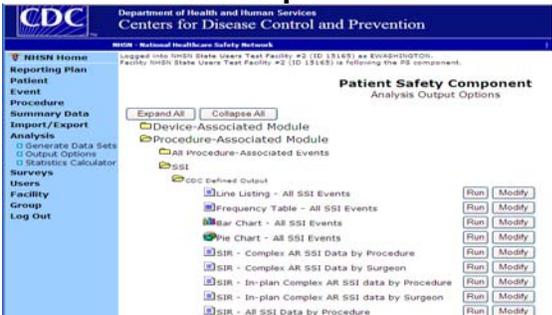
Steps to Successful SSI Analysis

- Step 9 (Optional)
 - 9a. Perform a "Run" on Bar Chart - All SSI Events
 - 9b. Perform a "Run" on Pie Chart - All SSI Events

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SSI Steps 1-5



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SSI Step 7: Incomplete Procedures for SSI SIR

National Healthcare Safety Network
 Line Listing for Incomplete or Excluded Procedures for SSI SIR
 As of July 13, 2011 at 12:30 PM
 Date Range: PROCEDURES.procedureYr After and including 2009

orgID	patID	procID	all_incomplete	cmpx_incomplete	procDate	procCode	dob	gender	procDurationHr	procDurationMin	anesthesia	approach
15165	TEST2011	4122313	Y	Y	01/13/2011	CHOL	01/01/1922	M	0	0		
15165	2010TEST	4110828	Y	Y	01/09/2011	CHOL	10/05/1977	M	0	0		
15165	OSDH1234TEST	4493335	Y	Y	03/06/2011	CSEC	04/05/1981	F	0	0	N	
15165	M11753	3385195	Y	Y	07/11/2010	KPRO	09/21/1942	F	3	12	Y	
15165	H12458	4091951	Y	N	12/17/2009	RFUSN	02/02/1967	M	4	6	Y	N

Data contained in this report were last generated on July 11, 2011 at 3:28 PM.
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SSI Step 8

Patient Safety Component
 Analysis Output Options

Expand All Collapse All

- Device-Associated Module
- Procedure-Associated Module
- All Procedure-Associated Events
- SSI
 - CDC Defined Output
 - Line Listing - All SSI Events Run Modify
 - Frequency Table - All SSI Events Run Modify
 - Bar Chart - All SSI Events Run Modify
 - Pie Chart - All SSI Events Run Modify
 - SSIR - Complex AR SSI Data by Procedure Run Modify
 - SSIR - Complex AR SSI Data by Surgeon Run Modify
 - SSIR - In-plan Complex AR SSI data by Procedure Run Modify
 - SSIR - In-plan Complex AR SSI data by Surgeon Run Modify
 - SSIR - All SSI Data by Procedure Run Modify
 - SSIR - All SSI Data by Surgeon Run Modify
 - SSIR - In-plan All SSI Data by Procedure Run Modify
 - SSIR - In-plan All SSI data by Surgeon Run Modify
 - Line Listing - Incomplete Procedures for SSI SIR Run Modify

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SSI

- NHSN assigns surgical patients into categories based on 3 major Risk Factors – Basic SSI Risk Index
 - 1. Operation lasting more than duration cut point hours, where duration cut point is approximate 75th percentile of duration of surgery in minutes for the operative procedure
 - 2. Contaminated (Class 3) or Dirty/Infected (Class 4) wound class
 - 3. American Society of Anesthesiologists (ASA) classification of 3, 4, or 5

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SSI

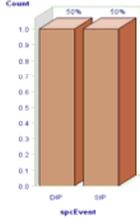
- Patient's SSI risk category is number of factors present at time of operation
- *Rate calculations will be performed separately for the different types of operative procedures and stratified by risk index

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SSI Step 9

National Healthcare Safety Network
Bar Chart for All Surgical Site Infection Events
As of: July 13, 2011 at 12:34 PM
Date Range: All SSI_EVENTS
procCode=CARD



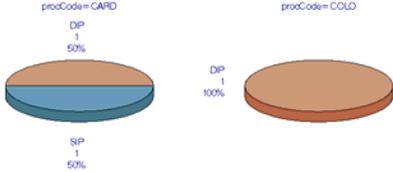
Data contained in this report were last generated on July 11, 2011 at 3:28 PM

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SSI Step 9

National Healthcare Safety Network
Pie Chart for All Surgical Site Infection Events
As of: July 13, 2011 at 12:36 PM
Date Range: All SSI_EVENTS
FREQUENCY of spcEvent



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Device Utilization Ratio Calculation Steps

- **Step 1:** decide on the time period of your analysis.
 - It may be a month, a quarter, 6 months, a year, or some other period
- **Step 2:** select the patient population for analysis
 - Type of location or a birth-weight category in a NICU
- **Step 3:** select the infections to be included in the numerator
 - They must be site-specific and must have occurred in the selected patient population
 - Their date of onset must be during the selected time period
- **Step 4:** determine number of device days which is used as denominator of rate

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Device Utilization Ratio

Device days are the total number of days of exposure to device (central line, umbilical catheter, ventilator, or urinary catheter) by all patients in selected population during selected time period.

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Device Utilization Ratio Example 1

Five patients on the first day of the month had one or more central lines in place; five on day 2; two on day 3; five on day 4; three on day 5; four on day 6; and four on day 7

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Device Utilization Ratio Example 1

Answer

- Adding the number of patients with central lines on days 1 through 7, we would have $5 + 5 + 2 + 5 + 3 + 4 + 4 = 28$ central line days for the first week
- If we continued for the entire month, the number of central line days for the month is simply the sum of the daily counts

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Device Utilization Ratio Example 2

Ten patients were in the unit on the first day of the month; 12 on day 2; 11 on day 3; 13 on day 4; 10 on day 5; 6 on day 6; and 10 on day 7; and so on.

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Device Utilization Ratio Example 2

Answer

- If we counted the patients in the unit from days 1 through 7 we would add $10 + 12 + 11 + 13 + 10 + 6 + 10$ for a total of 72 patient days for the first week of the month
- If we continued for the entire month, the number of patient days for the month is simply the sum of the daily counts

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Device Utilization Ratio Calculation

Step 5

- Calculate the DU Ratio with the following formula
- With the number of device days and patient days from the examples above, $DU = 28/72 = 0.39$ or 39% of patient days were also central line days for the first week of the month

$$\text{Urinary Catheter DU Ratio} = \frac{\text{\# indwelling catheter days}}{\text{\# patient days}}$$

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Device Utilization Ratio Calculation

Step 6

- Examine the size of the denominator for your hospital's rate or ratio
- Rates or ratios may not be good estimates of the "true" rate or ratio for your hospital if the denominator is small (< 50 device days or patient days)

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Device Utilization Ratio Calculation

Step 7

- Compare your hospital's location-specific rates or ratios with those found in the tables of this report
- Refer to Appendix B for interpretation of the percentiles of the rates/ ratios

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Interpreting the Device Utilization Ratio

- **Step 1:** evaluate the rate (ratio) you have calculated for your hospital and confirm that the variables in the rate (both numerator and denominator) are identical to the rates (ratios) in the table
- **Step 2:** examine the percentiles in each of the tables and look for the 50th percentile (or median). At the 50th percentile, 50% of the hospitals have lower rates (ratios) than the median and 50% have higher rates (ratios)

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Interpreting the Device Utilization Ratio

- **Step 3:** determine if your hospital's rate (ratio) is above or below this median
- **Step 4:** If it is above the median, determine whether the rate (ratio) is above the 75th percentile. At the 75th percentile, 75% of the hospitals and lower rates (ratios) and 25% of the hospital and higher rates (ratios)

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Interpreting the Device Utilization Ratio

- **Step 5:** if the rate (ratio) is above the 75th percentile, determine whether it is above the 90th percentile. If it is, then the rate (ratio) is an outlier which may indicate a problem

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Compare Two Standardized Infection Ratios

When comparing two standardized infection ratios, the hypothesis is that the two ratios are not different from each other. To perform a hypothesis test and calculate a p-value, enter the number of observed events and the number of expected events. The standardized infection ratio (SIR) for each data source will be displayed automatically. Press calculate.

	Data Source #1	Data Source #2
Group Labels:	MICU	SICU
Number observed:	8	10
Number expected:	4	3
Standardized Infection Ratio:	2.000	3.333

Title:

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Compare Single SIR to 1

When comparing a standardized infection ratio, the hypothesis is that the SIR is not different from one. To perform a hypothesis test and calculate a p-value, enter the number of observed events and the number of expected events. The SIR will be displayed automatically. Press calculate.

	Data Source #1
Group Labels:	ICU CLABSI
Number observed:	12
Number expected:	8
Standardized Infection Ratio:	1.500

Title:

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Compare Two Incidence Density Rates

When comparing two incidence density rates, for example, two central line-associated bloodstream infection rates, the hypothesis is that the rates are not different from each other. To perform a statistical test and calculate a p-value, enter the number of events as the numerator and the number of person-time units as the denominator for each rate. Press calculate.

	Data Source #1	Data Source #2
Group Labels:	Med Ward CAUTI	Surg Ward CAUTI
Numerator(Number of events):	20	14
Denominator(Number of person-time units):	4000	2500

Title:

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Compare Two Incidence Density Rates

**National Healthcare Safety Network
December 2010**
As of: July 13, 2011 at 12:57 PM

	Med Ward CAUTI	Surg Ward CAUTI
Numerator	20	14
Denominator	4000	2500
Proportion	5%	6%
IDR p-value	0.3552	

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Creating Reports

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Modify

Patient Safety Component
Analysis Output Options

Expand All Collapse All

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

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Customize

Various operators can be selected to modify the output:

Operator	Meaning
=	Equal to
>	Greater than
>=	Greater than or equal to
<	Less than
<=	Less than or equal to
~=	Not equal to
in	In a set of defined values
~in	Not in a set of defined values
Between	Within a range of defined values



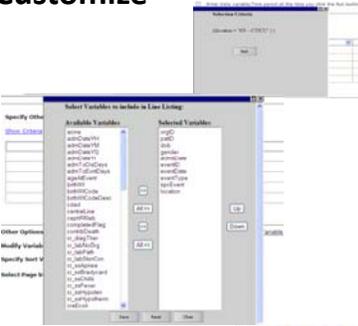
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Customize

Tip: Double-check your filtering by clicking "Show Criteria". This box will display the parenthetical equation used to filter your data.

Other Options:
Print the variable reference list from any modification screen or the NHSN website. This document includes every variable name in NHSN with a corresponding, more descriptive variable label.



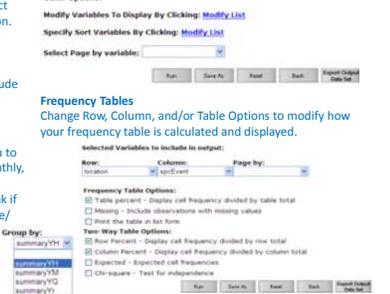
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Customize

- The "Specify Sort Variables" is an identical utility where you select the variables you wish to sort on. Be careful not to sort by too many!
- If you specify a "Sort" or "Page By" variable, remember to include that same variable in your line listing!

Rate Tables & SIR Tables
The Group by option allows you to select a summary table for monthly, quarterly, or annual rates/ SIRs. Leave the Group by option blank if you would like a cumulative rate/ SIR for a time period specified above.



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Customize

Name and Save Modified Output:

- The Run button at the bottom of the design page allows you to view the modified output.
- TIP:** remember to close the HTML output window before running another output option. Once you've modified output to your liking, change the Output Name and Output Title to represent this specific output. The modified output option can be saved by clicking the Save As button.
- All modified and saved output can be found in the "Custom Output" folders.

Modify Attributes of the Output:

Last Modified On: 07/11/2011

Output Type: Frequency Table

Output Name: Frequency Table - All CLAB Events

Output Title: Frequency Table for All Central Line-Associated BSI

Run Save As Reset Back Export Output Data Set

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>

Export Data

- A user can perform three types of exports:
 1. Facility Data Export
 2. Analysis Data Set Export
 3. Output Data Set Export

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>

Export Data

- A user may export their facility's entire data, a specific Analysis Data Set, or Output Data Set using a number of popular file formats
 - e.g., MS Excel

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/lxg1cm>

Export Data

Export Data Sets:

[Analysis Data Set](#)

An analysis data set consists of data of a particular type such as CLABSI event(s) created for a user to produce output. The option to export the analysis data set (found at the top of the Output Options page) will include all data within the output option chosen, without any date parameters, filtering or other modifications. NOTE: When exporting analysis data sets for rates, the NHSN aggregate data and comparative statistics will not be included. To export this information, you should export the output data set.

[Output Data Set](#)

The option to export the output data set (found at the bottom of the Output Options page) will include all data within the output option chosen, with any date parameters, filtering or other modifications. Whichever type of export you choose it will take you to the Export Output Options page, where you may select the format type for the exported file. Clicking on the drop-down menu will list your options for the export format.

Run Save As Reset Back Export Output Data Set

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/hg1cm>

Export Data

Export Output Options

Exporting Option Line Listing - All CLAB Events: Select data export format

- delimited file (comma-separated values) (*.csv)
- delimited file (tab-delimited values) (*.csv)
- delimited file (tab-delimited values) (*.txt)
- Excel spreadsheet (*.xls)
- Excel 5.0 or 7.0 (95) spreadsheet (*.xls)
- MSBASE 5.0 (V, IV, II, and II) files (*.dbf)
- SAS for Windows V7/S9 (*.sas7bdat)

Export Back

The Download

Do you want to open or save this file?

Name: LineListing_ABCLABvents.csv
Type: Microsoft Excel 2.000
From: web7.r.d.open

Open Save Cancel

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/hg1cm>

Excel Output

orgid	admid	gender	admitDate	eventID	eventDate	eventtype	upcl	event	location
15165	7234	M	10-06-08	3095588	10-06-07	ESBI	LCBH	ST	MICU
15165	7234	M	10-11-08	3842777	10-11-11	ESBI	LCBH	ICU	
15165	7234	M	10-11-04	3865619	10-11-08	ESBI	LCBH	ICU	
15165	7234	M	09-01-10	2734113	09-01-15	ESBI	LCBH	ICU	
15165	7236	F	10-06-08	3095869	10-06-10	ESBI	LCBH	ST	MICU
15165	7235	M	10-09-16	3626440	10-09-17	ESBI	LCBH	ICU	
15165	7236	F	10-06-10	3097752	10-06-15	ESBI	LCBH	ST	MICU
15165	7237	F	10-06-05	3298751	10-06-12	ESBI	LCBH	ST	MICU
15165	7292	F	10-11-12	3879873	10-11-17	ESBI	LCBH	ICU	
15165	7803	F	09-01-03	2414552	09-01-15	ESBI	LCBH	3N	SICU
15165	491618	F	09-01-28	3180518	09-01-14	ESBI	LCBH	3N	SICU
15165	782	M	10-12-01	4217791	10-12-24	ESBI	LCBH	%4321	
15165	783	F	10-11-01	4217665	10-11-09	ESBI	LCBH	%4321	
15165	784	M	10-11-01	4217710	10-11-12	ESBI	LCBH	%4321	
15165	786	F	11-01-01	4217637	11-01-22	ESBI	LCBH	%4321	
15165	786	M	11-01-01	4217606	11-01-19	ESBI	LCBH	%4321	
15165	787	F	11-01-01	4217680	11-01-07	ESBI	LCBH	%4321	
15165	788	F	11-01-01	4217439	11-01-14	ESBI	LCBH	%4321	
15165	788	F	11-01-01	4217238	11-01-07	ESBI	LCBH	ST	MICU
15165	345236	F	08-12-22	3180528	09-03-22	ESBI	LCBH	3N	SICU
15165	345236	F	09-02-08	3180514	09-02-20	ESBI	LCBH	3N	SICU
15165	345236	F	09-02-15	3180542	09-03-01	ESBI	LCBH	ICU	
15165	345236	F	09-02-19	3180538	09-04-02	ESBI	LCBH	3N	SICU
15165	399	M	10-09-22	3703540	10-10-13	ESBI	LCBH	ST	MICU

Hassell N. Module 4: Data Analysis. Updated Nov 2010. Accessed 5 July 2011. Available at <http://bit.ly/hg1cm>

Understanding the Relationship between Healthcare-Associated Infection (HAI) Rate and Standardized Infection Ratio (SIR) Comparison Metrics

While national aggregate Central Line Associated Bloodstream Infection (CLABSI) data are published in the annual National Healthcare Safety Network (NHSN) Reports these rates much be stratified by types of locations to be risk-adjusted. This scientifically sound risk-adjustment strategy creates a practical challenge to summarizing this information nationally, regionally or even for an individual healthcare facility. For instance, when comparing CLABSI rates, there may be quite a number of different types of locations for which a CLABSI rate could be reported. Given CLABSI rates among 15 different types of locations, one may observe many different combinations of patterns of temporal changes. This raises the need for a way to combine CLABSI rate data across location types.

A standardized infection ratio (SIR) is identical in concept to a standardized mortality ratio and can be used as an indirect standardization method for summarizing HAI experience across any number of stratified groups of data. To illustrate the method for calculating an SIR and understand how it could be used as an HAI comparison metric, the following example data are displayed below:

Risk Group Stratifier	Observed CLABSI Rates			NHSN CLABSI Rates for 2008 (Standard Population)		
Location Type	#CLABSI	#Central line-days	CLABSI rate*	#CLABSI	#Central line-days	CLABSI rate*
ICU	170	100,000	1.7	1200	600,000	2.0
WARD	58	58,000	1.0	600	400,000	1.5
$\text{SIR} = \frac{\text{observed}}{\text{expected}} = \frac{170 + 58}{100000 \times \left(\frac{2}{1000}\right) + 58,000 \times \left(\frac{1.5}{1000}\right)} = \frac{228}{200 + 87} = \frac{228}{287} = 0.79 \quad 95\% \text{ CI} = (0.628, 0.989)$						

*defined as the number of CLABSIs per 1000 central line-days

In the table above, there are two strata to illustrate risk-adjustment by location type for which national data exist from NHSN. The SIR calculation is based on dividing the total number of observed CLABSI events by an “expected” number using the CLABSI rates from the standard population.

This “expected” number is calculated by multiplying the national CLABSI rate from the standard population by the observed number of central line-days for each stratum which can also be understood as a prediction or projection. If the observed data represented a follow-up period such as 2009 one would state that an SIR of 0.79 implies that there was a 21% reduction in CLABSIs overall for the nation, region or facility.

The SIR concept and calculation is completely based on the underlying CLABSI rate data that exist across a potentially large group of strata. Thus, the SIR provides a single metric for performing comparisons rather than attempting to perform multiple comparisons across many strata which makes the task cumbersome. Given the underlying CLABSI rate data, one retains the option to perform comparisons within a particular set of strata where observed rates may differ significantly from the standard populations. These types of more detailed comparisons could be very useful and necessary for identifying areas for more focused prevention efforts.

The National 5-year prevention target for metric #1 could be implemented using the concept of an SIR equal to 0.25 as the goal. That is, an SIR value based on the observed CLABSI rate data at the 5-year mark could be calculated using NHSN CLABSI rate data stratified by location type as the baseline to assess whether the 75% reduction goal was met. There are statistical methods that allow for calculation of confidence intervals, hypothesis testing and graphical presentation using this HAI summary comparison metric called the SIR.

There are clear advantages to reporting and comparing a single number for prevention assessment. However, since the SIR calculations are based on standard HAI rates among individual risk groups there is the ability to perform more detailed comparisons within any individual risk group should the need arise. Furthermore, the process for determining the best risk-adjustment for any HAI rate data is flexible and always based on more detailed risk factor analyses that provide ample scientific rigor supporting any SIR calculations. The extent to which any HAI rate data can be risk-adjusted is obviously related to the detail and volume of data that exist in a given measurement system.

In addition to the simplicity of the SIR concept and the advantages listed above, it's important to note another benefit of using an SIR comparison metric for HAI data. If there was need at any level of aggregation (national, regional, facility-wide, etc.) to combine the SIR values across mutually-exclusive data one could do so. The below table demonstrates how the example data from the previous two metric settings could be summarized.

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

DRAFT (8/5/2011)

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 (<i>proposed</i>)	Dialysis Facilities	January 2012
Positive blood culture (<i>proposed</i>)	Dialysis Facilities	January 2012
Signs of vascular access infection (<i>proposed</i>)	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	Acute Care Hospitals	January 2013
<i>C. difficile</i> LabID Event	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	OP Surgery, ASCs	October 2013
SSI (<i>proposed</i>)	Outpatient Surgery/ASCs	January 2014

* Long Term Care Hospitals are called **Long Term Acute Care Hospitals** in NHSN



Importing Patient Safety Procedure Data

The NHSN will allow importation of procedure data in an ASCII comma delimited text file format. You can generate the import files from different external sources, such as databases or hospital information systems. The default import option allows the importation of procedures where the procedure date occurs in a month for which a Monthly Reporting Plan exists and the Plan specifies the procedure code in the import file record. If you wish to import records for procedures not in the Plan, you must specify which procedures to include.

Custom procedures can also be imported if they are first created on the custom options page.

Notes:

1. Data in the import file must be in the same order as described in the table below, not as they appear on the Denominator for Procedure form.
2. The comma delimited text file format defined in the below table requires commas between fields even if no data values exist (e.g., optional or empty fields).
3. If a bilateral procedure is performed, two procedure records are required. Refer to the NHSN Procedure Codes table for a list of procedures that can be bilateral.
4. There should be a unique duration for each bilateral procedure. If only one total time is available for both procedures, estimate the duration for each or split the time evenly between them.
5. For procedures, if Outpatient = Y, then the procedure must be one of those listed in the NHSN Procedure Codes table as an Outpatient Procedure.
6. If you are importing Surgeon Code, all surgeon codes must exist in NHSN prior to importing.
7. If the optional Procedure Comment field has text that contains commas you must place a double quote at the beginning and end of the string of text (e.g., with allograft, dowels, plates).
8. When creating comma delimited files, be careful to exclude non-printable characters as they may actually cause the data to be improperly imported and result in errors.
9. You must delete the header line from the CSV file prior to importing the data.

NHSN Procedure Import File Format**:

Field	Required/ Optional	Values	Format
Patient ID	Required		Character Length 15



Gender	Required	M- Male F - Female	Character Length 1
Date of Birth	Required		mm/dd/yyyy
NHSN Procedure Code	Required	See NHSN procedure codes	Character Length 5
Date of Procedure	Required		mm/dd/yyyy
Outpatient	Required	Y - Yes N - No Note: Some procedures may only be inpatient or outpatient. See NHSN procedure codes below.	Character Length 1
Duration Hours	Required		Numeric Length 2
Duration Minutes	Required		Numeric Length 2
Wound Class	Required	C - Clean CC - Clean Contaminated CO - Contaminated D - Dirty/Infected U - Unknown	Character Length 2
ASA Class	Required if Outpatient = N	1 - Normally healthy patient 2 - Patient with mild systemic disease 3 - Patient with severe systemic disease, not incapacitating 4 - Patient with incapacitating systemic disease, constant threat to life 5 - Moribund patient < 24 hr life expectancy	Character Length 1
Endoscope	Required	Y - Yes N - No	Character Length 1
Surgeon Code	Optional for import		Character Length 20
Emergency	Required	Y - Yes N - No	Character Length 1
Empty (formerly Multiple Procedure)	Required	<i>This empty column is considered a placeholder and <u>must</u> be included in the import file.</i>	
General Anesthesia	Required	Y - Yes N - No	Character Length 1
Trauma	Required	Y - Yes N - No	Character Length 1
Spinal Level	Required if procedure code is FUSN or	A - Atlas-axis AC - Atlas-axis/Cervical	Character Length 2



	RFUSN	C - Cervical CD - Cervical/Dorsal/Dorsolumbar D - Dorsal/Dorsolumbar L - Lumbar/Lumbosacral N - Not specified	
Type of HPRO	Required if procedure code is HPRO	TP - Total Primary PP - Partial Primary TR - Total Revision PR - Partial Revision	Character Length 2
Type of KPRO	Required if procedure code is KPRO	T - Primary (Total) R - Revision (Total or Partial)	Character Length 1
Height* in feet	Optional for import; used only when procedure code is CSEC		Numeric Length 2
Height* in inches	Optional for import; used only when procedure code is CSEC		Numeric Length 2
Height *in meters	Optional for import; used only when procedure code is CSEC		Numeric decimal(6,3) 999.999
Weight* in pounds	Optional for import; used only when procedure code is CSEC		Numeric decimal(5,2) 999.99
Weight* in kilograms	Optional for import; used only when procedure code is CSEC		Numeric Numeric decimal(5,2) 999.99
Duration of Labor	Optional for import; used only when procedure code is CSEC		Numeric decimal(6,3) 999.999
Estimated Blood Loss	Required if procedure code is CSEC		Numeric Length 9
Diabetes Mellitus	Optional for import; used only when procedure code is FUSN or RFUSN	Y - Yes N - No	Character Length 1
Type of Approach	Required if procedure code is FUSN or RFUSN	A - Anterior P - Posterior B - Anterior and Posterior L - Lateral transverse N - Not specified	Character Length 1
Procedure Comment	Optional for import		Character Length 1000



Custom alpha value 1	Optional for import		Character Length 15
Custom alpha value 2	Optional for import		Character Length 15
Custom alpha value 3	Optional for import		Character Length 15
Custom alpha value 4	Optional for import		Character Length 15
Custom alpha value 5	Optional for import		Character Length 15
Custom alpha value 6	Optional for import		Character Length 15
Custom alpha value 7	Optional for import		Character Length 15
Custom alpha value 8	Optional for import		Character Length 15
Custom alpha value 9	Optional for import		Character Length 15
Custom alpha value 10	Optional for import		Character Length 15
Custom date value 1	Optional for import		mm/dd/yyyy
Custom date value 2	Optional for import		mm/dd/yyyy
Custom numeric value 1	Optional for import		Numeric - Length decimal(12,3) 999999999.999
Custom numeric value 2	Optional for import		Numeric - Length decimal(12,3) 999999999.999
Implant	Required	Y - Yes N - No	Character Length 1
Non-autologous Transplant	Required	Y - Yes N - No	Character Length 1
ICD-9-CM	Optional	ICD-9-CM code must be a valid code as listed in the NHSN Operative Procedure Category list.	Character Length 5 ##.##

* Values for weight and height can be either in pounds and feet/inches or in kilograms and meters.
 **For further clarification of each field, please refer to Chapter 9 (Surgical Site Infection Event) of the NHSN Manual: Patient Safety Component Protocol.



NHSN Procedure Codes

Code	Operative Procedure	Description	Multiple	Inpatient Procedure	Outpatient Procedure
AAA	Abdominal aortic aneurysm repair	Resection of abdominal aorta with anastomosis or replacement		In	
AMP	Limb amputation	Total or partial amputation or disarticulation of the upper or lower limbs, including digits	4	In	
APPY	Appendix surgery	Operation of appendix (not incidental to another procedure)		In	Out
AVSD	Shunt for dialysis	Arteriovenostomy for renal dialysis		In	Out
BILI	Bile duct, liver or pancreatic surgery	Excision of bile ducts or operative procedures on the biliary tract, liver or pancreas (does not include operations only on gallbladder)		In	Out
BRST	Breast surgery	Excision of lesion or tissue of breast including radical, modified, or quadrant resection, lumpectomy, incisional biopsy, or mammoplasty.	2	In	Out
CARD	Cardiac surgery	Open chest procedures on the valves or septum of heart; does not include coronary artery bypass graft, surgery on vessels, heart transplantation, or pacemaker implantation		In	
CEA	Carotid endarterectomy	Carotid endarterectomy	2	In	Out



CBGB	Coronary artery bypass graft with both chest and donor site incisions	Chest procedure to perform direct revascularization of the heart; includes obtaining suitable vein from donor site for grafting.		In	
CBGC	Coronary artery bypass graft with chest incision only	Chest procedure to perform direct vascularization of the heart using, for example the internal mammary (thoracic) artery		In	
CHOL	Gallbladder surgery	Cholecystectomy and cholecystotomy		In	Out
COLO	Colon surgery	Incision, resection, or anastomosis of the large intestine; includes large-to-small and small-to-large bowel anastomosis; does not include rectal operations		In	Out
CRAN	Craniotomy	Incision through the skull to excise, repair, or explore the brain; does not include taps or punctures		In	
CSEC	Cesarean section	Obstetrical delivery by Cesarean section		In	Out
FUSN	Spinal fusion	Immobilization of spinal column	4	In	Out
FX	Open reduction of fracture	Open reduction of fracture or dislocation of long bones that requires internal or external fixation; does not include placement of joint prosthesis	4	In	Out
GAST	Gastric surgery	Incision or excision of stomach; includes subtotal or total gastrectomy; does not include vagotomy and fundoplication		In	Out



HER	Herniorrhaphy	Repair of inguinal, femoral, umbilical, or anterior abdominal wall hernia; does not include repair of diaphragmatic or hiatal hernia or hernias at other body sites.	5	In	Out
HPRO	Hip prosthesis	Arthroplasty of hip	2	In	Out
HTP	Heart transplant	Transplantation of heart		In	
HYST	Abdominal hysterectomy	Removal of uterus through an abdominal incision		In	Out
KPRO	Knee prosthesis	Arthroplasty of knee	2	In	Out
KTP	Kidney transplant	Transplantation of kidney		In	
LAM	Laminectomy	Exploration or decompression of spinal cord through excision or incision into vertebral structures		In	Out
LTP	Liver transplant	Transplantation of liver		In	
NECK	Neck surgery	Major excision or incision of the larynx and radical neck dissection; does not include thyroid and parathyroid operations.		In	Out
NEPH	Kidney surgery	Resection or manipulation of the kidney with or without removal of related structures	2	In	Out
OVRY	Ovarian surgery	Operations on ovary and related structures	2	In	Out
PACE	Pacemaker surgery	Insertion, manipulation or replacement of pacemaker		In	Out



PRST	Prostate surgery	Suprapubic, retropubic, radical, or perineal excision of the prostate; does not include transurethral resection of the prostate.		In	Out
PVBY	Peripheral vascular bypass surgery	Bypass operations on peripheral arteries	4	In	Out
REC	Rectal surgery	Operations on rectum		In	Out
RFUSN	Refusion of spine	Refusion of spine		In	Out
SB	Small bowel surgery	Incision or resection of the small intestine; does not include small-to-large bowel anastomosis		In	Out
SPLE	Spleen surgery	Resection or manipulation of spleen		In	Out
THOR	Thoracic surgery	Noncardiac, nonvascular thoracic surgery; includes pneumonectomy and diaphragmatic or hiatal hernia repair		In	Out
THYR	Thyroid and/or parathyroid surgery	Resection or manipulation of thyroid and/or parathyroid		In	Out
VHYS	Vaginal hysterectomy	Removal of the uterus through vaginal or perineal incision		In	Out
VSHN	Ventricular shunt	Ventricular shunt operations, including revision and removal of shunt		In	Out
XLAP	Abdominal surgery	Abdominal operations not involving the gastrointestinal tract or biliary system		In	Out



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Table 1. Instructions for Completion of the Patient Safety Monthly Reporting Plan Form (CDC 57.106) ([Tables of Instructions List](#))

Data Field	Instructions for Form Completion
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Month/Year	Required. Enter the month and year for the surveillance plan being recorded; use MM/YYYY format.
No NHSN Patient Safety Modules Followed this Month	Conditionally required. Check this box if you do <u>not</u> plan to follow any of the NHSN Patient Safety Modules during the month and year selected.
Device-Associated Module	
Locations	Conditionally required. If you plan to follow device-associated events, enter the location codes for those facility locations where patients are housed overnight and from which you will collect denominator data (i.e., inpatient locations). If you plan to follow CLIP (see below), any type of patient care location where central lines are inserted may be entered.
CLABSI	Conditionally required. If you plan to follow device-associated events, check this box if you will collect central line-associated bloodstream infection (CLABSI) data and corresponding summary (denominator) data for the location in the left column.
DE	Conditionally required. If you plan to follow device-associated events, check this box if you will collect dialysis event (DE) data and corresponding summary (denominator) data for the outpatient dialysis location in the left column.
VAP	Conditionally required. If you plan to follow device-associated events, check this box if you will collect ventilator-associated pneumonia (VAP) data and corresponding summary (denominator) data for the location in the left column.
CAUTI	Conditionally required. If you plan to follow device-associated events, check this box if you will collect catheter-associated urinary tract infection (CAUTI) data and corresponding summary (denominator) data for the location in the left column.
CLIP	Conditionally required. Check this box if you will collect central line insertion practice (CLIP) data for the location indicated in the left column. These locations may be any type of patient care area where central lines are inserted (e.g., ward, OR, ED, ICU, outpatient clinic, etc.).
Procedure-Associated Module	
Procedures	Conditionally required. If you plan to follow procedure-associated events, list the procedure codes for those NHSN operative procedures for which you will collect data about selected procedure-associated events and procedure-level denominator data.



Data Field	Instructions for Form Completion
SSI (Circle one setting)	Conditionally required. For each selected NHSN operative procedure in the left column, if you plan to follow SSIs, choose the patient population for which you will monitor this procedure. Circle “In” to follow only inpatients, circle “Out” to follow only outpatients, or circle “Both” to follow inpatients <u>and</u> outpatients. If SSIs will not be monitored for a listed procedure for this month, do not circle any of the choices.
Post-procedure PNEU	Conditionally required. For each selected NHSN operative procedure in the left column, if you plan to follow post-procedure pneumonia (PPP), circle “In”. If you do not monitor PPP, leave this unmarked. NOTE: Inpatient (“In”) is the only setting option for monitoring post-procedure pneumonia.
Medication-Associated Module: Antimicrobial Use and Resistance	
Locations	Conditionally required. If you plan to follow the antimicrobial use and/or resistance (AUR) options, enter the location codes for those facility locations from which you will collect data about antimicrobial use and/or resistance.
Antimicrobial Use	Conditionally required. Check if you will submit antimicrobial use data for the selected location.
Antimicrobial Resistance	Conditionally required. Check if you will submit antimicrobial resistance data for the selected location.
MDRO and CDI Module	
For reporting overall facility-wide data:	
Locations (FacWideIN/OUT)	Conditionally required. Choose either FacWideIN, to perform overall facility-wide surveillance for all inpatient locations, or FacWideOUT, to perform overall facility-wide surveillance for all outpatient locations, if you plan to perform LabID Event reporting for an organism at the facility-wide level, instead of by location (i.e., using Methods C or D). To report LabID Events from both overall facility-wide inpatient and outpatient locations, you must choose both FacWideIN and FacWideOUT. (These will be added on two separate rows.)
Specific Organism Type	Conditionally required. Enter each organism you will be following for LabID Event reporting at the facility-wide level: MRSA, MRSA/MSSA, VRE, CephR- <i>Klebsiella</i> spp., CRE- <i>E. coli</i> , CRE- <i>Klebsiella</i> spp., MDR- <i>Acinetobacter</i> spp. and/or <i>C. difficile</i> .
LabID Event (All specimens or Blood specimens only)	Conditionally required. Choose whether you plan to report the specific MDRO as LabID Events at the facility-wide level for All specimens or for Blood specimens only. <i>C. difficile</i> must be reported for All specimens for LabID Event reporting at the facility-wide level.
Locations	Conditionally required. If you plan to perform Infection Surveillance and/or LabID Event reporting by specific location (i.e., Methods A or



Data Field	Instructions for Form Completion
	B), or if you plan to monitor process and/or outcome measures, then indicate the location(s) where specific monitoring will occur. You must add/complete a row for a second and each subsequent location.
Specific Organism Type	Conditionally required. Enter the organism you will be monitoring for a specific location: MRSA, MRSA/MSSA, VRE, CephR- <i>Klebsiella</i> spp., CRE- <i>E. coli</i> , CRE- <i>Klebsiella</i> spp., MDR- <i>Acinetobacter</i> spp. and/or <i>C. difficile</i> . If you plan to monitor more than one organism in a location, then a separate row must be completed for each organism for that location.
Infection Surveillance	Conditionally required. For the given location and organism, indicate if you plan to participate in Infection Surveillance. Infection Surveillance or LabID Event reporting in at least one patient care area is required for each organism your facility chooses to monitor (MRSA, MRSA/MSSA, VRE, CephR- <i>Klebsiella</i> spp., CRE- <i>E. coli</i> , CRE- <i>Klebsiella</i> spp., MDR- <i>Acinetobacter</i> spp. and/or <i>C. difficile</i>).
AST Timing	Conditionally required. For the given location and MRSA or VRE, if you plan to perform active surveillance testing (AST) for MRSA or VRE, indicate whether testing will be done on admission (Adm) only or at admission and at discharge/transfer (Both).
AST Eligible	Conditionally required. For the given location and MRSA or VRE, circle “All” if all patients will be eligible for AST, or, circle “NHx” to indicate that the only patients eligible for testing will be those with <u>no</u> history of MRSA or VRE colonization or infection in the past 12 months as documented by the admitting facility.
Incidence	Conditionally required. Select if you plan to report incidence of the organism (MRSA or VRE) at the location listed in the left column using AST and clinical positives.
Prevalence	Conditionally required. Select if you plan to report prevalence of the organism (MRSA or VRE) at the location listed in the left column using AST, clinical positive, and known positives.
LabID Event (All Specimens)	Conditionally required. For the given location and organism, indicate if you plan to monitor for Laboratory-identified (LabID) Events. Infection Surveillance or LabID Event reporting in at least one patient care area is required for each organism your facility chooses to monitor (MRSA, MRSA/MSSA, VRE, CephR- <i>Klebsiella</i> spp., CRE- <i>E. coli</i> , CRE- <i>Klebsiella</i> spp., MDR- <i>Acinetobacter</i> spp. and/or <i>C. difficile</i>).
HH	Conditionally required. Select this if you plan to monitor Hand Hygiene adherence in the location specified. Ideally, this should be the patient care location(s) also selected for MDRO or <i>C. difficile</i> surveillance.
GG	Conditionally required. Select this if you plan to monitor gown and gloves use adherence in the location specified. Ideally, this should be



Data Field	Instructions for Form Completion
	the patient care location(s) also selected for MDRO or <i>C. difficile</i> surveillance.
Vaccination Module	
Summary-Method or Patient-level Method:	Conditionally required. If you plan to follow this module, select either Summary-Method or Patient-level Method.



Table 2. Instructions for Completion of the Primary Bloodstream Infection (BSI) Form (CDC 57.108) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID #	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID #	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female or Male to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity	Optional.
Hispanic or Latino	If patient is Hispanic or Latino, check this box.
Not Hispanic or Not Latino	If patient is not Hispanic or not Latino, check this box.
Race	Optional. Check all the boxes that apply to identify the patient's race.
Event type	Required. BSI.
Date of event	Required. The date when the first clinical evidence of the BSI appeared or the date the blood culture was collected, whichever comes first. Enter date of this event using this format: MM/DD/YYYY. NOTE: If a device has been pulled on the first day of the month in a location where there are no other device days in that month, and a device-associated infection develops after the device is pulled, attribute the infection to the previous month.
Post-procedure BSI	Optional. Check Y if this event occurred after an NHSN defined procedure but before discharge from the facility, otherwise check N.
NHSN procedure code	Conditionally required. If Post-procedure BSI = Y, enter the appropriate NHSN procedure code. NOTE: A BSI cannot be "linked" to an operative procedure unless that procedure has already been added to NHSN. If the procedure was previously added, and the "Link to Procedure" button is clicked, the fields pertaining to the operation will be auto-entered by the computer.
ICD-9-CM procedure code	Optional. The ICD-9-CM code may be entered here instead of (or in addition to) the NHSN Procedure Code. If the ICD-9-CM code is entered, the NHSN code will be auto-entered by the computer. If the NHSN code is entered first, you will have the option to select the appropriate ICD-9-CM code. In either case, it is optional to select the ICD-9-CM code. Only those ICD-9-CM codes identified in Table 1 of the Surgical Site Infection



Data Field	Instructions for Data Collection
	Event Chapter (Chapter 9 of NHSN Manual: Patient Safety Component Protocol) are allowed.
MDRO infection	<p>Required. Enter “Yes”, if the pathogen is being followed for Infection Surveillance in the MDRO/CDI Module in that location as part of your Monthly Reporting Plan: MRSA, MSSA (MRSA/MSSA), VRE, CephR-<i>Klebsiella</i>, CRE-E. coli, CRE-<i>Klebsiella</i>, MDR-<i>Acinetobacter</i> or <i>C. difficile</i>.</p> <p>If the pathogen for this infection happens to be an MDRO but your facility is not following the Infection Surveillance in the MDRO/CDI Module in your Monthly Reporting Plan, answer “No” to this question.</p>
Location	<p>Required. Enter the inpatient location to which the patient was assigned when the BSI was identified.</p> <p>If the BSI develops in a patient within 48 hours of transfer from a location, indicate the transferring location, not the current location of the patient, in accordance with the Transfer Rule (see Key Terms section).</p>
Date admitted to facility	<p>Required. Enter date patient admitted to facility using this format: MM/DD/YYYY. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. When determining a patient’s admission dates to both the facility and specific inpatient location, the NHSN user must take into account all such days, including any days spent in an inpatient location as an “observation” patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all such days are included in the counts of admissions and patient days for the facility and specific location, and facility and admission dates must be moved back to the first day spent in the inpatient location.</p>
Risk Factors: If ICU/Other locations, central line	<p>Required. Answer this question if the location is an intensive care unit (ICU) or location other than a specialty care area (SCA) or neonatal intensive care unit (NICU). Check Y if patient had a central line during the 48 hour period before event date, otherwise check N.</p> <p>NOTE: If the patient has both a peripheral and a central line and the BSI can clearly be attributed to the peripheral line (e.g., pus at insertion site and matching pathogen from pus and blood), check N.</p>
Risk Factors: If Specialty Care Area, Permanent central line Temporary central line	<p>Required. Answer these questions if the location is an SCA:</p> <p>Check Y if patient had a tunneled or implanted central line during the 48-hour period before event date, otherwise check N.</p> <p>Check Y if patient had a non-tunneled central line during the 48-hour period before event date, otherwise check N.</p>



Data Field	Instructions for Data Collection
Risk Factors: If NICU, Central line Umbilical catheter Birthweight	Required. Answer these questions if the location is an NICU: Check Y if patient had a non-umbilical central line during the 48-hour period before event date, otherwise check N. Check Y if patient had an umbilical catheter during the 48-hour period before event date, otherwise check N. Required. Enter patient's weight at the time of birth in grams, <u>not</u> the weight on the date of event.
Location of device insertion	Optional. Enter the patient location where the central line was inserted. <ul style="list-style-type: none"> • If the patient has more than one central line, enter the location where the first central line was inserted. • If the patient has both a permanent and a temporary central line, enter the location where the temporary line was inserted. • If the patient has both an umbilical and a non-umbilical central line, enter the location where the umbilical line was inserted.
Date of device insertion	Optional. Enter the date the central line was inserted. If the patient has more than one central line, enter the insertion date for the first line that was inserted.
Event Details: Specific event	Required. Check Laboratory-confirmed (LCBI).
Event Details Specify criteria used:	Required. Check each of the elements of the criterion that was used to identify this infection.
Event Details: Died	Required. Check Y if patient died during the hospitalization, otherwise check N.
Event Details: BSI contributed to death	Conditionally required if patient died. Check Y if the BSI contributed to death, otherwise check N.
Event Details: Discharge date	Optional. Date patient discharged from facility using this format: MM/DD/YYYY.
Event Details: Pathogen identified	Required. Enter Y if pathogen identified; otherwise check N. If Yes, specify pathogen(s) on reverse of form (see Table 2a for instructions). NOTE: If LCBI, this field will be auto filled by the computer as Y.
Custom fields and labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields that may be customized for local use. NOTE: Each custom field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter any information on the event.



Table 2a. Instructions for Completion of the Back of the Following Forms: Primary Bloodstream Infection (CDC 57.108); Pneumonia (CDC 57.111); Urinary Tract Infection (CDC 57.114); Surgical Site Infection (CDC 57.120); Dialysis Event (CDC 57.109); MDRO and CDI Infection Event (CDC 57.126) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection/Entry
For specified Gram-positive, organisms, Gram-negative organisms, or other organisms, Pathogen #	Up to three pathogens may be reported. If multiple pathogens are identified, enter the pathogen judged to be the most important cause of infection as #1, the next most as #2, and the least as #3 (usually this order will be indicated on the laboratory report). If the species is not given on the lab report or is not found on the NHSN drop down list, then select the “spp” choice for the genus (e.g., <i>Bacillus cohnii</i> would be reported as <i>Bacillus</i> spp.).
Antimicrobial agent and susceptibility results	<p>Conditionally required if Pathogen Identified = Y.</p> <ul style="list-style-type: none"> • For those organisms shown on the back of an event form, susceptibility results are required only for the agents listed. • For organisms that are not listed on the back of an event form, enter a susceptibility result for at least <u>one</u> antimicrobial agent, even if that result is “Not Tested”. <p>Circle the pathogen’s susceptibility result using the codes on the event forms. Additional antimicrobial agents and susceptibility results may be reported for up to a total of 20 agents.</p>



Table 3. Instructions for Completion of the Central Line Insertion Practices Adherence Monitoring Form (CDC 57.125) ([Tables of Instructions List](#))

Data Field	Instructions for Form Completion
Facility ID	The NHSN-assigned facility ID will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name: Last, first, middle	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female or Male to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity Hispanic or Latino	Optional. If patient is Hispanic or Latino, check this box.
Not Hispanic or Not Latino	If patient is not Hispanic or not Latino, check this box.
Race (specify)	Optional. Check all the boxes that apply to identify the patient's race.
Event Type	Required. CLIP.
Location	Required. Enter the location of the patient at the time of the central line insertion.
Date of insertion	Required. Enter the date of central line insertion (MM/DD/YYYY).
Person recording insertion practice data	Required. Select inserter or observer.
Central line inserter ID	Optional. Enter the HCW ID# of the person inserting the central line.
Name, Last, First	Optional. Enter last name and first name of person inserting the central line.
Occupation of inserter	Required. Check the occupational category of the person inserting the central line Fellow; IV Team; Medical Student; Other Medical Staff; Physician Assistant; Attending physician; Intern/Resident; Other student; PICC Team. If Other than these, please specify.
Reason for insertion	Required. Check the primary reason for inserting the central line: New indication (e.g., hemodynamic monitoring, fluid/medication administration, etc.); Replace malfunctioning central line; Suspected central line-associated infection. If Other, please specify.



Data Field	Instructions for Form Completion
If Suspected central line-associated infection, was the central line exchanged over a guidewire?	Conditionally required. Answer this only if reason for insertion is suspected central line-associated infection. Check Y if the central line was exchanged over a guidewire; otherwise Check N.
Inserter performed hand hygiene prior to central line insertion	Required. Check Y if the inserter appropriately performed hand hygiene prior to inserting central line; otherwise check N. Appropriate hand hygiene includes the use of alcohol-based hand rub or soap and water hand wash. If not observed directly, ask inserter.
Maximal sterile barriers used	Required. Indicate whether each of the 5 barriers was used appropriately, by checking Y or N. NOTE: If inserter wore either a mask <u>or</u> a mask with eye shield, the Y box for Mask should be checked.
Skin preparation	Required. Check all that apply: Chlorhexidine gluconate; Povidone iodine; Alcohol; Other. If Other is chosen, specify prep used.
Was skin preparation agent completely dry at time of first skin puncture?	Required. Check Y if the skin prep agent was allowed to dry completely at the time of first skin puncture; otherwise select N. If not observed directly, ask inserter.
Insertion site	Required. Check the site of insertion of the central line: Femoral; Jugular; Lower Extremity; Scalp; Subclavian; Umbilical; Upper extremity.
Antimicrobial coated catheter used	Optional. Check Y if antimicrobial coated catheter was used; otherwise check N.
Central line catheter type	Required. Check the type of central line inserted: Dialysis non-tunneled; Dialysis tunneled; Non-tunneled (other than dialysis); Tunneled (other than dialysis); PICC; Umbilical. If other, please specify. 'Other' should only be marked when none of the other options apply. It should <u>not</u> be used to specify brand names or number of lumens. Most lines can be categorized accurately by selecting from the options provided.
Custom Fields and Labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields that may be customized for local use. NOTE: Each custom field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter any additional information on the central line insertion.



Table 4. Instructions for Completion of Pneumonia (PNEU) Form (CDC 57.111) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto entered by the computer.
Event #	Event ID number will be auto entered by the computer.
Patient ID #	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID #	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female or Male to indicate the gender of the patient.
Date of birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity Hispanic or Latino Not Hispanic or Not Latino	Optional. If patient is Hispanic or Latino, check this box. If patient is not Hispanic or not Latino, check this box.
Race	Optional. Check all the boxes that apply to identify the patient's race.
Event type	Required. PNEU.
Date of event	Required. The date when the first clinical evidence of the PNEU appeared or the date the specimen used to make or confirm the diagnosis was collected, whichever comes first. Enter date of this event using this format: MM/DD/YYYY. NOTE: If a device has been pulled on the first day of the month in a location where there are no other device days in that month, and a device-associated infection develops after the device is pulled, attribute the infection to the previous month.
Post-procedure PNEU	Required. Check Y if this event occurred after an NHSN defined procedure but before discharge from the facility, otherwise check N.
Date of procedure	Conditionally required. If Post-procedure PNEU = Y, then enter the date the procedure was done.
NHSN procedure code	Conditionally required. Answer this question only if this patient developed the PNEU during the same admission as an operative procedure. Enter the appropriate NHSN procedure code.



Data Field	Instructions for Data Collection
	<p>NOTE: A PNEU cannot be “linked” to an operative procedure unless that procedure has already been added to NHSN. If the procedure was previously added, and the “Link to Procedure” button is clicked, the fields pertaining to the operation will be auto entered by the computer.</p>
ICD-9-CM procedure code	<p>Optional. The ICD-9-CM code may be entered here instead of (or in addition to) the NHSN Procedure Code. If the ICD-9-CM code is entered, the NHSN code will be auto entered by the computer. If the NHSN code is entered first, you will have the option to select the appropriate ICD-9-CM code. In either case, it is optional to select the ICD-9-CM code. Only those ICD-9-CM codes identified in Table 1 of the Surgical Site Infection Event Chapter (Chapter 9 of NHSN Manual: Patient Safety Component Protocol) are allowed.</p>
MDRO infection	<p>Required. Enter “Yes”, if the pathogen is being followed for Infection Surveillance in the MDRO/CDI Module in that location as part of your Monthly Reporting Plan: MRSA, MSSA (MRSA/MSSA), VRE, CephR-<i>Klebsiella</i>, CRE-E. coli, CRE-<i>Klebsiella</i>, MDR-<i>Acinetobacter</i> or <i>C. difficile</i>. If the pathogen for this infection happens to be an MDRO but your facility is not following the Infection Surveillance in the MDRO/CDI Module in your Monthly Reporting Plan, answer “No” to this question.</p>
Location	<p>Required. Enter the inpatient location to which the patient was assigned when the PNEU was identified. If the PNEU develops in a patient within 48 hours of transfer from a location, indicate the transferring location, not the current location of the patient.</p>
Date admitted to facility	<p>Required. Enter date patient admitted to facility using this format: MM/DD/YYYY. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. When determining a patient’s admission dates to both the facility and specific inpatient location, the NHSN user must take into account all such days, including any days spent in an inpatient location as an “observation” patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all such days are included in the counts of admissions and patient days for the facility and specific location, and facility and admission dates must be moved back to the first day spent in the inpatient location.</p>
Risk Factors Ventilator	<p>Required. Check Y if the patient with PNEU had a device to assist or control respiration continuously through a tracheostomy or by endotracheal intubation, inclusive of the weaning period, within the 48-hour period before developing infection, otherwise check N.</p>



Data Field	Instructions for Data Collection
Birth weight	Conditionally required. If the patient is a NICU patient, enter the patient's birth weight in grams, <u>not</u> the weight on the date of event.
Location of device insertion	Optional. Enter the patient location where the intubation and ventilation procedure was performed
Date of device insertion	Optional. Enter the date the intubation and ventilation procedure was performed.
Event Details: PNEU Specific event	Required. Check one: Clinically Defined Pneumonia (PNU1), Pneumonia with specific laboratory findings (PNU2), or Pneumonia in immunocompromised patients (PNU3), whichever criteria are met for this event.
Event Details: Specify criteria used	Required. Check each of the elements that were used to identify this infection.
Event Details: Secondary bloodstream infection	Required. Check Y if there is a culture-confirmed bloodstream infection (BSI) and a related pneumonia, otherwise check N.
Event Details: Died	Required. Check Y if patient died during the hospitalization, otherwise check N.
Event Details: PNEU contributed to death	Conditionally required. If the patient died, check Y if the PNEU contributed to death, otherwise check N.
Event Details: Discharge date	Optional. Date patient discharged from facility.
Event Details: Pathogen identified	Required. Enter Y if Pathogen Identified, N otherwise; if Yes, specify on reverse (See Table 2a for instructions)
Custom fields and labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields that may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter any information on the event.



Table 5. Instructions for Completion of Urinary Tract Infection (UTI) Form (CDC 57.114) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection/Entry
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID #	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID #	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female or Male to indicate the gender of the patient.
Date of birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity	Optional.
Hispanic or Latino	If patient is Hispanic or Latino, check this box.
Not Hispanic or Not Latino	If patient is not Hispanic or not Latino, check this box.
Race	Optional. Check all the boxes that apply to identify the patient's race.
Event type	Required. UTI.
Date of event	Required. The date when the first clinical evidence of the UTI appeared or the date the specimen used to make or confirm the diagnosis was collected, whichever comes first. Enter date of this event using this format: MM/DD/YYYY. NOTE: If a device has been pulled on the first day of the month in a location where there are no other device days in that month, and a device-associated infection develops after the device is pulled, attribute the infection to the previous month.
Post-procedure UTI	Optional. Check Y if this event occurred after an NHSN defined procedure but before discharge from the facility, otherwise check N.
Date of procedure	Conditionally required. If Post-procedure UTI = Y, enter the date the procedure was done.
NHSN procedure code	Conditionally required. If Post-procedure UTI = Y, enter the appropriate NHSN procedure code. NOTE: A UTI cannot be "linked" to an operative procedure unless that procedure has already been added to NHSN. If the procedure was previously added, and the "Link to Procedure" button is clicked, the fields pertaining to the operation will be auto-entered by the computer.
ICD-9-CM procedure	Optional. The ICD-9-CM code may be entered here instead of (or in



Data Field	Instructions for Data Collection/Entry
code	addition to) the NHSN Procedure Code. If the ICD-9-CM code is entered, the NHSN code will be auto-entered by the computer. If the NHSN code is entered first, you will have the option to select the appropriate ICD-9-CM code. In either case, it is optional to select the ICD-9-CM code. Only those ICD-9-CM codes identified in Table 1 of the Surgical Site Infection Event Chapter (Chapter 9 of NHSN Manual: Patient Safety Component Protocol) are allowed.
MDRO infection	Required. Enter “Yes”, if the pathogen is being followed for Infection Surveillance in the MDRO/CDI Module in that location as part of your Monthly Reporting Plan: MRSA, MSSA (MRSA/MSSA), VRE, CephR- <i>Klebsiella</i> , CRE-E. coli, CRE- <i>Klebsiella</i> , MDR- <i>Acinetobacter</i> or <i>C. difficile</i> . If the pathogen for this infection happens to be an MDRO but your facility is not following the Infection Surveillance in the MDRO/CDI Module in your Monthly Reporting Plan, answer “No” to this question.
Location	Required. Enter the inpatient location to which the patient was assigned when the UTI was identified. If the UTI develops in a patient within 48 hours of transfer from a location, indicate the transferring location, not the current location of the patient.
Date admitted to facility	Required. Enter date patient admitted to facility using this format: MM/DD/YYYY. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. When determining a patient’s admission dates to both the facility and specific inpatient location, the NHSN user must take into account all such days, including any days spent in an inpatient location as an “observation” patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all such days are included in the counts of admissions and patient days for the facility and specific location, and facility and admission dates must be moved back to the first day spent in the inpatient location.
Risk factor: Urinary catheter status at time of specimen collection	Required. Check “In place” if urinary catheter was in place at time of urine specimen collection; Check “Removed within 48 hours prior” if a urinary catheter was removed within the 48 hours before urine specimen was collected; Check “Not in place nor within 48 hours prior” if no urinary catheter was in place at the time of or within the 48 hours prior to urine specimen collection.
Location of device insertion	Optional. Enter the patient location where the indwelling urethral catheter was inserted.
Date of device insertion	Optional. Enter the date the indwelling urethral catheter was inserted.
Event details: Specific event: UTI	Required. Check Symptomatic UTI (SUTI), Asymptomatic Bacteremic UTI (ABUTI), or Other UTI (OUTI), for the specific event type you are reporting.
Event details: UTI	Required. Check each of the elements of the criteria that were used to



Data Field	Instructions for Data Collection/Entry
Specify criteria used	identify the specific type of UTI being reported.
Event Details: Secondary bloodstream infection	Required. Check Y if there is a culture-confirmed bloodstream infection (BSI) and a related healthcare-associated UTI, otherwise check N.
Event Details: Died	Required. Check Y if patient died during the hospitalization, otherwise check N.
Event Details: UTI contributed to death	Conditionally required. If patient died, check Y if the UTI contributed to death, otherwise check N.
Event Details: Discharge date	Optional. Date patient discharged from facility.
Event Details: Pathogens identified	Required. Enter Y if pathogen identified, N if otherwise. If Y, specify organism name on reverse. For SUTI with secondary BSI and ABUTI, enter only the matching organism(s) identified in <u>both</u> urine and blood cultures (See Table 2a for instructions).
Custom fields and labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields that may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter any information on the event.



Table 6. Instructions for the Completion of Denominators for Intensive Care Unit (ICU)/Other Locations (Not NICU or SCA) (CDC 57.118)
([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Location code	Required. Enter the location code of the unit where you collect the data.
Month	Required. Record the 2-digit month during which the data were collected for this location.
Year	Required. Record the 4-digit year during which the data were collected for this location.
Number of patients	Required. For each day of the month selected, record the number of patients on the unit. Record this number at the same time each day.
Number of patients with 1 or more central lines	<p>Conditionally required. Complete if you have chosen central line-associated bloodstream infection (CLABSI) as an event to follow in your Plan for this month.</p> <p>For each day of the month, at the same time each day, record the number of patients on the selected unit who have 1 or more central lines. NOTE: "If the patient has only a tunneled or implanted central line, begin recording days on the first day the line was accessed and continue until the line is discontinued or the patient is transferred/discharged."</p> <p>NOTE: If a device has been pulled on the first day of the month in a location where there are no other device days in that month, and a device-associated infection develops after the device is pulled, attribute the infection to the previous month.</p>
Number of patients with a urinary catheter	<p>Conditionally required. Complete if you have chosen catheter-associated urinary tract infection (CAUTI) as an event to follow in your Plan for this month.</p> <p>For each day of the month, at the same time each day, record the number of patients on the selected unit who have an indwelling urinary catheter. NOTE: If a device has been pulled on the first day of the month in a location where there are no other device days in that month, and a device-associated infection develops after the device is pulled, attribute the infection to the previous month.</p>
Number of patients on a ventilator	<p>Conditionally required. Complete if you have chosen ventilator-associated pneumonia (VAP) as an event to follow in your Plan for this month.</p> <p>For each day of the month, at the same time each day, record the number of patients on the selected unit who are on a ventilator. NOTE: If a device has been pulled on the first day of the month in a location</p>



Data Field	Instructions for Data Collection
	where there are no other device days in that month, and a device-associated infection develops after the device is pulled, attribute the infection to the previous month.
Total	Required. Totals for each column should be calculated. This is the number that will be entered into the NHSN application.
Label and data fields	Optional. Up to five numeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use.



Table 7. Instructions for Completion of the Denominators for Specialty Care Area (SCA) (CDC 57.117) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer
Location code	Required. Enter the location code of the unit where you collect the data.
Month	Required. Record the 2-digit month during which the data were collected for this location.
Year	Required. Record the 4-digit year during which the data were collected for this location.
Number of patients	Required. For each day of the month selected, record the number of patients on the unit. Record this number at the same time each day.
Number of patients with 1 or more central lines	Conditionally required. Complete if you have chosen central line-associated bloodstream infection (CLABSI) as an event to follow in your Plan for this month.
Temporary	For each day of the month, at the same time each day, record the number of patients on the selected unit who have 1 or more non-tunneled central lines.
Permanent	For each day of the month, at the same time each day, record the number of patients on the selected unit who have 1 or more tunneled or implanted central lines beginning on the first day the permanent line was accessed and continuing until the line is discontinued or the patient is transferred/discharged.
	NOTE: If a patient has both a temporary and a permanent line in place, count only the temporary line.
Number of patients with a urinary catheter	Conditionally required. Complete if you have chosen catheter-associated urinary tract infection (CAUTI) as an event to follow in your Plan for this month.
	For each day of the month, at the same time each day, record the number of patients on the selected unit who have an indwelling urinary catheter.
Number of patients on a ventilator	Conditionally required. Complete if you have chosen ventilator-associated pneumonia (VAP) as an event to follow in your Plan for this month.
	For each day of the month, at the same time each day, record the number of patients on the selected unit who are on a ventilator.
Total	Required. Totals for each column should be calculated. This is the number that will be entered into the NHSN application.
Label and data fields	Optional. Up to five numeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use.



Table 8. Instructions for Completion of the Denominators for Neonatal Intensive Care Unit (NICU) (CDC 57.116) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Location code	Required. Enter the location code of the unit where you collect the data.
Month	Required. Record the 2-digit month during which the data were collected for this location.
Year	Required. Record the 4-digit year during which the data were collected for this location.
Birthweight Categories	Required. The birthweight categories are as follows: A = ≤ 750 g; B = 751-1000 g; C = 1001-1500 g; D = 1501-2500 g; E = >2500 g. Data on this form are stratified by this category.
Number of patients (Pts)	Required. For each day of the month selected, record the number of patients in each birthweight category on the unit. Record this number at the same time each day.
Number of patients with each of the following: Umbilical catheter (U/C) Non-umbilical central line (CL)	Conditionally required. Complete if you have chosen central line-associated bloodstream infection (CLABSI) as an event to follow in your Plan for this month for this unit. If you choose to monitor CLABSI in the NICU population, you must collect data for both umbilical catheters and for non-umbilical central lines. For each day of the month, at the same time each day, record the number of patients in each birthweight category on the selected unit who have an umbilical catheter in place. For each day of the month, at the same time each day, record the number of patients in each birthweight category on the selected unit who have 1 or more non-umbilical central line(s) in place. NOTE: If an infant has both an umbilical catheter and a non-umbilical central line, count as an umbilical catheter day only.
Number of patients on a ventilator (VNT)	Conditionally required. Complete if you have chosen ventilator-associated pneumonia (VAP) as an event to follow in your Plan for this unit for this month. For each day of the month, at the same time each day, record the number of patients in each birthweight category on the selected unit who are on a ventilator.
Total	Required. Totals for each column should be calculated. This is the number that will be entered into the NHSN application.
Label and data fields	Optional. Up to five numeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use.



Table 9. Instructions for Completion of Dialysis Event (DE) form (CDC 57.109) ([Tables of Instructions List](#))

Data Field	Instructions for Completion
Facility ID #	NHSN-assigned facility ID will be auto-entered by the computer.
Event ID #	Event ID # will be auto-entered by the computer.
Patient ID #	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the healthcare facility and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID #	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient Name	Optional. Enter the last, first and middle name of the patient.
Gender	Required. Check “Female”, “Male”, or “Other” to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity (specify): Hispanic or Latino Not Hispanic or Not Latino	Optional. If patient is Hispanic or Latino, check this box. If patient is not Hispanic or not Latino, check this box.
Race (specify):	Optional. Check all the boxes that apply to identify the patient’s race.
Event type	Required. Enter DE – Dialysis Event.
Date of Event	Required. Date depends on event type: <ul style="list-style-type: none"> • For IV antimicrobial starts, enter the date the IV antimicrobial was started. • For positive blood cultures, enter the date the blood specimen was collected. • For pus, redness, or increased swelling at the vascular access site, enter the onset date. Enter date of this-event using this format: MM/DD/YYYY.
Location	Required. Enter the location code of the outpatient dialysis unit that is collecting Dialysis Event information.
Risk Factors: Vascular access type	Required. Check all vascular accesses that the patient has present. <ul style="list-style-type: none"> • Fistula • Graft • Tunneled central line • Nontunneled central line • Other access device (examples of “other access device” include catheter-graft hybrid access and ports)



Data Field	Instructions for Completion
Access Placement Date	Required. For each access type, indicate the date the access was placed or check the box if placement date is unknown. Enter date using this format: MM/DD/YYYY.
<p>Event Details:</p> <p style="padding-left: 40px;">Specify Event</p> <p style="padding-left: 40px;">IV antimicrobial start</p> <p style="padding-left: 40px;">Was IV vancomycin started?</p> <p style="padding-left: 40px;">Positive blood culture</p> <p style="padding-left: 40px;">Suspected source of positive blood culture (check one):</p>	<p>Required. Check one or more of the dialysis event types below: Check “IV antimicrobial start” if patient is given any IV antimicrobial agents as an outpatient for any reason: not only IV vancomycin starts and not only for vascular access problems. There must be 21 or more days from the end of the first IV antimicrobial start to the beginning of a second IV antimicrobial start for two starts to be considered separate dialysis events.</p> <ul style="list-style-type: none"> • If IV antimicrobials are stopped for less than 21 days and then restarted, the second start is NOT considered a new dialysis event. • If IV antimicrobials are stopped for 21 or more days and then restarted, this is considered a new event. <p>Conditionally required for IV antimicrobial start dialysis events. Indicate whether IV vancomycin was started by checking “Yes” or “No”.</p> <p>Check “Positive blood culture” if the patient’s blood culture is positive, even if it is thought to be unrelated to the vascular access. Include all positive blood cultures taken as an outpatient or within 1 calendar day after a hospital admission. Two positive blood cultures, based on the dates the blood samples were collected, must be 21 or more days apart to be considered separate positive blood culture dialysis events. Use the most recent positive blood culture when applying the 21 day rule.</p> <ul style="list-style-type: none"> • If positive blood cultures occur less than 21 days apart, based on the blood sample collection dates, the second positive blood culture is NOT considered a new dialysis event. <p>Conditionally required for positive blood culture dialysis events. Check the suspected source of the positive blood culture:</p> <ul style="list-style-type: none"> ▪ <u>Vascular access</u>: Choose “Vascular access” if there is objective evidence of vascular access infection and the vascular access is thought to be the source of the positive blood culture. ▪ <u>A source other than the vascular access</u>: Choose “A source other than the vascular access” if either (a) or (b) is true: <ul style="list-style-type: none"> a) a culture from another site (e.g., infected leg wound, urine) shows the same organism found in the blood and is thought to be the source of the positive blood culture b) there is clinical evidence of infection at another site and the other site is thought to be the source of the positive blood culture, but the site was not sampled for culture



Data Field	Instructions for Completion
	<ul style="list-style-type: none"> ▪ Contamination: Choose “Contamination” if the organism isolated from the blood culture is thought by the physician, infection preventionist, or head nurse to be a contaminant. Contamination is more likely if the organism is a common skin contaminant and is isolated from only one blood culture. Examples of some common skin contaminants include: diphtheroids [<i>Corynebacterium</i> spp.], <i>Bacillus</i> [not <i>B. anthracis</i>] spp., <i>Propionibacterium</i> spp., coagulase-negative staphylococci [including <i>S. epidermidis</i>], viridans group streptococci, <i>Aerococcus</i> spp., <i>Micrococcus</i> spp. ▪ Uncertain: Choose “Uncertain” only if there is insufficient evidence to decide among the three previous categories.
<p>If positive blood culture, specify pathogen on pages 2-3:</p> <p>Pus, redness, or increased swelling at the vascular access site</p> <p>Check the access site(s) with pus, redness, or increased swelling:</p>	<p>Conditionally required for positive blood culture. Indicate the pathogen(s) and antimicrobial susceptibility results on pages 2-3 as instructed in Table 2a of Tables of Instructions.</p> <p>Choose “Pus, redness, or increased swelling at the vascular access site” for each new episode where the patient has onset of pus, or greater than expected redness or swelling at a vascular access site.</p> <p>Conditionally required if there is pus, redness, or increased swelling at the vascular access site. Check vascular access site(s) with these findings:</p> <ul style="list-style-type: none"> ▪ Fistula ▪ Graft ▪ Tunneled central line ▪ Nontunneled central line ▪ Other access device (e.g., hybrid)
<p>Problem(s):</p> <p>Fever</p> <p>Chills or rigors</p> <p>Drop in Blood Pressure</p> <p>Wound (NOT related to vascular access) with pus or increased redness</p> <p>Cellulitis</p> <p>Pneumonia or respiratory infection</p> <p>Other</p>	<p>Required. For each problem, check all that are present.</p> <p>Check if fever $\geq 37.8^{\circ}\text{C}$ (100°F) oral is present.</p> <p>Check if chills or rigors are present</p> <p>Check if abnormal drop in blood pressure is present.</p> <p>Check if a wound that is unrelated to the vascular access site has pus or increased redness.</p> <p>Check if cellulitis is present at a site other than the vascular access and without open wound.</p> <p>Check if pneumonia or respiratory infection is present.</p> <p>Specify other problem related to the IV antimicrobial start, positive blood culture and/or pus, redness, or increased swelling at vascular access site.</p>
<p>Outcome(s)</p>	<p>Required.</p>



Table 10. Instructions for Completion of Denominators for Outpatient Dialysis: Census Form (CDC 57.119) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Location code	Required. Enter the location code for the outpatient dialysis location from which you will collect data about dialysis incidents.
Month	Required. Record the month during which the data were collected for this location.
Year	Required. Record the 4-digit year during which the data were collected for this location.
Number of chronic hemodialysis patients	<p>Required. For each type of vascular access listed, record the number of patients who received maintenance hemodialysis at this location during the first two working days of the month. Record each patient only once. If a patient has more than one vascular access, record the access type with highest risk for infection.</p> <p>In descending or order of risk:</p> <ul style="list-style-type: none"> - Nontunneled central line (highest risk) - Tunneled central line - Other access device (e.g., hybrid access device) - Graft - Fistula (lowest risk) <p>For example, if a patient has a fistula and a tunneled central line, record as having a tunneled central line. If the patient has a fistula and a “jump graft” record the patient as having a graft. If the patient has only a catheter-graft hybrid or a port, record as “other access device”.</p>
Total patients	Required. The sum of all patients listed above will enter automatically.
Label and data fields	Optional. Up to five numeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use.



Table 11. Instructions for Completion of the AUR Option Forms (CDC 57.123 and CDC 57.124) ([Tables of Instructions List](#))

As of 2010, these forms were retired.

Please refer to Patient Safety Component Manual Chapter 11 for the protocol for collecting and reporting of Antimicrobial Use Option data, which became available for use in v6.4 (June 2011). Note that this option does not have a data collection form or manual data entry and instead uses Clinical Document Architecture (CDA) as the sole means of data reporting. Appendix A gives detailed instructions of the data field specifications.

The Antimicrobial Resistance Option is currently undergoing revision, and no data may be reported to NHSN at this time.



Table 12. Instructions for Completion of the Surgical Site Infection (SSI) Form (CDC 57.120) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID #	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID #	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female or Male to indicate the gender of the patient.
Date of birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity Hispanic or Latino Not Hispanic or Not Latino	Optional. If patient is Hispanic or Latino, check this box. If patient is not Hispanic or not Latino, check this box.
Race	Optional. Check all the boxes that apply to identify the patient's race.
Event type	Required. Enter SSI.
Date of event	Required. The date when the first clinical evidence of the SSI appeared or the date the specimen used to make or confirm the diagnosis was collected, whichever comes first. Enter date of this event using this format: MM/DD/YYYY.
NHSN procedure code	Required. Enter the appropriate NHSN procedure code. For detailed instructions on how to report NHSN operative procedures, see Chapter 9 of NHSN Patient Safety Component Manual. NOTE: An SSI cannot be "linked" to an operative procedure unless that procedure has already been added to NHSN. If the procedure was previously added, and the "Link to Procedure" button is clicked, the fields pertaining to the operation will be auto-entered by the computer.
Date of procedure	Required. Enter date using this format: MM/DD/YYYY.
ICD-9-CM procedure code	Optional. The ICD-9-CM code may be entered here instead of (or in addition to) the NHSN Procedure Code. If the ICD-9-CM code is entered, the NHSN code will be auto-entered by the computer. If the NHSN code is entered first, you will have the option to select the appropriate ICD-9-CM code. In either case, it is optional to select the ICD-9-CM code. The only allowed ICD-9-CM codes are shown in Table 1: NHSN Operative Procedure Category Mappings to ICD-9-CM Codes in the Surgical Site Infection Event chapter (Chapter 9 of



Data Field	Instructions for Data Collection
	NHSN Patient Safety Component Manual).
Outpatient Procedure	Required. Check Y if this operative procedure was performed on an NHSN outpatient; otherwise check N.
MDRO infection	Required. Enter “Yes”, if the pathogen is being followed for Infection Surveillance in the MDRO/CDI Module in that location as part of your Monthly Reporting Plan: MRSA, MSSA (MRSA/MSSA), VRE, CephR- <i>Klebsiella</i> , CRE-E. coli, CRE- <i>Klebsiella</i> , MDR- <i>Acinetobacter</i> or <i>C. difficile</i> . If the pathogen for this infection happens to be an MDRO but your facility is not following the Infection Surveillance in the MDRO/CDI Module in your Monthly Reporting Plan, answer “No” to this question.
Location	Required. Enter the patient care area where the patient was assigned in the postoperative period. Inpatient or outpatient locations are allowed, but Operating Room locations are not allowed.
Date admitted to facility	Required. Enter date patient admitted to facility using this format: MM/DD/YYYY. If a patient is readmitted with a previously unreported SSI associated with an operative procedure performed during a previous admission, enter the date of admission of the facility stay in which the operative procedure was performed. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. When determining a patient’s admission dates to both the facility and specific inpatient location, the NHSN user must take into account all such days, including any days spent in an inpatient location as an “observation” patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all such days are included in the counts of admissions and patient days for the facility and specific location, and facility and admission dates must be moved back to the first day spent in the inpatient location.
Event details specific event SSI	Required. Check the appropriate level of SSI from the list <input type="checkbox"/> Superficial incisional primary (SIP) <input type="checkbox"/> Superficial incisional secondary (SIS) <input type="checkbox"/> Deep incisional primary (DIP) <input type="checkbox"/> Deep incisional secondary (DIS) <input type="checkbox"/> Organ/space: __ (Indicate specific site code from Table 2. Specific Sites of Organ/Space SSI in the Surgical Site Infection Event chapter [Chapter 9] of NHSN Patient Safety Component Manual.)
Event details: SSI Specify criteria used	Required. Check each of the elements of the definition that were used to identify the specific type of SSI. Specific Organ/space event types have their own unique criteria which must be met. They are found in Chapter 17 of the Patient Safety Component Manual: CDC/NHSN Surveillance Definition of Healthcare-Associated Infection and Criteria for Specific Types of Infections in the Acute Care Setting.
Event details: Detected	Required. Check A if SSI was identified before the patient was discharged from the



Data Field	Instructions for Data Collection
	<p>facility following the operation. Check P if SSI was identified during post-discharge surveillance. Include as P those SSI identified by another facility (i.e., patient with SSI was admitted to a facility other than the one in which the operation was performed). Check R if SSI was identified due to patient readmission to the facility where the operation was done.</p>
Event Details: Secondary bloodstream infection	Required. Check Y if there is a culture-confirmed bloodstream infection (BSI) and a related healthcare-associated infection at the surgical site, otherwise check N.
Event details: Died	Required. Check Y if patient died during the hospitalization, otherwise check N.
Event Details: SSI contributed to death	Conditionally required. If patient died, check Y if the SSI contributed to death, otherwise check N.
Event Details: Discharge date	Optional. Enter date patient discharged from facility using this format: MM/DD/YYYY. If a patient is readmitted with a previously unreported SSI associated with an operative procedure performed in a previous admission, enter the date of discharge of the facility stay in which the operative procedure was performed.
Event Details: Pathogens identified	Required. Enter Y if Pathogen Identified, N if otherwise. If Y, specify organism name on reverse. See Table 2a above for instructions.
Custom fields and labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter any information on the event.



Table 13. Instructions for Completion of the Denominator for Procedure form (CDC 57.121) ([Tables of Instructions List](#))

This form is used for reporting data on each patient having one of the NHSN operative procedures selected for monitoring.

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID will be auto-entered by the computer.
Procedure #	The NHSN-assigned Procedure # will be auto-entered by the computer
Patient ID #	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID #	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female or Male to indicate the gender of the patient.
Date of birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity Hispanic or Latino Not Hispanic or Not Latino	Optional. If patient is Hispanic or Latino, check this box. If patient is not Hispanic or not Latino, check this box.
Race	Optional. Check all the boxes that apply to identify the patient's race.
Event type	Required. Enter the code for procedure (PROC).
NHSN Procedure code	Required. Enter the appropriate NHSN procedure code.
ICD-9-CM procedure code	Optional. The ICD-9-CM code may be entered here instead of (or in addition to) the NHSN Procedure Code. If the ICD-9-CM code is entered, the NHSN code will be auto-entered by the computer. If the NHSN code is entered first, you will have the option to select the appropriate ICD-9-CM code. In either case, it is optional to select the ICD-9-CM code. The only allowed ICD-9-



Data Field	Instructions for Data Collection
	CM codes are listed in Table 1: NHSN Operative Procedure Category Mappings to ICD-9-CM Codes in the Surgical Site Infection Event chapter (Chapter 9 of NHSN Patient Safety Component Manual).
Date of procedure	Required. Record the date when the NHSN procedure was done using this format: MM/DD/YYYY.
Procedure Details: <ul style="list-style-type: none"> <li style="margin-left: 100px;">Outpatient: <li style="margin-left: 100px;">Duration: <li style="margin-left: 100px;">Wound class: <li style="margin-left: 100px;">General anesthesia: <li style="margin-left: 100px;">ASA class: <li style="margin-left: 100px;">Emergency: <li style="margin-left: 100px;">Trauma: <li style="margin-left: 100px;">Endoscope: <li style="margin-left: 100px;">Surgeon code: 	<p>Required. Check Y if this operative procedure was performed on an NHSN outpatient, otherwise check N.</p> <p>Required. Enter the interval in hours and minutes between the skin incision and skin closure.</p> <p>Required. Check the appropriate wound class from the list.</p> <p>Required. Check Y if general anesthesia was used for the operative procedure, otherwise check N.</p> <p>Conditionally Required. Required for Inpatient procedures only. Check numeric ASA classification at the time of the operative procedure.</p> <p>Required. Check Y if this operative procedure was a nonelective, unscheduled operative procedure, otherwise check N. Emergency operative procedures are those that do not allow for the standard immediate preoperative preparation normally done within the facility for a scheduled operation (e.g., stable vital signs, adequate antiseptic skin preparation, colon decontamination in advance of colon surgery, etc.).</p> <p>Required. Check Y if operative procedure was performed because of blunt or penetrating traumatic injury to the patient, otherwise check N.</p> <p>Required. Check Y if the entire operative procedure was performed using an endoscope/laparoscope, otherwise check N. NOTE: For CBGB, if the donor vessel was harvested using an endoscope, check Y.</p> <p>Optional. Enter code of the surgeon who performed the principal operative procedure.</p>



Data Field	Instructions for Data Collection
<p style="text-align: right;">Implant:</p> <p style="text-align: center;">Non-autologous Transplant:</p>	<p>Required. Check Y if a nonhuman-derived object, material, or tissue was permanently placed in a patient during the operative procedure and will not be routinely manipulated for diagnostic or therapeutic purposes. Otherwise check N</p> <p>Required. Check Y if human cells, tissues, organs, or cellular- or tissue-based products that derived from another human body, either a donor cadaver or a live donor, were placed into a human recipient via grafting, infusion, or transfer. Otherwise check N.</p>
CSEC: Height	Conditionally required. If operative procedure is CSEC, enter patient height in feet and inches or meters and centimeters.
CSEC: Weight	Conditionally required. If operative procedure is CSEC, enter patient weight in pounds or kilograms.
CSEC: Duration of labor	Conditionally required. If operative procedure is CSEC, enter the number of hours the patient labored in the hospital prior to operative procedure. If the duration of labor is >99 hours, record 99.
CSEC: Estimated blood loss	Conditionally required. If operative procedure is CSEC, enter the estimated blood loss in ml. If the estimated blood loss is >2000 ml, record 2000 ml.
Circle one: FUSN RFUSN	Conditionally required. If operative procedure is FUSN or RFUSN, circle the procedure that was done.
FUSN/RFUSN: Spinal level	<p>Conditionally required. If operative procedure is FUSN or RFUSN, check appropriate spinal level of procedure from list.</p> <ul style="list-style-type: none"> • Atlas-Axis – C1-C2 only • Atlas-Axis/Cervical – C1-C7 (any combination excluding C1-C2 only) • Cervical – C3-C7 (any combination) • Cervical/Dorsal/Dorsolumbar – Extends from any cervical through any lumbar levels • Dorsal/dorsolumbar – T1 – L5 (any combination of thoracic and lumbar) • Lumbar/Lumbosacral – L1-S5 (any combination of lumbar and sacral) • Not specified – Level not specified (should be used rarely) <p>If not specified, record will not be included in SIR calculations.</p>
FUSN/RFUSN: Diabetes mellitus	Conditionally required. If operative procedure is FUSN



Data Field	Instructions for Data Collection
	or RFUSN, check Y if patient is known to have diabetes mellitus, otherwise check N.
FUSN/RFUSN: Approach/Technique	Conditionally required. If operative procedure is FUSN or RFUSN, check appropriate surgical approach or technique from list.
HPRO:	<p>Conditionally required. If operative procedure is HPRO, select TP (Total Primary), PP (Partial Primary), TR (Total Revision) or PR (Partial Revision) from the list.</p> <p>NOTE: When hardware is inserted for the first time, use the “primary” designation; otherwise, indicate that the procedure was a revision.</p>
KPRO:	<p>Conditionally required. If operative procedure is KPRO, select T – Primary (Total), R – Revision (Total or Partial) from list.</p> <p>NOTE: When hardware is inserted for the first time, use the “primary” designation; otherwise, indicate that the procedure was a revision.</p>
Custom fields and labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields may be customized for local use.



Table 14. Instructions for Completion of the Vaccination Monthly Monitoring Form – Summary Method (57.130) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID number will be auto-entered by the computer.
Vaccination type	Required; defaulted to “Influenza” by the computer.
Influenza subtype	Required. Check one: <input type="checkbox"/> Seasonal <input type="checkbox"/> Non-seasonal
Month	Required. Record using this format: MM
Year	Required. Record using this format: YYYY
1. Total # of patient admissions	Required. The count of NHSN inpatients admitted to the facility during the month being monitored.
2. Total # of patients aged 6 months and older meeting criteria for influenza vaccination	Required. The count of NHSN inpatients meeting criteria for vaccination. Include in this count any patients who have been previously vaccinated during the current influenza season.
3. Total # of patients previously vaccinated during current influenza season	Optional. The count of NHSN inpatients who had previously received influenza vaccination during the current influenza season by either history or documentation. Patients requiring a second vaccine should not be included in the count of those previously vaccinated.
4. Total patients not previously vaccinated during current influenza season (Box 2 - Box 3)	Required. The difference in the count of NHSN inpatients meeting criteria for influenza vaccination (Box 2) minus the count of NHSN inpatients who had been previously vaccinated during the current influenza season (Box 3). This number will be auto-entered by the computer.
5. Patients meeting criteria offered vaccination but declining for reasons other than medical contraindication	Required. The count of NHSN inpatients meeting criteria for influenza vaccination who were offered vaccination but who declined for reasons other than medical contraindication(s).
6. Patients meeting criteria offered vaccination but having medical contraindication	Required. The count of NHSN inpatients meeting criteria for influenza vaccination who were offered vaccination but who declined because of medical contraindication(s).
7. Patients meeting criteria receiving vaccination during admission	Required. The count of NHSN inpatients meeting criteria for influenza vaccination who had documentation in the medical record of receiving influenza vaccination during the course of their hospital admission prior to being discharged.
8. Total patients offered vaccination (Box 5 + Box 6 + Box 7)	Required. The sum of the count of NHSN inpatients who were offered influenza vaccination but who declined for reasons other than medical contraindication(s) (Box 5) plus those offered vaccination but declined because of medical contraindication(s) (Box 6) plus those with documentation in the medical record of receiving vaccination during the course of their hospital admission (Box 7). The number in this box should be less than or equal to the number in Box 4. This number will be auto-entered by the computer.
Label and data fields	Optional. Up to five numeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use. Data in these fields may be analyzed.



Table 15. Instructions for Completion of the Vaccination Monthly Monitoring Form – Patient-Level Method (CDC 57.131) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID number will be auto-entered by the computer.
Vaccination type	Required; defaulted to “Influenza” by the computer.
Influenza subtype	Required. Check one: <input type="checkbox"/> Seasonal <input type="checkbox"/> Non-seasonal
Month	Required. Record using this format: MM
Year	Required. Record using this format: YYYY
1. Total # of patient admissions	Required. The count of NHSN inpatients admitted to the facility during the month being monitored.
2. Total # of patients aged 6 months and older meeting criteria for influenza vaccination	Required. The count of NHSN inpatients meeting criteria for vaccination. Include in this count any patients who have been previously vaccinated during the current influenza season.
3. Total # of patients previously vaccinated during current influenza season	Optional. The count of NHSN inpatients who had previously received influenza vaccination during the current influenza season by either history or documentation. Patients requiring a second vaccine should not be included in the count of those previously vaccinated.
4. Total patients not previously vaccinated during current influenza season (Box 2 - Box 3)	Required. The difference in the count of NHSN inpatients meeting criteria for influenza vaccination (Box 2) minus the count of NHSN inpatients who had been previously vaccinated during the current influenza season (Box 3). This number will be auto-entered by the computer.
Label and data fields	<p>Optional. Up to five numeric fields may be customized for local use.</p> <p>NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use. Data in these fields may be analyzed.</p>



Table 16. (Form has been retired and is no longer used.)
[\(Tables of Instructions List\)](#)



Table 17. Instructions for Completion of the Patient Vaccination Form (CDC 57.133)

[\(Tables of Instructions List\)](#)

Data Field	Instructions for Data Collection
Facility ID #	The NHSN-assigned facility ID number will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID	Optional. Enter the alphanumeric ID number assigned by the facility.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Circle F (female) or M (male) or Other to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY
Ethnicity	Optional. Indicate the patient's ethnicity: Hispanic or Latino Not Hispanic or Not Latino
Race	Optional. Indicate the patient's race (all that apply): American Indian or Alaskan Native Asian Black or African American Native Hawaiian or Other Pacific Islander White
Event Type	Required. FLUVAX.
Influenza subtype	Required. Check one: <input type="checkbox"/> Seasonal <input type="checkbox"/> Non-seasonal.
Vaccine offered	Required. Check Yes or No.
Vaccine declined	Required. Check Yes or No.
Reason(s) vaccine declined A. Medical contraindication(s) B. Personal reason(s) for declining	Conditionally required. If patient declined influenza vaccination, check all that apply in either section A or section B, but not both. If reasons exist in both categories then section A, medical contraindications, takes priority and should be completed.



Data Field	Instructions for Data Collection
Vaccine administered	Required. Check Yes or No.
Date vaccine administered	Conditionally required. If vaccine administered, indicate date given using this format: MM/DD/YYYY
Type of influenza vaccine administered Seasonal or Non-seasonal	Conditionally required. If vaccine administered, indicate which vaccine (seasonal or non-seasonal) and whether it was a live attenuated vaccine (LAIV) or inactivated vaccine (TIV) formulation. If both seasonal and non-seasonal vaccines are administered to a patient, complete a separate Patient Vaccination form for each.
Manufacturer	Conditionally required. If vaccine administered, influenza vaccine manufacturer will be auto-entered by computer when vaccine type is selected.
Lot number	Conditionally required. If vaccine administered, enter the lot number of the vaccine given to the patient.
Route of administration	Conditionally required. If vaccine administered, indicate the route of administration used.
Vaccine Information Statement Provided to Patient	Optional. If vaccine administered, indicate what type of information statement was provided, if any, and the edition date using this format: MM/DD/YYYY; otherwise, check "None or unknown".
Person administering vaccine: Vaccinator ID	Optional. If vaccine administered, indicate vaccinator identifier. This is an identifier assigned by the facility and may consist of any combination of numbers and/or letters.
Person administering vaccine: Title	Optional. If vaccine administered, indicate title of vaccinator (RN, LPN, Nurse Assistant, etc.).
Person administering vaccine: Name	Optional. If vaccine administered, indicate name of vaccinator by last name, first name, middle name or initial.
Person administering vaccine: Work address, City, State, Zip code	Optional. This information will be auto-entered by the computer.
Custom fields and labels	Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of NHSN before the field can be selected for use. Data in these fields may be analyzed.
Comments	Optional. Enter comments about this vaccination. Data in this field cannot be analyzed.



Table 18. Instructions for Completion of the Influenza Vaccination Standing Orders Form - Optional (CDC 57.134) ([Tables of Instructions List](#))

Data Field	Instructions for Data Collection
Facility ID	Required. Blank space for facility to place identification information of the facility as indicated or required by the facility.
Patient identifiers	Required. Blank space for facility to place patient identification label or stamp as indicated. Minimum information required includes the alphanumeric patient ID (i.e., the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters), gender, and date of birth.
DO NOT VACCINATE	Optional. Check one of the choices.
Vaccine offered	Required. Check Yes or No.
Influenza Subtype	Conditionally required. Check Seasonal or Non-seasonal.
Vaccine declined	Required. Check Yes or No.
Reason(s) vaccine declined	Conditionally required. If patient declined influenza vaccination, check all that apply in either section A or section B, but not both. If reasons exist in both categories then section A, medical contraindications, takes priority and should be completed.
Orders	Required. Check Vaccinate; Do NOT Vaccinate; or Standing Order – no signature required.
Physician signature	Conditionally required. Signature of ordering physician is required if standing order policy is not in place and checked.
Vaccine administered	Required. Check Yes or No.
Date administered	Conditionally required. If vaccine administered, enter date in MM/DD/YYYY format.
Type of influenza vaccine administered: Seasonal or Non-seasonal	Conditionally required. If vaccine administered, indicate which specific vaccine of the seasonal or non-seasonal type was given, and whether it was a live attenuated vaccine (LAIV) or inactivated vaccine (TIV) formulation.
Manufacturer	Conditionally required. If vaccine administered, enter name of manufacturer.
Lot number	Conditionally required. If vaccine administered, enter lot number used.
Route of administration	Conditionally required. If vaccine administered, indicate route of administration used.
Vaccine information statement (VIS) provided to patient	Optional. If vaccine administered, indicate type and edition date of vaccine information statement provided, if no vaccine information statement was provided (None), or if it is unknown.
Vaccinator ID and Title of Person Administering Vaccine	Optional. If vaccine administered, indicate vaccinator identifier. This is an identifier assigned by the facility and may consist of any combination of numbers and/or letters. Indicate the title of the



Data Field	Instructions for Data Collection
	vaccinator (RN, LPN, Nurse Assistant, etc.).
Name	Optional. If vaccine administered, indicate name of vaccinator by last name, first name, middle name or initial.
Work Address, City, State, Zip code	Optional. If vaccine administered, indicate work address of vaccinator. Typically, this would be the facility's address.



Table 19. Instructions for Completion of the Laboratory-identified MDRO or CDI Event form (CDC 57.128) ([Tables of Instructions List](#))

Data Field	Instructions for Form Completion
Facility ID	The NHSN-assigned facility ID number will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID	Required. Enter the alphanumeric patient ID. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters. This should be an ID that remains the same for the patient across all visits and admissions.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID	Optional. Enter any other patient ID assigned by the facility.
Patient Name, Last First, Middle	Optional. Enter the name of the patient. If available, data will be auto-entered from Patient Form.
Gender	Required. Circle M (Male) or F (Female) to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity (specify)	Optional. Enter the patient's ethnicity: Hispanic or Latino Not Hispanic or Not Latino
Race (specify)	Optional. Enter the patient's race: Select all that apply. American Indian or Alaska Native Asian Black or African American Native Hawaiian or Other Pacific Islander White
Event Details	
Event Type	Required. Event type = LabID.
Date Specimen Collected	Required. Enter the date the specimen was collected for this event using format: MM/DD/YYYY
Specific Organism Type	Required. Check the pathogen identified for this specimen from one of the following laboratory-identified organism types: MRSA, MSSA (if tracking MRSA & MSSA), VRE, CephR- <i>Klebsiella</i> , CRE- <i>E. coli</i> , CRE- <i>Klebsiella</i> , MDR- <i>Acinetobacter</i> or <i>C. difficile</i> . Use one form per LabID event (i.e., 1 form for each pathogen).
Outpatient	Required. Select "Yes" if the LabID Event is being reported from an outpatient location where there are no admissions (e.g., emergency department, wound care clinic, etc.). If the patient was an outpatient, Date Admitted to Facility and Date Admitted to Location are not required.
Specimen Body Site	Required. Enter the main body site from which the specimen was taken using the description that is most specific. (e.g., digestive system, central nervous system, etc.)



Data Field	Instructions for Form Completion
Specimen Source	Required. Enter the specific anatomic site from which the specimen was taken using the source description that is most accurate from the available choices (e.g., bile specimen, specimen from brain, etc.)
Date Admitted to Facility	Conditionally required. Enter the date the patient was admitted to facility using this format: MM/DD/YYYY. If the LabID Event was reported from an outpatient location, leave this blank. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. When determining a patient's admission dates to both the facility and specific inpatient location, the NHSN user must take into account all such days, including any days spent in an inpatient location as an "observation" patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all such days are included in the counts of admissions and patient days for the facility and specific location, and facility and admission dates must be moved back to the first day spent in the inpatient location.
Location	Conditionally required. Enter the patient care area where the patient was assigned when the laboratory-identified MDRO or <i>C. difficile</i> event specimen was collected (i.e., the NHSN "transfer rule" does not apply for LabID events). Special Case: If a specimen collected in the emergency department is positive for an MDRO or CDI, and the patient it is collected from is admitted to the facility on the SAME date into a location that is monitoring LabID Events for the identified MDRO or CDI, then that specimen can be reported as the first specimen for the patient in that admitting inpatient location for the month. If the facility is also monitoring LabID Events for the same MDRO or CDI in the emergency department, then the same specimen for the patient would also be reported a second time for that outpatient location.
Date Admitted to Location	Conditionally required. Enter the date the patient was admitted to the patient care area where laboratory-identified monitoring is being performed and where the specimen was collected from the patient. Any days spent in an inpatient location, whether as an officially admitted patient or as an "observation" patient, contribute to exposure risk. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. Therefore, all such days are included in the counts of patient days for the facility and specific location. Special Emergency Department Cases: Note that because of existing business rules for edit checks in NHSN, the date of specimen collection must be the same date or later than the admission date.
Documented prior evidence of infection or colonization with this specific organism type from a previously	Non-editable. "Yes" or "No" will be auto-filled by the system only, depending on whether there is prior LabID Event entered for the same organism and same patient. Cannot be edited by user. If there is a previous LabID event for this organism type entered in NHSN in a prior month, the system will auto-populate with a "Yes."



Data Field	Instructions for Form Completion
reported LabID Event?	
Has patient been discharged from your facility in the past 3 months?	Required. Circle “Yes” if the patient has been an inpatient and discharged from your facility in the past three months, otherwise circle “No”.
Date of last discharge from your facility	Conditionally Required. If the patient was discharged from your facility in the past 3 months (previous question is circled “Yes”), enter the most recent date of discharge prior to the current admission. Use format: MM/DD/YYYY
Custom Fields	
Labels	Optional. Up to two date fields, 2 numeric and 10 alphanumeric fields that may be customized for local use. NOTE: Each Custom Field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter any information on the Event. This information may not be analyzed.



Table 20. Instructions for Completion of the MDRO or CDI Infection Event form (CDC 57.126) ([Tables of Instructions List](#))

Data Field	Instructions for Form Completion
Facility ID	The NHSN-assigned facility ID number will be auto-entered by the computer
Event #	Event ID number will be auto-entered by the computer
Patient ID	Required. Enter the alphanumeric patient ID. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters. This should be an ID that remains the same for the patient across all visits and admissions.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID	Optional. Enter any other patient ID assigned by the facility.
Patient Name, Last First Middle	Optional. Enter the name of the patient.
Gender	Required. Circle M (Male) or F (Female) to indicate the gender of the patient.
Date of Birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity (specify)	Optional. Enter the patient's ethnicity: Hispanic or Latino Not Hispanic or Not Latino
Race (specify)	Optional. Enter the patient's race: (select all that apply) American Indian or Alaska Native Asian Black or African American Native Hawaiian or Other Pacific Islander White
Event Details	
Event Type	Required. Enter infection event type other than BSI, DE, Pneumonia, SSI, or UTI. For reporting MDRO infections that are BSI, Pneumonia, SSI, or UTI, use those infection forms and instructions.
Date of Event	Required. Enter the date the first clinical symptoms of infection occurred or the date the first positive specimen was collected, whichever came first. Use format: MM/DD/YYYY.
Post Procedure Event	Required. Circle "Yes" if the infection occurred after an NHSN-defined procedure but before discharge from the facility, otherwise circle "No".
Date of Procedure	Conditionally required. If an NHSN-defined procedure was performed, enter date using this format: MM/DD/YYYY.
MDRO Infection	Required. Enter "Yes", if the pathogen is being followed for Infection Surveillance in the MDRO/CDI Module in that location as part of your Monthly Reporting Plan: MRSA, MSSA (MRSA/MSSA), VRE, CephR-Klebsiella, CRE-E. coli, CRE-Klebsiella, MDR-Acinetobacter or <i>C. difficile</i> .



Data Field	Instructions for Form Completion
	If the pathogen for this infection happens to be an MDRO but your facility is not following the Infection Surveillance in the MDRO/CDI Module in your Monthly Reporting Plan, answer “No” to this question.
NHSN Procedure code	Conditionally required. Answer this question only if this patient developed the MDRO or <i>C. difficile</i> infection during the same admission as an operative procedure. Enter the appropriate NHSN procedure code. NOTE: An MDRO infection cannot be “linked” to an operative procedure unless that procedure has already been added to NHSN. If the procedure was previously added, and the “Link to Procedure” button is clicked, the fields pertaining to the operation will be auto-entered by the computer.
ICD-9-CM Procedure Code	Optional. The ICD-9-CM code may be entered here instead of (or in addition to) the NHSN Procedure Code. If the ICD-9-CM code is entered, the NHSN code will be auto-entered by the computer. If the NHSN code is entered first, you will have the option to select the appropriate ICD-9-CM code. In either case, it is optional to select the ICD-9-CM code.
Specific Organism Type	Required. Check the pathogen(s) identified for this infection event. You may select up to 3.
Date Admitted to Facility	Required. Enter date patient admitted to facility using this format: MM/DD/YYYY. An NHSN Inpatient is defined as a patient whose date of admission to the healthcare facility and the date of discharge are <u>different</u> calendar days. When determining a patient’s admission dates to both the facility and specific inpatient location, the NHSN user must take into account all such days, including any days spent in an inpatient location as an “observation” patient before being officially admitted as an inpatient to the facility, as these days contribute to exposure risk. Therefore, all such days are included in the counts of admissions and patient days for the facility and specific location, and facility and admission dates must be moved back to the first day spent in the inpatient location.
Location	Required. Enter the nursing care area where the patient was assigned when the MDRO or <i>C. difficile</i> infection (CDI) was acquired. If the MDRO or CDI developed in a patient within 48 hours of discharge from a location, indicate the discharging location, not the current location of the patient.
Specific Event Type	Required. List the specific CDC-defined infection event type. For event type = BSI, PNEU, SSI or UTI this form should not be used. Use the form designed for that event.
Signs & Symptoms	Required. Using the criteria in Table 17, check all signs and symptoms used to confirm the diagnosis of this infection event in the observed patient.
Laboratory or Diagnostic Testing	Conditionally required. Indicate whether any blood cultures, other laboratory tests or radiologic exams were used to diagnose the infection.
<i>Clostridium difficile</i> Infection	
Admitted to ICU for CDI complications	Conditionally required. If pathogen is <i>C. difficile</i> , circle “Yes” to indicate admission to ICU for <i>C. difficile</i> complications (e.g., shock that requires vasopressor therapy), otherwise circle “No”.



Data Field	Instructions for Form Completion
Surgery for CDI complications	Conditionally required. If pathogen is <i>C. difficile</i> , circle “Yes” to indicate surgery for <i>C. difficile</i> complications, otherwise circle “No”. Surgery might include colectomy for toxic megacolon, perforation or refractory colitis.
Secondary Bloodstream Infection	Required. Circle “Yes” if there is a culture-confirmed bloodstream infection (BSI) during this admission, secondary to this infection, for the same pathogen. Otherwise circle “No”.
Died	Required. Circle “Yes” if the patient died during this hospitalization, otherwise circle “No”.
Event Contributed to Death	<p>Conditionally Required.</p> <p>MDRO: If the patient died during this admission, circle “Yes” if the MDRO infection contributed to death, otherwise circle “No”.</p> <p>CDI: Circle “Yes” <u>only</u> if the patient died within 30 days after <i>C. difficile</i> infection symptom onset and during the current hospital admission.</p>
Discharge Date	Optional. Enter the date the patient was discharged from the facility using this format: MM/DD/YYYY. If the patient died during this admission enter the death date.
Pathogens Identified	<p>Required. Circle “Yes” if pathogen identified, “No” if otherwise; if “Yes” indicate the pathogen identified on the antibiogram on page 2. If the pathogen was <i>C. difficile</i>, enter it under <i>Other Organisms</i> but do not include antibiogram.</p> <p>NOTE: Any infection reported as an MDRO or CDI must have a pathogen identified.</p>
Custom Fields and Labels	<p>Optional. Up to two date fields, two numeric fields, and 10 alphanumeric fields may be customized for local use.</p> <p>NOTE: Each custom Field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.</p>
Comments	Optional. Enter comments for local use and the values entered. These fields may not be analyzed.



Table 21. Instructions for Completion of the MDRO and CDI Prevention Process and Outcome Measures Monthly Monitoring form (CDC 57.127) ([Tables of Instructions List](#))

Data Field	Instructions for Form Completion
Facility ID #	The NHSN-assigned facility ID number will be auto-entered by the computer
Month	Required. Enter the 2-digit month during which surveillance was performed.
Year	Required. Enter the 4-digit year during which surveillance was performed.
Location Code	Required. Enter the code of the patient care location where the outcome measures monitoring was done.
Total Patient Days	Conditionally Required. If this is a single inpatient location, enter the total number of patient days for this location for the month. If this is for FacWideIN location code, enter the total number of patient days for all facility inpatient locations combined for the month. All of the facility's inpatient locations with an overnight stay should be included, where denominators can be accurately collected and there is the possibility of the MDRO to be present, transmitted, and identified in that specific location. For further information on counting patient days, go to http://www.cdc.gov/nhsn/PDFs/PatientDay_SumData_Guide.pdf .
Total Admissions	Conditionally required. If this is a single inpatient location, enter the total number of admissions for this location for the month. If this is for FacWideIN location code, enter the total number of admissions for all facility inpatient locations combined for the month. All of the facility's inpatient locations with an overnight stay should be included, where denominators can be accurately collected and there is the possibility of the MDRO to be present, transmitted, and identified in that specific location. For further information on counting admissions, go to http://www.cdc.gov/nhsn/PDFs/PatientDay_SumData_Guide.pdf .
Total Encounters	Conditionally required. If this is for LabID Event monitoring being performed in a single outpatient and/or emergency room location, enter the total number of patient visits/encounters for the location for the month. If this is for LabID Event monitoring being performed at the FacWideOUT level, enter the total number of patient visits/encounters for all facility outpatient locations combined for the month.
Patient Days	Conditionally Required. If LabID <i>C. difficile</i> Events are being monitored at the FacWideIN level, then Total Patient Days (as calculated from guidance above) minus any patient days for NICU or Well Baby Nurseries must be entered here.
Admissions	Conditionally Required. If LabID <i>C. difficile</i> Events are being monitored at the FacWideIN level, then Total Admissions (as calculated from guidance above) minus any admissions for NICU or Well Baby Nurseries must be entered here.



Data Field	Instructions for Form Completion
Encounters	Conditionally Required. If LabID <i>C. difficile</i> Events are being monitored at the FacWideOUT level, then Total Encounters (as calculated from guidance above) minus any encounters for Well Baby Clinics must be entered here.
MDRO and CDI Infection Surveillance or LabID Event Reporting	
Infection Surveillance	Conditionally required. Selections for Infection Surveillance will be auto-filled if included in the Monthly Reporting Plan. Otherwise, select any MDRO or <i>C. difficile</i> organism for monitoring Infection Surveillance “off-plan” in the location during the time period specified.
LabID Event (All specimens)	Conditionally required. Selections for LabID Event reporting of All specimens will be auto-filled if included in the Monthly Reporting Plan. Otherwise, select any MDRO or <i>C. difficile</i> organism for monitoring LabID Events for All specimens “off-plan” in the location during the time period specified.
LabID Event (Blood specimens only)	Conditionally required. Selections for LabID Event reporting of Blood specimens only will be auto-filled if included in the Monthly Reporting Plan. Otherwise, select any MDRO for monitoring LabID Events for Blood specimens only “off-plan” at the facility-wide level during the time period specified.
Process Measures (Optional)	
Hand Hygiene Performed	Required for hand hygiene adherence process measures. Enter the total number of observed contacts during which an HCW touched either the patient or inanimate objects in the immediate vicinity of the patient and appropriate hand hygiene was <u>performed</u> (i.e., Hand Hygiene Performed).
Indicated	Required for hand hygiene adherence process measures. Enter the total number of observed contacts during which an HCW touched either the patient or inanimate objects in the immediate vicinity of the patient and therefore, appropriate hand hygiene was <u>indicated</u> (i.e., Hand Hygiene Indicated).
Gown and Gloves Used	Required for gown and gloves use adherence process measures. Among patients on Contact Precautions, enter the total number of observed contacts between an HCW and a patient or inanimate objects in the immediate vicinity of the patient for which gloves and gowns <u>had been donned</u> prior to the contact (i.e., Gown and Gloves Used).
Indicated	Required for gown and gloves use adherence process measures. Among patients on Contact Precautions, enter the total number of observed contacts between an HCW and a patient or inanimate objects in the immediate vicinity of the patient and therefore, gloves and gowns were <u>indicated</u> (i.e., Gown and Gloves Indicated).
Active Surveillance Testing (For MRSA & VRE only)	
Active Surveillance Testing performed	Required for active surveillance testing adherence process measures. For MRSA and VRE only. Selections for AST Performed will be auto-filled if included in the Monthly Reporting Plan. Otherwise, select either MRSA



Data Field	Instructions for Form Completion
	or VRE for which active surveillance testing is being done “off-plan” during the time period specified.
Timing of AST <ul style="list-style-type: none"> • Adm • Both 	Required for active surveillance testing adherence process measures. Choose the time period when surveillance testing will be performed. Specimens for AST can be obtained at the time of admission (Adm), or at the time of admission and for patients’ stays of > 3 days, at the time of discharge/transfer (Both).
AST Eligible Patients <ul style="list-style-type: none"> • All • NHx 	Required for admission surveillance testing adherence process measures. If all admitted patients were tested choose All. Circle NHx if performing AST only on those patients admitted to the patient care location with no documentation at the time of admission of MRSA and/or VRE colonization or infection in ≤ 12 months (NHx). That is, no specimen positive for MRSA and/or VRE for this patient during previous stays at this facility or from information provided by referring facilities in ≤ 12 months.
<u>Admission AST</u> <ul style="list-style-type: none"> • Performed • Eligible 	Required for admission surveillance testing adherence process measures. Enter the number of patients eligible for admission AST <u>and</u> who had a specimen obtained for testing ≤ 3 days of admission (i.e., Admission AST Performed). Enter the number of patients eligible for admission surveillance testing. (i.e., Admission AST Eligible)
<u>Discharge/Transfer AST</u> <ul style="list-style-type: none"> • Performed • Eligible 	Required for discharge/transfer active surveillance testing adherence process measures. For patients’ stays > 3 days, enter the number of discharged or transferred patients eligible for AST <u>and</u> who had a specimen obtained for testing prior to discharge or transfer, not including the admission AST (i.e., Discharge/Transfer AST Performed). For patients’ with stays of > 3 days, enter the number of patients eligible for discharge/transfer surveillance testing; were negative if tested on admission. (i.e., Discharge/Transfer AST Eligible).
Outcome Measures (Optional) - MRSA & VRE ONLY	
<u>Prevalent Cases</u> AST/Clinical Positive	Required for prevalent case - AST/clinical positive outcome measures. Enter the number of patients with MRSA and/or VRE isolated from a specimen collected for AST or for clinical reasons on admission (≤ 3 days) (i.e., the MRSA or VRE cannot be attributed to this patient care location).
Known Positive	Enter the number of patients with documentation on admission of MRSA or VRE colonization or infection, from the admitting or referring facility,



Data Field	Instructions for Form Completion
	in \leq 12 months (i.e., patient is known to be colonized or infected with MRSA and/or VRE within the last year). All MRSA or VRE colonized patients already in the ICU during the first month of surveillance should be considered "Known Positive".
Incident Cases AST/Clinical Positive	Required for incident case - AST/clinical positive outcome measures. Enter the number of patients with a stay > 3 days: <ul style="list-style-type: none"> • With no documentation on admission of MRSA and/or VRE colonization or infection, from the admitting or referring facility, in \leq 12 months (i.e., patient is not known to be colonized or infected with MRSA and/or VRE within the last year and is negative if tested on admission), <u>AND</u> • MRSA and/or VRE isolated from a specimen collected for AST or clinical reasons > 3 days after admission and up to discharge/transfer from the patient care location.
Custom Fields and Labels	Optional. Up to 5 numeric fields may be customized for local use. NOTE: Each custom field must be set up in the Facility/Custom Options section of the application before the field can be selected for use.
Comments	Optional. Enter comments for local use and the values entered. These fields may not be analyzed.