West Virginia Healthcare-Associated Infection 2014 Reporting Guide

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West Virginia
Healthcare-Associated Infection Reporting Guide
2014

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This Guide was developed by the West Virginia Health Care Authority, in collaboration with the West Virginia Healthcare-Associated Infection Control Advisory Panel.

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I. Protocols and Procedures

A. Legislative Authority

Pursuant to West Virginia Code §16-5B-17, West Virginia hospitals began collecting and reporting data on healthcare-associated infections (HAI) on July 1, 2009. In response to the requirements of the statute, the West Virginia Health Care Authority (WVHCA) convened the West Virginia Healthcare-Associated Infection Control Advisory Panel, whose duty is to assist the Health Care Authority in performing the following activities:

- Provide guidance to hospitals in their collection of information regarding health-care-associated infections;
- Provide evidence-based practices in the control and prevention of healthcare-associated infections;
- Develop plans for analyzing infection-related data from hospitals;
- Develop healthcare-associated advisories for hospital distribution; and
- Determine a manner in which reporting of healthcare-associated infections is made available to the public in an understandable fashion.

HAI data are to be submitted by non-federal hospitals, excluding state psychiatric facilities, to the Centers for Disease Control and Prevention's National Healthcare Safety Network (NHSN), in accordance with reporting guidelines determined by the Infection Control Advisory Panel and protocols established by NHSN. Beginning in the year 2011 and yearly thereafter, the WVHCA is to report to the Legislative Oversight Committee on Health and Human Resources Accountability in January. The report is to include summaries of the results of the required reporting and the work of the Infection Control Advisory Panel.

NHSN introductory information can be found in Appendices A, B and C. Additional information on the West Virginia Healthcare - Associated Infection Control Advisory Panel can be accessed at http://www.hca.wv.gov/infectioncontrolpanel.

B. Reporting Requirements and Instructions

Initially, the West Virginia Healthcare-Associated Infection Control Advisory Panel recommended two measures for public reporting effective July 2009. In recent years, the Centers for Medicare and Medicaid Services (CMS) has defined HAI reporting requirements for hospitals participating in the Hospital Inpatient Quality Reporting Program. To the extent possible, the Panel has developed West Virginia HAI public reporting requirements to be consistent with CMS requirements in order to reduce the reporting burden among hospitals. In addition, the Advisory Panel recommended that Critical Access Hospitals also report State specific HAI since Hospital Inpatient Quality Reporting Program is voluntary and not required by CMS.

The Panel's recommendations were subsequently approved by the WVHCA Board in August 2012. Detailed reporting requirements and related resources are outlined below. Refer to Table 1 on page 9 for a summary of the requirements.

CMS current reporting rules and deadlines in NHSN are outlined in Table 2, beginning on page 10. In accordance with §16-5B-17, hospitals who fail to report information on health-care-associated infections in the manner and time frame required by the WVHCA shall be fined the sum of five thousand dollars for each such failure.

The reporting categories are outlined below:

1) Healthcare Personnel Influenza Vaccinations

a. Beginning January 2012 and continuing into the 2014 collection year, all non-federal hospitals (excluding state psychiatric facilities) are required to report personnel influenza vaccinations to NHSN.

b. Beginning in 2013 and continuing into the 2014 collection year, facilities shall use the NHSN's *Healthcare Personnel Safety Component Annual Facility Survey* and *Post-season Survey on Influenza Vaccination Programs for Healthcare Personnel* for required influenza vaccination reporting. The WVHCA may distribute an additional survey for questions not included in the NHSN survey as needed.

2) Central Line-associated Blood Stream Infections (CLABSI)

a. Between July 2009 and December 2010, CLABSIs were required to be reported for general acute care hospitals' medical, surgical, and medical/surgical ICUs.

b. In January 2011 and continuing into the 2014 collection year, CLABSI is required to be reported for all ICUs.

c. Beginning October 2012 and continuing into the 2014 collection year, Long Term Acute Care Hospitals are required to report CLABSIs.

3) Catheter-Associated Urinary Tract Infections (CAUTI)

a. Beginning in January 2012, all hospitals, including general acute and critical access hospitals, <u>with</u> an ICU were required to report CAUTI for all adult and pediatric ICUs.

b. Beginning January 2012, acute care and critical access hospitals <u>without</u> an ICU were required to report CAUTI for Inpatient Medical Wards, and Adult Mixed Acuity Units.

c. Beginning in 2013 and continuing into the 2014 collection year, inpatient Medical/Surgical Wards in both general acute and critical access hospitals are required to report CAUTI.

d. Beginning in October 2012 and continuing into the 2014 collection year, Long Term Care Hospitals and Inpatient Rehabilitation Facilities are required to report CAUTI.

4) Surgical Site Infections (SSI)

a. Since January 2012 and continuing into the 2014 collection year, acute care hospitals are required to report SSI for colon and abdominal hysterectomy procedures.

5) Methicillin-Resistant Staphylococcus Aureus (MRSA)

a. Beginning January 2013 and continuing into the 2014 collection year, acute care hospitals are required to report MRSA Bacteremia LabID Events.

6) *C. difficile* LabID Event

a. Beginning January 2013 and continuing into the 2014 collection year, acute care hospitals will be required to report *C. difficile* LabID Events.

C. General Requirements for NHSN Reporting

a. Data must be collected and reported in accordance with NHSN methods and protocols. Detailed guidance on NHSN SSI surveillance methods can be accessed at: www.cdc.gov/nhsn/settings.html.

b. Each unit/location in your hospital must be "mapped" in NHSN to a listed CDC Location. The CDC Location Code that you choose is determined by the type of patients cared for in that area according to the 80% Rule. That is, if 80% of patients are of a certain type (e.g., pediatric patients with orthopedic problems) then that area is designated as that type of location (in this case, an Inpatient Pediatric Orthopedic Ward). This method must be used to define your units in NHSN, regardless of the name you use to define that unit in your hospital. It is important that your locations are mapped correctly. The data you submit to NHSN is analyzed in comparison to data from units of the same type. Therefore, if your unit is inaccurately mapped in NHSN, analysis results (such as the standardized infection ratio) will not be accurate for your hospital. For more information about mapping hospitals units appropriately, please refer to Appendix B or access the NHSN website,http://www.cdc.gov/nhsn/PDFs/pscManual/15LocationsDescriptions_current.pdf. The following Q&A from the March 2011 NHSN newsletter (www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_MAR_2011_final.pdf) provides additional guidance on mapping your locations and the use of the mixed acuity location.

"Q: Our critical care unit is actually both a medical critical care and step-down unit because we don't have a stepdown unit in our hospital. So would the location designation for this type of unit be "Mixed Acuity" ward and if yes, would CLABSIs

need to be reported for participation in the Centers for Medicare and Medicaid Services' (CMS) Hospital Inpatient Quality Reporting Program?

A: The location type "Mixed Acuity" ward location was created to capture data for patient care areas that have a mixture of patients of various acuity levels. This includes areas with patients of differing acuity levels present at the same time, as well as those that utilize a "Universal Bed" patient care model. In a Universal Bed system, one patient will occupy the same bed over the course of a hospitalization receiving critical, step down, and ward level care without reassignment to different beds or patient care areas. Because this location type will include patients at various levels of risk for HAI, the usefulness of data aggregated across facilities for HAI prevention has not yet been determined. The following guidance is provided for determining the appropriateness of the use of this location type in your facility.

1. When mapping your locations to CDC location descriptions, apply the 80% rule. If 80% of the patients are of a certain type (e.g., medical critical care patients) then that area is designated as that type of location (in this case, an Inpatient Medical Critical Care).
2. If the 80% rule cannot be met, you should determine if there is a way of separating the medical critical care and step-down patient data (infection events, device days, and patient days). If this is possible, the unit should be "divided" into 2 separate location types and appropriately mapped. In the example given, this would yield a MICU location and a step-down location. Remember that the purpose for location designation is to group patients of similar risk for HAI to permit internal and external comparison with like patient care areas.
3. Only if neither 1 nor 2 can be accomplished, can the unit be labeled a Mixed Acuity ward location. Please be aware, based on CMS information that is currently available, Mixed Acuity wards do not have to report CLABSI data to CMS for the Quality Reporting Program. Your Quality Improvement or CMS-compliance staff may be able to provide further guidance on CMS reporting requirements. Please contact the NHSN helpdesk, (NHSN@cdc.gov) if you have any questions about location mapping."

c. Data are to be submitted to NHSN within 30 days after the month's end.

d. Appropriate rights must be conferred to the WVHCA to access the data submitted to NHSN, as specified in Section II.C of this Guide.

Table 1

West Virginia HAI Public Reporting Requirements 2014

Reporting Requirement	Facility Type	HAI Event	Reporting Specifications
CMS Requirement	Acute Care Hospitals Only (Non-Critical Access)	CLABSI	Adult, Pediatric/Neonatal ICUs
		CAUTI	Adult and Pediatric ICUs
		SSI: COLO	Inpatient COLO Procedures
		SSI: HYST	Inpatient HYST Procedures
		MRSA Bacteremia LabID Event	Facility Wide Inpatient
		C. *difficile* LabID Event	Facility Wide Inpatient
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
State Requirement	Critical Access Hospitals	CAUTI	Facility Wide Inpatient
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
CMS Requirement	Long-Term Acute Care Hospitals	CLABSI	Adult & Pediatric LTAC ICUs & Wards
		CAUTI	Adult & Pediatric LTAC ICUs & Wards
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel
CMS Requirement	Inpatient Rehabilitation Facility	CAUTI	Adult and Pediatric Wards
		Healthcare Personnel Influenza Vaccination	All Inpatient Healthcare Personnel

Table 2

Reporting Requirements and Deadlines in NHSN per CMS Current Rules and WV HAI Advisory Panel Submission Requirements		
Healthcare Settings	**NHSN Event**	**CMS Reporting Deadlines**
Acute Care Facilities that participate in CMS Hospital IQR Program	**CLABSI**	Q1 (Jan.-March): August 15
	Start Q1 2011 – adult, pediatric, and neonatal ICUs	Q2 (April – June): November 15
	Start Q1 2015 – adult and pediatric medical, surgical, and medical/surgical wards	Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	CAUTI	Q1 (Jan.-March): August 15
	Start Q1 2012 – adult, pediatric ICUs	Q2 (April – June): November 15
	Start Q1 2015 – adult and pediatric medical, surgical, and medical/surgical wards	Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	SSI (following COLO Procedures)	Q1 (Jan.-March): August 15
	(Start Q1 2012)	Q2 (April – June): November 15 Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	SSI (following HYST Procedures)	Q1 (Jan.-March): August 15
	(Start Q1 2012)	Q2 (April – June): November 15 Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	MRSA Bacteremia LabID Event (FacWideIN)	Q1 (Jan.-March): August 15
	(Start Q1 2013)	Q2 (April – June): November 15 Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	C. *difficile* LabID Event (FacWide IN)	Q1 (Jan.-March): August 15
	(Start Q1 2013)	Q2 (April – June): November 15 Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	Healthcare Personnel Influenza Vaccination	Q4 (Oct. – Dec.) – Q1 (Jan. – March): May 15
	(Start Q1 2013)	

Healthcare Settings	NHSN Event	CMS Reporting Deadlines
Critical Access Hospitals	**CAUTI** Start Q1 2013 – adult and pediatric ICUs and inpatient medical/surgical wards	Q1 (Jan.-March): August 15 Q2 (April – June): November 15 Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	Healthcare Personnel Influenza Vaccination (Start Q1 2013)	Q4 (Oct. – Dec.) – Q1 (Jan. – March): May 15
Long-Term Acute Care Facilities (LTACs) that participate in CMS LTCHQR Program *Starting January 2014, reporting deadline will be 1.5 months after the end of the quarter*	**CLABSI (all bedded inpatient care locations)** (Start Q4 2012)	**Starting Q1 2014** Q1 (Jan. – March): May 15 Q2 (April – June): August 15 Q3 (Jul. – Sept.): November 15 Q4 (Oct. – Dec.): February 15
	CAUTI (all bedded inpatient care locations) (Start Q4 2012)	Q1 (Jan. – March): May 15 Q2 (April – June): August 15 Q3 (Jul. – Sept.): November 15 Q4 (Oct. – Dec.): February 15
	MRSA Bacteremia LabID Event (FacWideIN) (Start Q1 2015)	Q1 (Jan. – March): May 15 Q2 (April – June): August 15 Q3 (Jul. – Sept.): November 15 Q4 (Oct. – Dec.): February 15
	C. *difficile* LabID Event (FacWideIN) (Start Q1 2015)	Q1 (Jan. – March): May 15 Q2 (April – June): August 15 Q3 (Jul. – Sept.): November 15 Q4 (Oct. – Dec.): February 15
	Healthcare Personnel Influenza Vaccination (Start Q4 2014)	Q4 (Oct. – Dec.) – Q1 (Jan. – March): May 15
Inpatient Rehabilitation Facilities (IRFs) that participate in CMS Quality Reporting Program	**CAUTI (all bedded inpatient care locations)** (Start Q4 2012)	Q1 (Jan. – March): August 15 Q2 (April – June): November 15 Q3 (Jul. – Sept.): February 15 Q4 (Oct. – Dec.): May 15
	Healthcare Personnel Influenza Vaccination (Start Q4 2014)	Q4 (Oct. – Dec.) – Q1 (Jan.- March): May 15

II. NHSN Enrollment and Group Membership

A. Enrolling in NHSN

Facilities must be enrolled in NHSN to submit data to the system. Your hospital must identify a facility administator to enroll in NHSN. All personnel that will be using NHSN must complete the appropriate training before enrolling in or using NHSN. At the completion of the required training, each user must apply to CDC for a digital certificate or Secure Access Management Services Card (SAMS) to access NHSN. This process may take a few days and require assistance from your hospital's IT staff. Detailed instructions on NHSN enrollment can be accessed at: http://www.cdc.gov/nhsn/enrollment/index.html.

As part of the enrollment and initial set-up process, you should complete the Annual Facility Survey and map your hospital units to the CDC Locations defined in NHSN. Refer to Section II.C. of this guide for additional information on mapping your locations.

B. Joining a West Virginia Reporting Group in NHSN

Once enrolled in NHSN, hospitals must join a NHSN group in order to confer rights to the WVHCA to access the data required for public reporting. Follow the steps below to join the "West Virginia HAI Reporting" Group.

1) Log-in to NHSN
2) On the navigation bar (left side of screen), click "Group" and select "Join." The "Memberships" screen will appear (see Figure 1).
3) Enter the following Group ID and Password:
   Group ID = 14840
   Password = wvhaigroup
4) Click "Join Group." A message will appear indicating that you have joined the group "West Virginia HAI Reporting." You will be asked to review and accept the Confer Rights Template developed by the WVHCA. Accepting this template will allow the WVHCA to access your data required for public reporting, as defined in the template. Refer to Section II.C of this guide for additional information on the Confer Rights Template.

Figure 1 – NHSN Group Memberships Screen

C. Conferring Rights to the Health Care Authority

Hospitals must allow the WVHCA to access the data submitted to NHSN that is required for West Virginia HAI public reporting. Conferring rights to these data enables only the WVHCA to view and analyze your facility's de-identified HAI data. Group members/facilities will not be able to view or analyze any data reported by other group members/facilities.

In June 2011, NHSN revised the method for hospitals to confer rights to groups to which they belong. Now, group administrators, such as the WVHCA, must create a Confer Rights Template within NHSN to be reviewed and accepted by group members. This template details the data that the WVHCA should have access to, based on the reporting requirements outlined in this Guide. Upon joining the group, facility administrators are prompted to review and accept the template. Hospitals that are already members of the group will receive a notification the next time the facility administrator logs in to NHSN that a Confer Rights Template is available for review. This change in NHSN requires all hospitals to review and accept the new Confer Rights Template, even if the hospital has previously conferred rights to the WVHCA.

If, at a later date, the WVHCA makes a change to the template (e.g., to request access to revised or additional data), hospitals will be prompted, at the next NHSN log-in, to review and accept the new template.

The WVHCA will only gain access to the data included on the Confer Rights Template. Data submitted by hospitals to NHSN that are not included in the template will not be accessible by the WVHCA. The WVHCA will have access to the data, as defined in the template, until the hospital leaves the group.

A sample and description of the Confer Rights Template developed by the WVHCA is available and has been distributed to all HAI contacts. Be aware of the following guidelines when reviewing the template:

1) Not all hospitals are required to report all of the data included in the Confer Rights Template. If a data element is not required for your facility check “N/A” on the Confer Rights template for that data element. Refer to Table 1 of this guide for the reporting requirements that relate to your hospital.

2) On the confer rights template, the WVHCA indicated the “Location Type” and “Location” for which the reporting is required (e.g., medical critical care units). When you receive the template, the “Your Locations” field will be populated with the units you mapped in NHSN that meet the criteria defined by the WVHCA (e.g., medical critical care units). Review this list and ensure that all of the units in your hospital that meet the criteria are included. It is essential that your hospital units are correctly mapped in NHSN. Refer to Section II.C. for additional information on mapping locations. If a location is not included in the “Your Locations” list, then it is either not mapped in NHSN or inaccurately mapped to a different location type.

D. Guidance for Verifying Submission of Required CMS Reporting

When a facility has been notified by CMS that data is missing or incomplete, NHSN has offered the following guidance to assist in checking hospital data to identify where required reporting may have been missed or incomplete.

Once a CMS letter is received and during the CMS reconsideration period, facilities will obtain the most beneficial information from running additional NHSN reports that detail the exact time the data were entered (createDate) and modified (modifyDate) within the NHSN facility by following the steps below:

- Analysis > Generate Data Sets > Generate New
- Analysis > Output Options > Advanced folder
- Once in the Advanced folder, the facility can run reports detailing when the summary and event data were entered.
  - For plan data: click Plan data > CDC Defined Output
    - Click Modify next to the 'Line listing - Patient Safety Plans'
    - On the Line Listing screen, use date variable 'planYM' beginning (e.g.) 01/2013 and ending 12/2013
    - Scroll down to the bottom and click Run to generate the report.
  - For summary data: click Summary-level data > CDC Defined Output
    - Click Modify next to the 'Line Listing - All Summary data'
    - On the Line Listing screen, use date variable 'summaryYM' beginning (e.g.) 01/2013 and ending 12/2013.
    - Scroll down to the bottom and click Run to generate the report.

- For event data: click Event-level data > CDC Defined Output
  - Click Modify next to the 'Line Listing - All Infection Events'
  - On the Line Listing screen, use the date variable 'eventDate' beginning (e.g.) 01/01/2013 and ending 12/31/2013
  - At the bottom of the page click 'Modify List' next to 'Modify variables to display by clicking.' Select 'createDate' and 'modifyDate' from the list of Available Variables and move them over using the >> to the Selected Variables. Click Save to save the change
  - Scroll down to the bottom and click Run to generate the report.

If after following the above steps, if your facility is still not able to pinpoint which data were missing from NHSN, please contact the NHSN Helpdesk: NHSN@cdc.gov.

And to improve on reporting completeness and avoid receiving a letter from CMS in the future:

- Prior to each CMS reporting deadline, it is highly recommend to use the NHSN guidance documents to ensure on time and accurate reporting for the CMS requirements (http://www.cdc.gov/nhsn/cms/index.html):
  - Detailed steps to ensure complete submission:
    - IRF units located as units within affiliated acute care facilities: http://www.cdc.gov/nhsn/PDFs/CMS/Helpful-Tips-CAUTI-IRF-Acute-Ward.pdf
    - Free-standing IRF hospitals: http://www.cdc.gov/nhsn/PDFs/CMS/Helpful-Tips-CAUTI-IRF-Freestanding.pdf
  - Prior to each reporting deadline, print a copy of the report that shows the data were entered on time and exactly what data was shared with CMS. The following may be helpful: http://www.cdc.gov/nhsn/PDFs/CMS/CMS-IRF-PPS-CAUTI-RateTable.pdf

III. Technical Assistance

For additional information related to NHSN protocols, policies, or methods, the following NHSN resources may be helpful:

- NHSN website: http://www.cdc.gov/nhsn/
- NHSN Enrollment Training website: www.cdc.gov/nhsn/PDFs/slides/NHSN_Enrollment.pdf.
- Getting Started in NHSN: Adding Users, Locations and Surgeons website: www.cdc.gov/nhsn/PDFs/slides/NHSN_Getting_Started.pdf.
- NHSN Demo website: www.cdc.gov/nhsn/NHSN_Demo.html.
- Data Entry, Import and Customization
  1) Data Entry, Import and Customization
  2) Introduction to NHSN Analysis
     a) Basic Analysis – How to Customize Report

     website: http://www.cdc.gov/nhsn/Training/analysis/
- Operation Guidance
  1) Acute Care Hospitals
  2) Long-Term Acute Care Facilities
  3) Inpatient Rehabilitation Facilities

  website: http://www.cdc.gov/nhsn/CMS/index.html
- Patient Safety Component

  Source: Device-Associated Module available at the following website: www.cdc.gov/nhsn/Training/course-catalog/psc-catalog-da-intro.html
- Healthcare Personnel Safety Component Training Course Catalog
  1) Overview of Healthcare Personnel Safety Component
  2) Setting Up a Facility
  3) Vaccination Module
     a) Influenza Vaccination Modules

  website: www.cdc.gov/nhsn/Training/course-catalog/hpsc-catalog-index.html.

For additional information related to this Guide or West Virginia HAI public reporting requirements, please contact: Shelley Baston, MBA, RN, RNC-NIC, CPC, Health Planning Manager, WVHCA (304-558-7000, or SBaston@hcawv.org).

Appendix A

CDC Unveils New NHSN Website

CDC recently unveiled its redesigned National Healthcare Safety Network (NHSN) website. Intuitive and simple to navigate, the new NHSN site offers NHSN users and visitors the following:

Enrollment and Reporting:

For new users, there is a button for enrolling a facility that leads to an easy step-by-step instructions page for each facility type. For existing users, there are one-stop information pages for each facility type (e.g., acute care hospitals, outpatient dialysis) that have links to each infection type with NHSN protocols, trainings, forms, analysis tools, etc. In addition, there is a link to blood safety surveillance and important healthcare process measures such as healthcare personnel influenza vaccination.

- Evaluate immediate and long-term results of elimination efforts,
- Refocus efforts as needed, or advance to different areas.

CAUTI - Surveillance for Catheter-associated Urinary Tract Infections
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

CLABSI - Surveillance for Central Line-associated Bloodstream Infections
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

MDRO/CDI - Surveillance for *C. difficile*, MRSA, and Other Drug-Resistant Infections
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

CLIP - Surveillance for Central Line Insertion Practices Adherence
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

VAP - Surveillance for Ventilator-associated Pneumonia Events *In-Plan Neonatal and Pediatric Patients Only
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

VAE - Surveillance for Ventilator-associated Events *In-Plan Adult Patients Only
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

SSI - Surveillance for Surgical Site Infections
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

Surveillance for Healthcare Personnel Influenza Vaccination
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

AUR - Surveillance for Antimicrobial Use and Antimicrobial Resistance Option
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

Surveillance for Healthcare Personnel Exposure
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

Blood Safety Surveillance
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources

For resources to help prevent infections in acute care hospitals/facilities, click here.
- Guidelines
- Toolkits
- Publications
- Key contacts

CMS
NHSN
Requirements
Click here for more information

Clinical Document Architecture
CDA

Contact NHSN:

Centers for Disease Control and Prevention
National Healthcare Safety Network
MS-A24
1600 Clifton Rd
Atlanta, GA 30333

800-CDC-INFO
(800-232-4636)
TTY: (888) 232-63

New Hours of Operation
8am-8pm ET/Mon-Friday
Closed Holidays

nhsn@cdc.gov

More contact inf

NHSN manuals:

To locate the NHSN manuals for each surveillance component, click on any "Facility Type" page, or any page within the NHSN website that has a navigation bar to the left of the page. There are several ways to print individual chapters. Click on the facility type, and then click on the surveillance topic. The protocol, table of instructions, and any additional tools related to the surveillance topic can be located on that page. An additional way to print out the manual in its entirety is to click on a "manual" link and click on "print" button. (shown below)

To locate:

To Print:

Materials for Enrolled Facilities

- Acute Care Hospitals/Facilities
- Long-term Acute Care Facilities
- Long-term Care Facilities
- Outpatient Dialysis Facilities
- Inpatient Rehabilitation

Surveillance Reporting for Enrolled Facilities

Select Your Facility Type

Acute Care Hospitals/Facilities
Urgent care or other short-term stay facilities (e.g., critical access facilities, oncolgoy facilities, military/VA

Outpatient Dialysis Facilities
Outpatient dialysis clinics.

Tracking Infections in Acute Care Hospitals/Facilities

NHSN is the HAI surveillance gold standard. The system (and its predecessors) started years ago helping a few hundred healthcare facilities; today, more than 11,000 healthcare facilities use NHSN as the cornerstone of their HAI elimination strategies. Specifically, facilities use NHSN to:

- Access NHSN enrollment requirements for CMS Hospital Inpatient Quality Reporting Program,
- Obtain baseline HAI rates,
- Compare rates to CDC's national data,
- Participate in state or national HAI prevention collaboratives,
- Devise and implement HAI elimination strategies,
- Evaluate immediate and long-term results of elimination efforts,
- Refocus efforts as needed, or advance to different areas.

CAUTI - Surveillance for Catheter-associated Urinary Tract Infections

- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources

CLABSI - Surveillance for Central Line-associated Bloodstream Infections

- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources

ICUs

Surveillance for CLIP Adherence

Surveillance for SSI Events

Surveillance for VAE

Surveillance for VAP Events

Surveillance for Healthcare Personnel Exposure

Surveillance for Healthcare Personnel Vaccination

Blood Safety Surveillance

Long-term Acute Care Facilities

Long-term Care Facilities

Outpatient Dialysis Facilities

Inpatient Rehabilitation Facilities

Ambulatory Surgery

Protocols

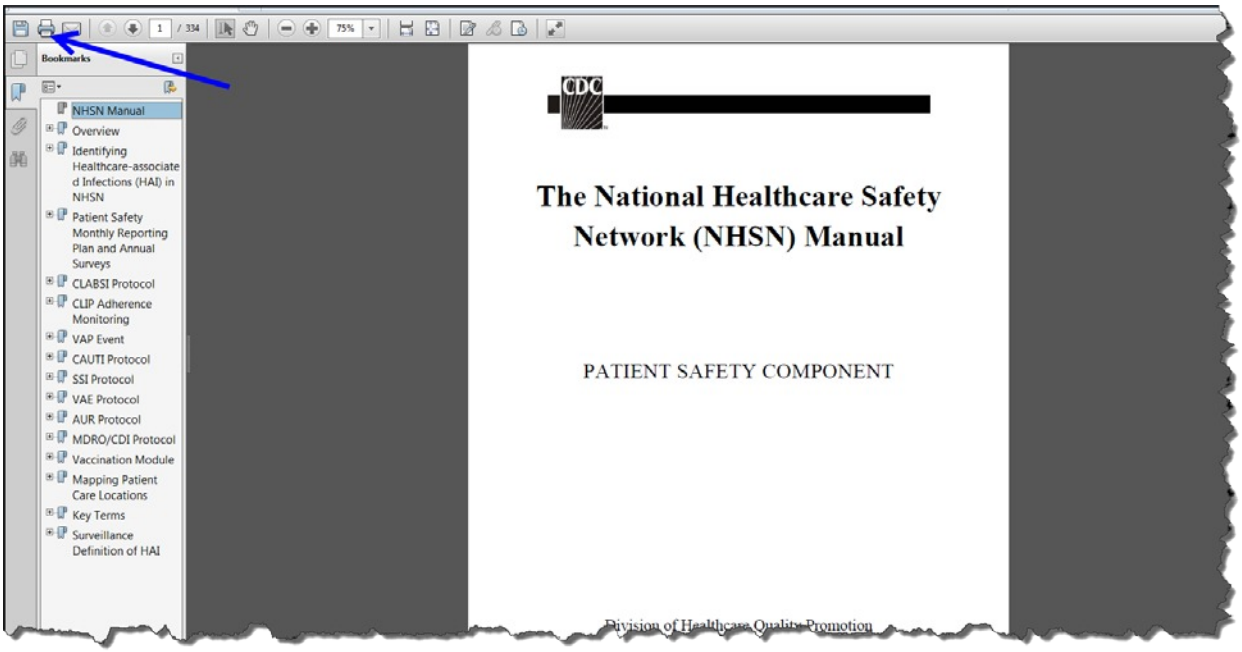
- Catheter-Associated Urinary Tract Infection (CAUTI) Event [PDF - 243 KB] January 2013
- NHSN Overview [PDF - 89 KB] January 2013
- Identifying Healthcare-associated Infections (HAIs) in NHSN [PDF - 74 KB] January 2013
- Patient Safety Monthly Reporting Plan [PDF - 41 KB] January 2013

Top

Data Collection Forms

- 57.114 Urinary Tract infection (UTI) form [PDF - 100 KB] January 2013
  - Table of instructions [PDF - 59 KB]
  - Customizable form [DOC - 51 KB]
- 57.116 Denominators for Neonatal Intensive Care Unit (NICU) form [PDF - 42 KB] January 2013
  - Table of instructions [PDF - 84 KB]
  - Customizable form [DOC - 39 KB]
- 57.117 Denominators for Specialty Care Area (SCA) form [PDF - 42 KB] January 2013
  - Table of instructions [PDF - 42 KB]

OR



Training page, NHSN Demo and Newsletters:

To access the Training page, NHSN Demo, and Newsletters, click www.cdc.gov/nhsn, scroll to the bottom of the page, and click on the appropriate link. The Training page houses computer based interactive trainings, webcasts, CE opportunities, and case studies. NHSN Demo is a duplicate version of the NHSN application that can be used for practice and training without needing a digital certificate to gain access. The NHSN Newsletter link provides access to past NHSN newsletters that highlight changes that have occurred within the application.

Other:

Other information to assist with easy access and increased efficiency:

- A search box specific to NHSN
- A direct link to the NHSN application log-in page
- Access to the Centers for Medicare and Medicaid Services rule information

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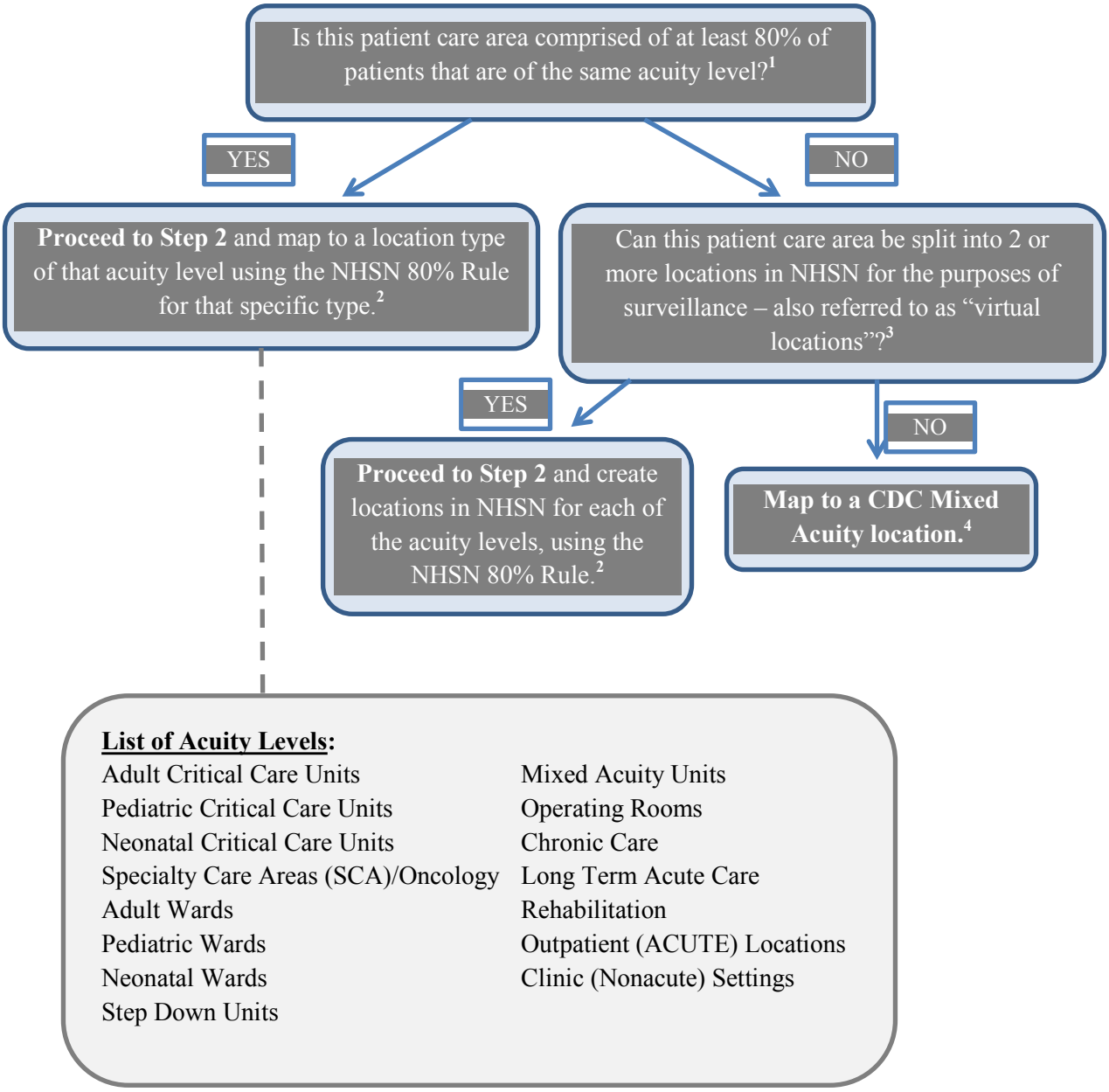
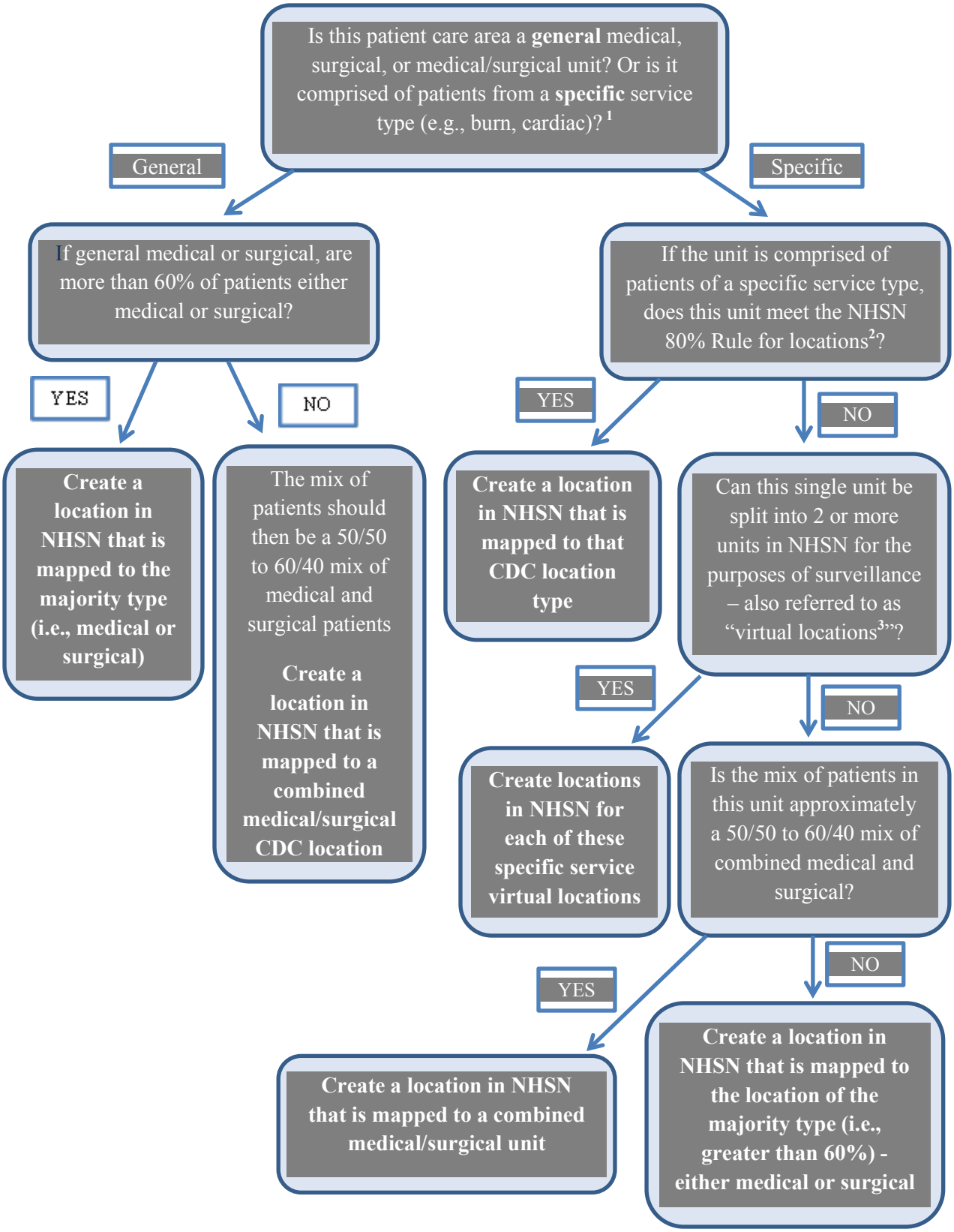
Instructions for Mapping Patient Care Locations in NHSN

NHSN requires that facilities map each patient care area in their facility to one or more locations as defined by NHSN in order to report surveillance data collected from these areas. This document functions as a decision-making tool when determining the appropriate CDC location for NHSN surveillance, as defined in the NHSN Manual. This process should be followed when adding any new unit to NHSN for surveillance and should be repeated for any unit when there has been a significant change in patient mix (e.g., merging of units, taking on a new service).

Step 1: Define the acuity level for the location



Step 2: Define the type of service for the location



Please see the CDC Location descriptions **for definitions of each CDC Location used for NHSN surveillance in this chapter.**

1. Patient mix: When determining the appropriate CDC Location mapping for a unit, facilities should review the patient mix in that unit for the last full calendar year. If a full year is not available, facilities should review patient mix based on the data they have available for that unit.

2. NHSN 80% Rule: Each patient care area in a facility that is monitored in NHSN is "mapped" to one or more CDC Locations. The specific CDC Location code is determined by the type of patients cared for in that area according to the 80% Rule. That is, if 80% of patients are of a certain type (e.g., pediatric patients with orthopedic problems) then that area is designated as that type of location (in this case, an Inpatient Pediatric Orthopedic Ward).

3. Virtual locations: Virtual locations are created in NHSN when a facility is unable to meet the 80% rule for location designation in a single physical unit but would like to report their NHSN surveillance data for each of the major, specific patient types in that unit. The use of virtual locations is recommended only for those physical units that are geographically split by patient service or those in which beds are designated by service. For example, a facility has an ICU – called 5 West – that is comprised of approximately 50% neurology patients and 50% neurosurgery patients. Additionally, the neurology patients are housed in beds 1 thru 10 and the neurosurgery patients are housed in beds 11 thru 20. Rather than map as a medical/surgical critical care unit, the facility decides to create 2 new locations in NHSN:

5WEST_N: Neurologic Critical Care (10 beds)
5WEST_NS: Neurosurgical Critical Care (10 beds)

This facility will collect and enter data for 5WEST_N and 5WEST_NS separately. The facility will also be able to obtain rates and standardized infection ratios (SIRs) for each location separately. Note that the data collected and reported for each virtual location will be limited to the designated 10 beds assigned (i.e., overflow from 5WEST_N into 5WEST_NS will be counted with **5WEST_NS**). For those facilities that use an electronic source for collecting their data, we recommend that you discuss compatibility of virtual locations in NHSN with your facility's EHR contact prior to reporting data for these locations.

4. Mixed Acuity Unit: This location is intended for those units comprised of patients with varying levels of acuity. Because of the varying range of risk in mixed acuity units, CDC does not have plans to publish national pooled mean rates for this location type. Therefore, if your facility chooses to use this location designation for reporting, you will not be able to compare your mixed acuity unit rates to an NHSN pooled mean, nor will these data be included in any SIR analyses.

NOTE: Mapping a location in NHSN to the CDC "Mixed Acuity" designation may have implications on data that your facility reports for the CMS Hospital Inpatient Quality Reporting Program and/or your state's reporting mandate(s). Although a Mixed Acuity location may have ICU beds and ICU patients, it is not considered an ICU location type for the purposes of NHSN reporting and therefore, would not be included in any ICU-specific reporting requirements. For information about how this location designation may impact your facility's compliance with CMS HAI reporting measures, please contact your Quality Improvement Organization (QIO). For information about how this location designation may impact your facility's compliance with your state mandate (if applicable), please contact your state HAI coordinator: http://www.cdc.gov/HAI/state-based/index.html.

Examples

Example 1: An ICU that is 85% Burn patients, 15% Trauma

CDC Location: Burn Critical Care (IN:ACUTE:CC:B)

Why? Meets 80% rule for critical care acuity level and 80% rule for specific service (burn)

Example 2: An ICU that is 55% medical and 45% Surgical

CDC Location: Medical/Surgical Critical Care (IN:ACUTE:CC:MS)

Why? Meets 80% rule for critical care acuity level and does not meet the 60% rule for designation as either medical or surgical service level alone, therefore, use combined medical/surgical designation

Example 3: An ICU that is 40% Neurosurgical, 40% Surgical, and 20% Medical

Option 1 - Single CDC Location: Surgical Critical Care

Why? Meets 80% rule for critical care acuity level and does not meet the 80% rule for a specific service level alone, but when surgical patients are combined, that total does equal 80%.

Option 2 - Multiple CDC Virtual Locations: Neurosurgical Critical Care and Surgical Critical Care, with the medical patients reported with the Surgical Critical Care location since the general surgical designation is the least specific of the two

Why? By splitting this unit into 2 virtual locations, each meets the 80% rule for critical care acuity level and one meets the 80% rule for designation as Neurosurgical Critical Care, while the other meets the 60% rule as general surgical service (when combining surgical and medical patients).

Example 4: A unit that is comprised of 60% Medical ICU and 40% Step-Down patients

Option 1 - Single CDC Location: Mixed Acuity Unit

Why? This location is <u>not</u> comprised of at least 80% of the patients of the same acuity level and therefore meets the single location definition of a mixed acuity unit. Note that this location is <u>not</u> considered an ICU location type for the purposes of NHSN reporting and therefore, would not be included in any ICU-specific reporting requirements.

Option 2 - Multiple CDC Virtual Locations: Medical Critical Care and Step-Down Unit

Why? By splitting this unit into 2 virtual locations, each meets the 80% rule for the appropriate acuity level and each meets the 80% rule for type of service.

Example 5: A pediatric ward that is comprised of 70% neurosurgical patients and 30% orthopedic patients

Option 1 - Single CDC Location: Pediatric Surgical Ward

Why? Meets 80% rule for ward-level acuity and does not meet the 80% rule for a specific service level alone, but meets the 60% rule for general surgical service.

Option 2 - Multiple CDC Virtual Locations: Pediatric Neurosurgical Ward and Pediatric Orthopedic Ward

Why? By splitting this unit into 2 virtual locations, each meets the 80% rule for the appropriate acuity level and each meets the 80% rule for type of service.

Appendix: Creation and Management of Locations in NHSN

Create New Locations:

If there are any operational locations in your hospital that are not already set-up in NHSN, you will need to create these locations for the purposes of NHSN surveillance and reporting.

Locations can be set up by following these steps:

1. Go to Facility > Locations.
2. On the Locations screen, enter a location code ("Your Code") and location label ("Your Label").
3. Select a CDC Location Description from the drop-down menu. NOTE: When selecting a CDC Location Description, your location must meet the 80% Rule in order to be assigned as that CDC Location Description.
4. Make sure the Status is set to "Active" and then enter the number of beds that are set up and staffed in that location.
5. Once all information for this new location is entered, click 'Add'.

Manage Existing Locations:

Facilities should make sure that the only locations with an "active" status in NHSN are those that are operational units within the facility. The number of beds indicated for each location should also be checked for accuracy and, if necessary, updated to reflect the current number of beds set up and staffed.

Location information can be updated by following these steps:

1. Go to Facility > Locations.
2. On the Locations screen, click 'Find'.
3. Review the information that appears in the Location Table at the bottom of the screen. Review the Status of each location, as well as Bed size.
4. If a location's information needs to be updated, click the location code under the "Your Code" column; the location's information will auto-fill in the fields above the Location Table.
5. Make any modifications to the Status and/or Bed size, then click 'Save'.

Inaccurate CDC Location Description

If you believe that the CDC Location Description assigned to your existing location is incorrect, there are additional steps you will need to follow, depending on the scenario:

Scenario 1: The patient population in this unit has changed such that the current CDC Location Description, using the 80% rule, is inaccurate.

> Solution: Because the patient population has changed, a new location should be created in NHSN and should be mapped to a CDC Location Description that most accurately reflects the type of patients receiving care in that location, using the 80% rule. The old location should be put into "Inactive" status. Note that data which have been reported from inactive locations can continue to be analyzed within NHSN, however these locations will not be linked to new, active locations.

Scenario 2: The CDC Location Description initially assigned has been inaccurate for much, if not all, of the reporting to NHSN, based on the updated location guidance for 2013.

> Solution: Users cannot change the CDC Location Description on existing locations within NHSN. Facilities should ensure that the locations set up in NHSN are accurate for 2013 reporting per the updated guidance. If a new CDC Location Description is needed, users must create a new location in NHSN and inactivate the old location, per the instructions above. Note that data for the old location can still be analyzed, but these data will not be connected to data reported under the new location.

Master CDC Locations and Descriptions

CDC Location Label	NHSN Healthcare Service Location Code	CDC Location Code	Location Description
INPATIENT LOCATIONS			
ACUTE CARE FACILITIES GENERAL			
Adult Critical Care Units			
Burn Critical Care	1026-4	IN:ACUTE:CC:B	Critical care area specializing in the care of patients with significant/major burns.
Medical Cardiac Critical Care	1028-0	IN:ACUTE:CC:C	Critical care area specializing in the care of patients with serious heart problems that do not require heart surgery.
Medical Critical Care	1027-2	IN:ACUTE:CC:M	Critical care area for patients who are being treated for nonsurgical conditions.
Medical/Surgical Critical Care	1029-8	IN:ACUTE:CC:MS	An area where critically ill patients with medical and/or surgical conditions are managed.
Neurologic Critical Care	1035-5	IN:ACUTE:CC:N	Critical care area for the care of patients with life-threatening neurologic diseases.
Neurosurgical Critical Care	1031-4	IN:ACUTE:CC:NS	Critical care area for the surgical management of patients with severe neurologic diseases or those at risk for neurologic injury as a result of surgery.

ONC Medical Critical Care	1223-7	IN:ACUTE:CC:ONC_M	Critical care area for the care of oncology patients who are being treated for nonsurgical conditions related to their malignancy.
ONC Surgical Critical Care	1224-5	IN:ACUTE:CC:ONC_S	Critical care area for the evaluation and management of oncology patients with serious illness before and/or after cancer-related surgery.
ONC Medical-Surgical Critical Care	1225-2	IN:ACUTE:CC:ONC_MS	Critical care area for the care of oncology patients with medical and/or surgical conditions related to their malignancy.
Prenatal Critical Care	1034-8	IN:ACUTE:CC:PNATL	Critical care area for the care of pregnant patients with complex medical or obstetric problems requiring a high level of care to prevent the loss of the fetus and to protect the life of the mother.
Respiratory Critical Care	1033-0	IN:ACUTE:CC:R	Critical care area for the evaluation and treatment of patients with severe respiratory conditions.
Surgical Cardiothoracic Critical Care	1032-2	IN:ACUTE:CC:CT	Critical care area specializing in the care of patients following cardiac and thoracic surgery.
Surgical Critical Care	1030-6	IN:ACUTE:CC:S	Critical care area for the evaluation and management of patients with serious illness before and/or after surgery.
Trauma Critical Care	1025-6	IN:ACUTE:CC:T	Critical care area specializing in the care of patients who require a high level of monitoring and/or intervention following trauma or during critical illness related to trauma.

Pediatric Critical Care Units			
ONC Pediatric Critical Care	1233-6	IN:ACUTE:CC:ONC_PED	Critical care area for the care of oncology patients ≤18 years old who are being treated for surgical or nonsurgical conditions related to their malignancy.
Pediatric Burn Critical Care	1042-1	IN:ACUTE:CC:B_PED	Critical care area specializing in the care of patients ≤18 years old with significant/major burns.
Pediatric Cardiothoracic Critical Care	1043-9	IN:ACUTE:CC:CT_PED	Critical care area specializing in the care of patients ≤18 years old following cardiac and thoracic surgery.
Pediatric Medical Critical Care	1044-7	IN:ACUTE:CC:M_PED	Critical care area for patients ≤18 years old who are being treated for nonsurgical conditions. In the NNIS system, this was called Pediatric ICU (PICU).
Pediatric Medical/Surgical Critical Care	1045-4	IN:ACUTE:CC:MS_PED	An area where critically ill patients ≤18 years old with medical and/or surgical conditions are managed.
Pediatric Neurosurgical Critical Care	1046-2	IN:ACUTE:NS_PED	Critical care area specializing in the surgical management of patients ≤18 years old with severe neurological diseases or those at risk for neurological injury as a result of surgery.
Pediatric Respiratory Critical Care	1047-0	IN:ACUTE:CC:R_PED	Critical care area for the evaluation and treatment of the patients ≤18 years old with severe respiratory conditions.
Pediatric Surgical Critical Care	1048-8	IN:ACUTE:CC:S_PED	Critical care area for the evaluation and management of patients ≤18 years old with serious illness before and/or after surgery.

Pediatric Trauma Critical Care	1049-6	IN:ACUTECC:T_PED	Critical care area specializing in the care of patients ≤18 years old who require a high level of monitoring and/or intervention following trauma or during critical illness related to trauma.
Neonatal Units			
Well Baby Nursery (Level I)	1038-9	IN:ACUTE:WARD:NURS	Hospital area for evaluation and postnatal care of healthy newborns. May include neonatal resuscitation and stabilization of ill newborns until transfer to a facility at which specialty neonatal care is provided.
Step down Neonatal Nursery* (Level II) *Location will be listed as 'Step down Neonatal ICU' within NHSN until NHSN Release 7.2 slated for late summer 2013.	1041-3	IN:ACUTE:STEP:NURS	The capabilities of Level II, listed below, are from the American Academy of Pediatrics definitions of levels of neonatal care.[1] <u>Level II special care nursery</u> Level I capabilities plus: • Provide care for infants born ≥32 wk gestation and weighing ≥1500 g who have physiologic immaturity or who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis • Provide care for infants convalescing after intensive care • Provide mechanical ventilation for brief duration (<24 h) or continuous positive airway pressure or both

			• Stabilize infants born before 32 wk gestation and weighing less than 1500 g until transfer to a neonatal intensive care facility
Neonatal Critical Care (Level II/III)	1039-7	IN:ACUTE:CC_STEP: NURS	Combined nursery housing both Level II and III newborns and infants.
Neonatal Critical Care (Level III)	1040-5	IN:ACUTE:CC:NURS	A hospital neonatal intensive care unit (NICU) organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex and critical illness. The capabilities of Level III and Level IV, listed below, are from the American Academy of Pediatrics definitions of levels of neonatal care.[1] **NOTE: These classifications are <u>all</u> considered Level III NICUs in NHSN.** <u>Level III NICU</u> Level II capabilities plus: • Provide sustained life support • Provide comprehensive care for infants born < 32 wks gestation and weighing <1500 g and infants born at all gestational ages and birth weights with critical illness • Provide prompt and readily available access to a full range of pediatric medical

			subspecialists, pediatric surgical specialists, pediatric anesthesiologists, and pediatric opthalmologists • Provide a full range of respiratory support that may include conventional and/or high-frequency ventilation and inhaled nitric oxide • Perform advanced imaging, with interpretation on an urgent basis, including computed tomography, MRI, and echocardiography <u>Level IV Regional NICU</u> Level III capabilities plus: • Located within an institution with the capability to provide surgical repair of complex congenital or acquired conditions • Maintain a full range of pediatric medical subspecialists, pediatric surgical subspecialists, and pediatric subspecialists at the site • Facilitate transport and provide outreach education

Specialty Care Areas (SCA)			
Inpatient Dialysis SCA	1198-1	IN:ACUTE:SCA:DIAL	Hospital specialty care area for patients who require dialysis as part of their care. These patients may be chronic or acute dialysis patients.
Pediatric Dialysis SCA	1091-8	IN:ACUTE:SCA:DIAL_PED	Hospital specialty care area for patients ≤18 years old who require acute dialysis as part of their care. These patients may be chronic or acute dialysis patients.
Pediatric Solid Organ Transplant SCA	1093-4	IN:ACUTE:SCA:SOTP_PED	Hospital specialty area for the postoperative care of patients ≤18 years old who have had a solid organ transplant (e.g., heart/lung, kidney, liver, pancreas).
Solid Organ Transplant SCA	1092-6	IN:ACUTE:SCA:SOTP	Hospital specialty area for the postoperative care of patients who have had a solid organ transplant (e.g., heart/lung, kidney, liver, pancreas).
Adult Wards			
Antenatal Care Ward	1205-4	IN:ACUTE:WARD: ANTENAT	Hospital area for observation, evaluation, treatment or surgery of high risk pregnancy patients.
Behavioral Health /Psych Ward	1051-2	IN:ACUTE:WARD:BHV	Area for the evaluation and treatment of patients with acute psychiatric or behavioral disorders.
Burn Ward	1052-0	IN:ACUTE:WARD:B	Hospital area for evaluation and treatment of patients who have burns.
Ear/Nose/Throat Ward	1053-8	IN:ACUTE:WARD:ENT	Hospital area for the evaluation, treatment, or surgery of patients with ear, nose, or throat disorders.

Gastrointestinal Ward	1054-6	IN:ACUTE:WARD:GI	Hospital area for evaluation, treatment or surgery of patients with disorders of the gastrointestinal tract.
Genitourinary Ward	1055-3	IN:ACUTE:WARD:GU	Hospital area for the evaluation, treatment or surgery of patients with disorders of the genitourinary system.
Gerontology Ward	1056-1	IN:ACUTE:WARD:GNT	Hospital area for the evaluation, treatment or surgery of patients with age-related diseases.
Gynecology Ward	1057-9	IN:ACUTE:WARD:GYN	Hospital area for the evaluation, treatment, or surgery of female patients with reproductive tract disorders.
Jail Unit	1171-8	IN:ACUTE:WARD:JAL	Overnight stay patient care area of a hospital or correctional facility used only for those who are in custody of law enforcement during their treatment.
Labor and Delivery Ward	1058-7	IN:ACUTE:WARD:LD	Hospital area where women labor and give birth.
Labor, Delivery, Recovery, Postpartum Suite (LDRP)	1059-5	IN:ACUTE:WARD:LD_PP	Hospital suite used for labor, delivery, recovery and post-partum (LDRP) -- all within the same suite.
Medical Ward	1060-3	IN:ACUTE:WARD:M	Hospital area for the evaluation and treatment of patients with medical conditions or disorders.
Medical/Surgical Ward	1061-1	IN:ACUTE:WARD:MS	Hospital area for the evaluation of patients with medical and/or surgical conditions.
Neurology Ward	1062-9	IN:ACUTE:WARD:N	Hospital area where patients with neurological disorders are evaluated and treated.

Neurosurgical Ward	1063-7	IN:ACUTE:WARD:NS	Hospital area for care of patients whose primary reason for admission is to have neurosurgery or to be cared for by a neurosurgeon after head or spinal trauma.
ONC Leukemia Ward	1226-0	IN:ACUTE:WARD: ONC_LEUK	Area for the evaluation and treatment of patients with leukemia.
ONC Lymphoma Ward	1228-6	IN:ACUTE:WARD:ONC: LYMPH	Area for the evaluation and treatment of patients with lymphoma.
ONC Leukemia/Lymphoma Ward	1229-4	IN:ACUTE:WARD: ONC_LL	Area for the evaluation and treatment of patients with leukemia and/or lymphoma.
ONC Solid Tumor Ward	1230-2	IN:ACUTE:WARD:ONC_ST	Area for the evaluation and treatment of oncology patients with solid tumors.
ONC Hematopoietic Stem Cell Transplant Ward	1231-0	IN:ACUTE:WARD: ONC_HSCT	Area for the care of patients who undergo stem cell transplant for the treatment of cancers and/or blood or immune system disorders.
ONC General Hematology/Oncology Ward	1232-8	IN:ACUTE:WARD: ONC_HONC	Area for the evaluation and treatment of patients with cancer and/or blood disorders.
Ophthalmology Ward	1064-5	IN:ACUTE:WARD:OPH	Hospital area for care of patients whose primary reason for admission is to have eye surgery or to be cared for by an ophthalmologist after eye trauma.
Orthopedic Ward	1065-2	IN:ACUTE:WARD:ORT	Hospital area for evaluation, treatment or surgery on bones, joints, and associated structures by an orthopedist.

Orthopedic Trauma Ward	1066-0	IN:ACUTE:WARD_ORT	Hospital area where patients with orthopedic injuries or disorders are evaluated and treated.
Plastic Surgery Ward	1067-8	IN:ACUTE:WARD:PLS	Hospital area for the care of patients who have reconstructive surgery performed by a plastic surgeon.
Postpartum Ward	1068-6	IN:ACUTE:WARD:PP	Hospital area for the patient who is recovering from childbirth.
Pulmonary Ward	1069-4	IN:ACUTE:WARD:PULM	Hospital area where patients with respiratory system conditions or disorders are evaluated and treated.
Rehabilitation Ward	1070-2	IN:ACUTE:WARD:REHAB	Hospital area for evaluation and restoration of function to patients who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, or catastrophic events resulting in complete or partial paralysis.
School Infirmary	1172-6	IN:ACUTE:WARD:IFM	Overnight stay patient care area of a school infirmary or health center (e.g., private residential school or college campus).
Stroke (Acute) Ward	1071-0	IN:ACUTE:WARD:STRK	Hospital area for evaluation, stabilization and treatment of patients who have experienced an acute stroke.
Surgical Ward	1072-8	IN:ACUTE:WARD:S	Hospital area for evaluation and treatment of patients who have undergone a surgical procedure.
Telemetry Ward	1208-8	IN:ACUTE:WARD:TEL	Hospital area dedicated to providing evaluation and treatment of patients requiring continuous cardiac monitoring.

Vascular Surgery Ward	1073-6	IN:ACUTE:WARD:VS	Hospital area for evaluation and treatment of patients who have undergone vascular surgery.
Pediatric Wards			
Adolescent Behavioral Health Ward	1075-1	IN:ACUTE:WARD: BHV_ADOL	Hospital area for evaluation and treatment of patients between the ages of 13 and 18 with acute psychiatric or behavioral disorders.
ONC Pediatric Hematopoietic Stem Cell Transplant Ward	1234-4	IN:ACUTE:WARD: ONC_HSCT_PED	Area for the care of patients ≤18 years old who undergo stem cell transplant for the treatment of cancers and/or blood or immune system disorders.
ONC Pediatric General Hematology/Oncology Ward	1235-1	IN:ACUTE:WARD: ONC_HONC_PED	Area for the evaluation and treatment of patients ≤18 years old with cancer and/or blood disorders.
Pediatric Behavioral Health Ward	1077-7	IN:ACUTE:WARD:BHV_PED	Hospital area for evaluation and management of patients ≤18 years old with acute psychiatric or behavioral disorders.
Pediatric Burn Ward	1078-5	IN:ACUTE:WARD:B_PED	Hospital area specializing in the evaluation and treatment of patients ≤18 years old who have tissue injury caused by burns.
Pediatric Ear, Nose, Throat Ward	1079-3	IN:ACUTE:WARD: ENT_PED	Hospital area for evaluation and management of patients ≤18 years old with disorders of the ear, nose and/or throat.
Pediatric Genitourinary Ward	1080-1	IN:ACUTE:WARD: GU_PED	Hospital area where patients ≤18 years old with disorders of the genitourinary system are evaluated and treated.

Pediatric Medical Ward	1076-9	IN:ACUTE:WARD:M_PED	Area for the evaluation and treatment of patients ≤18 years of old with medical conditions or disorders.
Pediatric Medical/Surgical Ward	1081-9	IN:ACUTE:WARD: MS_PED	Hospital area where patients ≤18 years old with medical and/or surgical conditions are managed.
Pediatric Neurology Ward	1082-7	IN:ACUTE:WARD:N_PED	Area for the evaluation and treatment of patients ≤18 years old with neurologic disorders.
Pediatric Neurosurgical Ward	1083-5	IN:ACUTE:WARD:NS_PED	Hospital area for care of patients ≤18 years old whose primary reason for admission is to have neurosurgery or to be cared for by a neurosurgeon after head or spinal trauma.
Pediatric Orthopedic Ward	1084-3	IN:ACUTE:WARD: ORT_PED	Hospital area where patients ≤18 years old with orthopedic injuries or disorders are evaluated and treated.
Pediatric Rehabilitation Ward	1085-0	IN:ACUTE:WARD: REHAB_PED	Hospital area for evaluation and restoration of function to patients ≤18 years old who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, or catastrophic events resulting in complete or partial paralysis.
Pediatric Surgical Ward	1086-8	IN:ACUTE:WARD:S_PED	Hospital area for evaluation and treatment of patients ≤18 years old that have undergone a surgical procedure.

Step Down Units			
Adult Step Down Unit (e.g., post-critical care)	1099-1	IN:ACUTE:STEP	Hospital area for adult patients that are hemodynamically stable who can benefit from close supervision and monitoring, such as frequent pulmonary toilet, vital signs, and/or neurological and neurovascular checks.
ONC Step Down Unit (all ages) (e.g., post-critical care)	1227-8	IN:ACUTE:STEP:ONC	Area for oncology patients who are hemodynamically stable and can benefit from close supervision and monitoring, such as frequent pulmonary toilet, vital signs, and/or neurologic and neurovascular checks.
Pediatric Step Down Unit (e.g., post-critical care)	1100-7	IN:ACUTE:STEP:PED	Patients ≤18 years old that are hemodynamically stable who can benefit from close supervision and monitoring, such as frequent pulmonary toilet, vital signs, and/or neurological and neurovascular checks.
Mixed Acuity Units			
Adult Mixed Acuity Unit	1210-4	IN:ACUTE:MIXED: ALL_ADULT	Hospital area for the evaluation and treatment of adult patients whose conditions are varying levels of acuity (e.g., critical care, ward-level care, step-down type care, etc.). Such a care area may be comprised of patients followed by different hospital services (e.g., coronary, medical, surgical, etc.). This care area may or may not include “acuity adaptable” or “universal” beds (i.e., this model of patient care allows a patient to stay in the same bed during all phases of his care, from critical care through lower levels of care).

Pediatric Mixed Acuity Unit	1211-2	IN:ACUTE:MIXED: ALL_PEDS	Hospital area for the evaluation and treatment of pediatric patients (≤18 years old) whose conditions are of varying levels of acuity (e.g., critical care, etc.). Such a care area may be comprised of patients followed by different hospital services (e.g., coronary, medical, surgical, etc.). This care area may or may not include "acuity adaptable" or "universal" beds (i.e., this model of patient care allows a patient to stay in the same bed during all phases of his care, from critical care through lower levels of care).
Mixed Age Mixed Acuity Unit	1212-0	IN:ACUTE:MIXED:ALL	Hospital area for the evaluation and treatment of a mixture of adult and pediatric patients whose conditions are of varying levels of acuity (e.g., critical care, ward-level care, step-down type care, etc.). Such a care area may be comprised of patients followed by different hospital services (e.g., coronary, medical, surgical, etc.). This care area may or may not include "acuity adaptable" or "universal" beds (i.e., this model of patient care allows a patient to stay in the same bed during all phases of his care, from critical care through lower levels of care).

ONC Mixed Acuity Unit (all ages)	1236-9	IN:ACUTE:MIXED:ONC	Area for the evaluation and treatment of a mixture of adult and pediatric oncology patients whose conditions are of varying levels of acuity (e.g., critical care, ward-level care, step-down type care, etc.). This care area may or may not include "acuity adaptable" or "universal" beds (i.e., this model of patient care allows a patient to stay in same bed during all phases of care, from critical care through lower levels of care).
Operating Rooms			
Cardiac Catheterization Room/Suite	1005-8	IN:ACUTE:OR:CATH	A room or rooms in a hospital equipped for the performance of heart catheterizations for diagnostic or therapeutic purposes. Operating Room requirements for air changes, temperature, humidity and surfaces must be met.
Cesarean Section Room/Suite	1095-9	IN:ACUTE:OR:LD	A room or suite in a hospital equipped for the performance of obstetric and gynecologic surgeries and for the care of the neonate immediately after birth. Operating Room requirements for air changes, temperature, humidity and surfaces must be met.
Interventional Radiology	1203-9	IN:ACUTE:OR:RAD	A room or suite in a hospital where diagnostic or therapeutic radiologic procedures on outpatients and/or inpatients occurs. Operating Room requirements for air changes, temperature, humidity and surfaces must be met.

Operating Room/Suite	1096-7	IN:ACUTE:OR	A room or suite in a hospital equipped for the performance of surgical operations. Requirements for air changes, temperature, humidity and surfaces must be met. (For outpatient operating room, use Ambulatory Surgery Center designation or other specialty OR shown in Outpatient Locations section of this chapter).
Post Anesthesia Care Unit/Recovery Room	1097-5	IN:ACUTE:OR_STEP	Hospital area designated for monitoring patients for immediate effects of anesthesia before either going home or on to an in-patient care area.
Chronic Care Units (Previously named Long-Term Care)			
Inpatient Hospice	1165-0	IN:NONACUTE:LTC:HSP	Area where palliative care is provided to the dying patient.
Chronic Alzheimer's Unit*	1103-1	IN:NONACUTE:LTC:ALZ	Area where care is provided to patients diagnosed with Alzheimer's syndrome for extended periods of time. Formerly called Long Term Care Alzheimer’s Unit.
Chronic Behavioral Health/Psych Unit*	1104-9	IN:NONACUTE:LTC:BHV	Area where care is provided to patients with psychiatric or behavioral-disorder diagnoses for extended periods of time. Formerly called Long Term Care Behavioral Health/Psych Unit.
Chronic Rehabilitation Unit*	1105-6	IN:NONACUTE:LTC: REHAB	Area where evaluation and restoration of function is provided to patients who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, or catastrophic events resulting in complete or partial paralysis. Formerly called Long Term Care Rehabilitation Unit.

Chronic Care Unit*	1102-3	IN:NONACUTE:LTC	Area where care provided for patients with chronic disease or disabilities for extended periods of time. Formerly called Long Term Care Unit.
Ventilator Dependent Unit	1164-3	IN:NONACUTE:LTC:R	Area where care is provided to patients whose respirations depend on the use of a ventilator for extended periods of time.
LONG TERM CARE FACILITIES			
LTCF Inpatient Hospice Unit	1254-2	IN:NONACUTE:LTCF:HSP	A unit or designed area which provides palliative and supportive care services to individuals diagnosed with life limiting (terminal) conditions.
LTCF Dementia Unit	1255-9	IN:NONACUTE:LTCF:DEM	A unit or designed area which provides specialized care for individuals diagnosed with dementia or related conditions, including Alzheimer's disease.
LTCF Psychiatric Unit	1256-7	IN:NONACUTE:LTCF:PSY	Unit or designated area which provides specialized care for individuals diagnosed with psychiatric or behavioral disorders.
LTCF Skilled Nursing/Short Term Rehabilitation	1257-5	IN:NONACUTE:LTCF: REHAB	A unit or designated area which primarily provides short term (<90 days), medical, skilled nursing or rehabilitation services to individuals requiring restorative care following recent hospitalization.
LTCF General Nursing Unit	1258-3	IN:NONACUTE:LTCF:GEN	A unit or designated area which primarily provides nursing, rehabilitative or custodial services to individuals with varying levels of chronic conditions or disability requiring long term (>90 days) support.

LTCF Ventilator Dependent Unit	1259-1	IN:NONACUTE:LTCF:VEN	A unit or designated area which provides nursing and respiratory care to individuals who require mechanical ventilation.
LTCF Bariatric Unit	1260-9	IN:NONACUTE:LTCF:BAR	A unit or designated area which provides specializing care for individuals who are preparing for or have undergone bariatric surgery.
LONG TERM ACUTE CARE FACILITIES			
LTAC ICU	1220-3	IN:ACUTE:CC:LTAC	Critical care area specializing in the evaluation, treatment, and management of patients that require high observance/acuity and/or special care that are suffering medically complex conditions or who have suffered recent catastrophic illness or injury and require and extended stay in an acute care environment.
LTAC Ward	1221-1	IN:ACUTE:WARD:LTAC	Hospital area for the evaluation and treatment of patients suffering medically complex conditions or who have suffered recent catastrophic illness or injury, and require an extended stay in an acute care environment.
LTAC Pediatric ICU	1222-9	IN:ACUTE:CC:LTAC_PED	Critical care area specializing in the evaluation, treatment, and management of patients ≤18 years old, that require high observation/acuity and/or special care that are suffering medically complex conditions or who have suffered recent catastrophic illness or injury, and require an extended stay in an acute care environment.

LTAC Pediatric Ward	1214-6	IN:ACUTE:WARD: LTAC_PED	Hospital area for the evaluation and treatment of patients ≤18 years old, suffering medically complex conditions or who have suffered recent catastrophic illness or injury, and require an extended stay in an acute care environment.
INPATIENT REHABILITATION FACILITIES			
Rehabilitation Ward	1217-9	IN:ACUTE:IRF	Hospital area for evaluation, treatment, and restoration of function to patients have lost function due to acute or chronic pain, musculoskeletal problems, stroke, brain or spinal cord dysfunction, or catastrophic events resulting in complete or partial paralysis.
Rehabilitation Pediatric Ward	1218-7	IN:ACUTE:IRF:PED	Hospital area for evaluation, treatment, and restoration of function to patients ≤18 years old who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, brain or spinal cord dysfunction, or catastrophic events results in complete or partial paralysis.
ONCOLOGY FACILITIES			
ONC Medical Critical Care	1223-7	IN:ACUTE:CC:ONC_M	Critical care area for the care of oncology patients who are being treated for nonsurgical conditions related to their malignancy.
ONC Surgical Critical Care	1224-5	IN:ACUTE:CC:ONC_S	Critical care area for the evaluation and management of oncology patients with serious illness before and/or after cancer-related surgery.

ONC Medical-Surgical Critical Care	1225-2	IN:ACUTE:CC:ONC_MS	Critical care area for the care of oncology patients with medical and/or surgical conditions related to their malignancy.
ONC Pediatric Critical Care	1233-6	IN:ACUTE:CC:ONC_PED	Critical care area for the care of oncology patients ≤18 years old who are being treated for surgical or nonsurgical conditions related to their malignancy.
ONC Leukemia Ward	1226-0	IN:ACUTE:WARD: ONC_LEUK	Area for the evaluation and treatment of patients with leukemia.
ONC Lymphoma Ward	1228-6	IN:ACUTE:WARD:ONC: LYMPH	Area for the evaluation and treatment of patients with lymphoma.
ONC Leukemia/Lymphoma Ward	1229-4	IN:ACUTE:WARD: ONC_LL	Area for the evaluation and treatment of patients with leukemia and/or lymphoma.
ONC Solid Tumor Ward	1230-2	IN:ACUTE:WARD:ONC_ST	Area for the evaluation and treatment of oncology patients with solid tumors.
ONC Hematopoietic Stem Cell Transplant Ward	1231-0	IN:ACUTE:WARD: ONC_HSCT	Area for the care of patients who undergo stem cell transplant for the treatment of cancers and/or blood or immune system disorders.
ONC General Hematology/Oncology Ward	1232-8	IN:ACUTE:WARD: ONC_HONC	Area for the evaluation and treatment of patients with cancer and/or blood disorders.
ONC Pediatric Hematopoietic Stem Cell Transplant Ward	1234-4	IN:ACUTE:WARD: ONC_HSCT_PED	Area for the care of patients ≤18 years old who undergo stem cell transplant for the treatment of cancers and/or blood or immune system disorders.

ONC Pediatric General Hematology/Oncology Ward	1235-1	IN:ACUTE:WARD: ONC_HONC_PED	Area for the evaluation and treatment of patients ≤18 years old with cancer and/or blood disorders.
ONC Step Down Unit	1227-8	IN:ACUTE:STEP:ONC	Area for oncology patients who are hemodynamically stable and can benefit from close supervision and monitoring, such as frequent pulmonary toilet, vital signs, and/or neurologic and neurovascular checks.
ONC Mixed Acuity Unit (all ages)	1236-9	IN:ACUTE:MIXED:ONC	Area for the evaluation and treatment of a mixture of adult and pediatric oncology patients whose conditions are of varying levels of acuity (e.g., critical care, ward-level care, step-down type care, etc.). This care area may or may not include "acuity adaptable" or "universal" beds (i.e., this model of patient care allows a patient to stay in same bed during all phases of care, from critical care through lower levels of care).

In addition to the 14 ONC specific locations, HOSP-ONC facilities can also use the following locations within NHSN (Location codes and descriptions can be found in the appropriate section of the master location table):

Inpatient Locations

- Operating Rooms:
  - Cardiac Catheterization Room/Suite
  - Interventional Radiology
  - Inpatient Operating Room/Suite
  - Post-Anesthesia Care Unit/Recovery Room
- Facility-wide Areas:
  - FACWIDEIN
- Miscellaneous Areas:
  - Pulmonary Function Testing
  - Treatment Room
  - Transport Service

- Float

Outpatient Locations

- Acute Care
  - 24-Hour Observation Area
  - Ambulatory Surgery Center
  - Emergency Department
  - Outpatient Pediatric Surgery Center
  - Outpatient Plastic Surgery Center
  - Outpatient Surgery Recovery Room/Post-Anesthesia Care Unit
  - Pediatric Emergency Department
- Clinic (Nonacute) Settings
  - Infusion Center
  - Occupational Health Clinic
  - Outpatient Hematology/Oncology Clinic
  - Pediatric Hematology/Oncology Clinic
  - Radiology (includes Nuclear Medicine)
  - Specimen Collection Area (Healthcare)
- Community Locations
  - Home Care
  - Home-based Hospice
  - Location outside facility
- All Non-Patient Care Locations as designated on page 41 in the location table

OUTPATIENT LOCATIONS

ACUTE CARE FACILITIES GENERAL

Acute Settings			
24-Hour Observation Area	1162-7	OUT:ACUTE:WARD	Area where patients are monitored for suspected or non-life threatening conditions for 24 hours or less.

Ambulatory Surgery Center	1166-8	OUT:ACUTE:OR	Area that is equipped for the performance of surgical operations; may be free-standing or part of a hospital. Operating Room requirements for air changes, temperature, humidity and surfaces must be met. Patients do not stay overnight.
Emergency Department	1108-0	OUT:ACUTE:ED	Area that provides emergency medical services; top priority is given to those with life-threatening illness or injury.
Mobile Emergency Services/EMS	1174-2	OUT:ACUTE:MOBILE:UE	Mobile unit that provides clinical and emergency medical services to patients who require them in the pre-hospital setting.
Ambulatory Pediatric Surgery Center	1167-6	OUT:ACUTE:OR:PED	Area that is equipped for the performance of surgical operations for patients ≤18 years old may be free-standing or part of a hospital. Operating Room requirements for air changes, temperature, humidity and surfaces must be met. Patients do not stay overnight.
Ambulatory Plastic Surgery Center	1168-4	OUT:ACUTE:OR:PLS	Area that is equipped for the performance of plastic surgery operations may be free-standing or part of a hospital. Operating Room requirements for air changes, temperature, humidity and surfaces must be met. Patients do not stay overnight.
Ambulatory Surgery Recovery Room/Post Anesthesia Care Unit	1169-2	OUT:ACUTE:OR_STEP	Area designated for monitoring patients for the immediate effects of anesthesia before being sent home.

Pediatric Emergency Department	1109-8	OUT:ACUTE:ED:PED	Area that provides emergency medical services to patients ≤18 years old; top priority is given to those with life-threatening illness or injury.
Urgent Care Center	1160-1	OUT:ACUTE:CLINIC:UE	Area that provides medical care services for illnesses and injuries that are not life-threatening.
Clinic (non-acute) Settings			
Allergy Clinic	1110-6	OUT:NONACUTE:CLINIC: ALRG	An outpatient setting for the purpose of providing services to patients with allergies.
Behavioral Health Clinic	1145-2	OUT:NONACUTE:CLINIC: BHV	An outpatient setting for the purpose of providing services to patients with psychiatric or behavior-disorders.
Blood Collection Center	1147-8	OUT:NONACUTE:CLINIC: BLOOD	An outpatient setting where blood is collected from donors. This does not include donation centers that are temporarily set up in non-clinical settings (e.g., schools, churches) or mobile blood collection centers.
Cardiac Rehabilitation Center	1112-2	OUT:NONACUTE:CLINIC: C_REHAB	An outpatient setting where patients with cardiac disease, in partnership with a multidisciplinary team of health professionals, are encouraged and supported to achieve and maintain optimal physical health through exercise, nutritional and psychological counseling.
Cardiology Clinic	1113-0	OUT:NONACUTE:CLINIC:C	An outpatient setting for the evaluation and management of patients with cardiac problems.
Continence Clinic	1148-6	OUT:NONACUTE:CLINIC: CON	An outpatient setting for the evaluation and management of patients with incontinence problems.

Dermatology Clinic	1115-5	OUT:NONACUTE:CLINIC: DERM	An outpatient setting for the evaluation and management of dermatologic conditions by a dermatologist.
Diabetes/Endocrinology Clinic	1116-3	OUT:NONACUTE:CLINIC: DIAB	An outpatient setting for the evaluation, education and management of patients with diabetes.
Ear, Nose, Throat Clinic	1126-2	OUT:NONACUTE:CLINIC: ENT	An outpatient setting for the evaluation and management of conditions related to the ear, nose and/or throat.
Endoscopy Suite	1007-4	OUT:NONACUTE:DIAG:GI	An area where endoscopic procedures (e.g., upper gastrointestinal endoscopies, bronchoscopy) are performed on outpatients and/or inpatients. Patient care and processing of equipment may take place in this location.
Family Medicine Clinic	1117-1	OUT:NONACUTE:CLINIC: FAM	An outpatient setting for patients who are managed by a family practice physician or group of physicians. Does not include private physician practice.
Genetics Clinic	1122-1	OUT:NONACUTE:CLINIC: GEN	An outpatient setting for testing and counseling of patients may have genetic or hereditary disorders.
Gynecology Clinic	1121-3	OUT:NONACUTE:CLINIC: GYN	An outpatient setting for women for the evaluation and management of female reproductive tract conditions.
Holistic Medicine Center	1161-9	OUT:NONACUTE:CLINIC: HOL	An outpatient setting where alternative healthcare practices are used, focusing on the physical, mental, emotional, social and spiritual aspects of health.

Hyperbaric Oxygen Center	1017-3	OUT:NONACUTE:CLINIC: HBO	An outpatient setting where therapeutic hyperbaric oxygen is administered.
Infusion Center	1018-1	OUT:NONACUTE:CLINIC: FUS	An outpatient setting for the administration of fluids, blood products and medications.
Mobile Blood Collection Center	1176-7	OUT:NONACUTE:MOBILE: BLOOD	A self-contained mobile unit such as a bus or trailer that is specifically designed and equipped for the collection of blood and blood products from public donors. This unit typically moves from location to location.
Mobile MRI/CT	1175-9	OUT:NONACUTE: MOBILE_DIAG:RAD	A self-contained mobile unit such as a bus or trailer that is equipped with MRI or CT radiologic equipment and that may be moved between healthcare locations (e.g., hospitals, clinics).
Neurology Clinic	1123-9	OUT:NONACUTE:CLINIC:N	An outpatient setting for the diagnosis, evaluation, and treatment of patients with neurologic disorders.
Occupational Health Clinic	1151-0	OUT:NONACUTE:CLINIC: OCC	An outpatient setting where workplace physicals, workplace injury management and immunological evaluations take place
Occupational Therapy Clinic	1152-8	OUT:NONACUTE:CLINIC: OT_REHAB	An outpatient setting where patients with injury or disability are helped to resume activities of daily living with exercise, massage and other therapies.
Ophthalmology Clinic	1124-7	OUT:NONACUTE:CLINIC: OPH	An outpatient setting for the diagnosis, evaluation and treatment of ophthalmologic disorders.

Orthopedic Clinic	1125-4	OUT:NONACUTE:CLINIC: ORT	An outpatient setting for the diagnosis, evaluation and treatment of orthopedic disorders.
Ostomy Clinic	1149-4	OUT:NONACUTE:CLINIC: OST	An outpatient setting for the management of patients who have had surgical procedure for removing normal bodily wastes through a surgical opening (stoma) on the abdominal wall.
Dental Clinic	1150-2	OUT:NONACUTE:CLINIC: DENT	An outpatient setting that provides dental services, including preventive teeth cleaning, emergency treatment, and comprehensive oral care. This may be a private or group practice or a teaching facility for dentists and/or dental hygienists.
Gastrointestinal (GI) Clinic	1118-9	OUT:NONACUTE:CLINIC:GI	An outpatient setting for the diagnosis, evaluation and management of conditions related to the gastrointestinal tract. Usually includes an endoscopy suite.
Hematology/Oncology Clinic	1200-5	OUT:NONACUTE:CLINIC: HONC	An outpatient setting for the diagnosis, evaluation and treatment of patients with hematologic and/or oncologic disorders. This may include chemotherapy or blood/blood products infusion services.
Hemodialysis Clinic	1153-6	OUT:NONACUTE:CLINIC: HD	An outpatient setting for chronic maintenance hemodialysis patients where they are evaluated and dialyzed. (Available only for use in the Biovigilance Component)

HIV Clinic	1154-4	OUT:NONACUTE:CLINIC: HIV	An outpatient setting for the diagnosis, evaluation and treatment of patients who are HIV positive or who have AIDS.
Medical Clinic	1120-5	OUT:NONACUTE:CLINIC:M	An outpatient setting for the diagnosis, evaluation and treatment of medical disorders.
Rehabilitation Clinic	1151-1	OUT:NONACUTE:CLINIC: REHAB	An outpatient setting where patients with injury or disability are evaluated and treated to resume activities of daily living, speech and language skills and maximum physical function. This may include social and psychological evaluation and treatment.
Pain Clinic	1127-0	OUT:NONACUTE:CLINIC: PAIN	An outpatient setting for the evaluation and treatment of patients with chronic or intractable pain.
Pediatric Behavioral Health Clinic	1146-0	OUT:NONACUTE:CLINIC: BHV_PED	An outpatient setting for the evaluation and management of patients ≤18 years old with psychiatric or behavior disorders.
Pediatric Cardiology Center	1129-6	OUT:NONACUTE:CLINIC: PED_C	An outpatient setting for the evaluation and management of patients ≤18 years old with cardiac disorders.
Pediatric Clinic	1128-8	OUT:NONACUTE:CLINIC: PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old.

Pediatric Dental Clinic	1130-4	OUT:NONACUTE:CLINIC: DENT_PED	An outpatient setting that provides dental services, including preventive teeth cleaning, emergency treatment, and comprehensive oral care to patients ≤18 years old. This may be a private or group practice or a teaching facility for dentists and/or dental hygienists.
Pediatric Dermatology Clinic	1131-2	OUT:NONACUTE:CLINIC: DERM_PED	An outpatient setting for the evaluation and management of patients ≤18 years old with dermatologic disorders.
Pediatric Diabetes/Endocrinology Clinic	1132-0	OUT:NONACUTE:CLINIC: DIAB_PED	An outpatient setting for the evaluation and management of patients ≤18 years old with diabetes or other endocrine disorders.
Pediatric Gastrointestinal Clinic	1119-7	OUT:NONACUTE:CLINIC: GI_PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old with gastrointestinal disorders.
Pediatric Hematology/Oncology Clinic	1136-1	OUT:NONACUTE:CLINIC: HONC_PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old with cancer and/or blood disorders.
Pediatric Nephrology Clinic	1137-9	OUT:NONACUTE:CLINIC: PGU_PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old with disorders of the genitourinary tract.
Pediatric Orthopedic Clinic	1133-8	OUT:NONACUTE:CLINIC: ORT_PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old with fractures or other orthopedic disorders.

Pediatric Rheumatology Clinic	1138-7	OUT:NONACUTE:CLINIC: RHEUM_PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old with rheumatology disorders.
Pediatric Scoliosis Clinic	1134-6	OUT:NONACUTE:CLINIC: SCOL_PED	An outpatient setting for the evaluation and treatment of patients ≤18 years old with scoliosis or other growth disorders of the spine.
Physical Therapy Clinic	1202-1	OUT:NONACUTE:CLINIC: PT_REHAB	An outpatient setting where patients with injury or disability are helped to obtain maximum physical function.
Physician's Office	1141-1	OUT:NONACUTE:CLINIC	A physician's office practice.
Podiatry Clinic	1140-3	OUT:NONACUTE:CLINIC: POD	An outpatient setting for the evaluation and treatment of patients with conditions or disorders of the feet.
Prenatal Clinic	1156-9	OUT:NONACUTE:CLINIC: PNATL	An outpatient setting for the evaluation and treatment of pregnant women.
Pulmonary Clinic	1157-7	OUT:NONACUTE:CLINIC: PULM	An outpatient setting for the evaluation and treatment of patients with disorders of the respiratory tract.
Pulmonary Function Testing	1009-0	OUT:NONACUTE:DIAG: PULM	Area where the evaluation of a patient's respiratory status takes place.
Radiology (includes Nuclear Medicine)	1008-2	OUT:NONACUTE:DIAG: RAD	An area where diagnostic or therapeutic radiologic procedures are done on outpatients and/or inpatients. Operating room requirements for air changes, temperature, humidity, and surfaces are NOT met.

Rheumatology Clinic	1142-9	OUT:NONACUTE:CLINIC: RHEUM	An outpatient setting for the evaluation and treatment of patients with autoimmune disorders, primarily rheumatoid arthritis.
School or Prison Infirmary	1170-0	OUT:NONCUTE:CLINIC: IFM	Area in a school or correctional facility that provides medical care to students/inmates. This area is not staffed or equipped for overnight stay patients.
Speech Therapy Clinic	1158-5	OUT:NONACUTE:CLINIC: ST_REHAB	An outpatient setting for the evaluation and treatment of patients with brain injury to maximize their speech, swallow and language functions.
Surgical Services Clinic	1143-7	OUT:NONACUTE:CLINIC:S	An outpatient setting for the pre-operative evaluation and the postoperative management of patients undergoing a surgical procedure.
Well Baby Clinic	1139-5	OUT:NONACUTE:CLINC: NURS	An outpatient setting for the examination and treatment of normal newborns.
Wound Center	1144-5	OUT:NONACUTE:CLINIC: WND	An outpatient setting for the evaluation and treatment of patients with acute or chronic wounds.
Wound Ostomy Continence Clinic	1159-3	OUT:NONACUTE:CLINIC: WND_OST_CONT	An outpatient area which provides acute and rehabilitative care for patients with selective disorders of the gastrointestinal, genitourinary and integumentary (skin) systems.
Therapeutic Apheresis Clinic	1207-0	OUT:NONACUTE:CLINIC: THERAPHERSIS	Outpatient setting where blood is collected from patients and therapeutic apheresis procedures are performed.

Miscellaneous Outpatient Settings			
Specimen Collection Area	1019-9	OUT:NA:LAB:SPEC	An area within a healthcare facility where procedures are performed to collect blood, tissue, or other specimens for diagnostic purposes.
Transport Service	1178-3	OUT:NONACUTE:MOBILE	Mobile unit used to transport patients to their home or from one healthcare setting to another non-emergently.
OUTPATIENT DIALYSIS FACILITIES **(Available for use in outpatient ambulatory hemodialysis facilities only)**			
Outpatient Hemodialysis Clinic	1153-6	OUT:NONACUTE:CLINIC: DIAL	An outpatient setting for chronic maintenance hemodialysis patients where they are evaluated and dialyzed in-center.
Home Hemodialysis	1262-1	COMM:NONACUTE: HOME:DIAL	Hemodialysis performed by a patient (and the patient's caregiver) and at home.
MISCELLANEOUS AREAS **(Mainly used for Healthcare Personnel Safety component)**			
All Inpatient Beds Combined	1021-5	IN	This location represents all beds. It is used for reporting optional off-plan facility-wide summary data (e.g., CLABSI rate for facility).
Float	1206-2	IN:ACUTE:FLOAT	For HCWs who do not work at least 75% of the time at a single location, the work location code for 'float' should be entered. (This location is available only for Healthcare Personnel Safety Component use only.)
Morgue/Autopsy Room	1189-0	NONPTC:NA:LAB: PATH_MORG	An area within a facility that is used for the storage and/or postmortem examination of deceased persons.

Sleep Studies (for in and out patients)	1020-7	IN:NONACUTE:CLINIC: SLEEP	Area where patients stay overnight and are evaluated for sleep disorders.
Treatment Room	1209-6	IN:ACUTE:SUPPORT: TREAT* *Will be listed as 'IN:ACUTE:WARD:TREAT' within NHSN until NHSN Release 7.2 slated for late summer 2013.	A room in a patient care unit, in which various treatments or procedures requiring special equipment are performed, such as removing sutures, draining a hematoma, packing a wound, or performing an examination.
FACILITY-WIDE LOCATIONS **(Available only for Laboratory Identified Event Reporting [LABID] and Antibiotic Use and Resistance [AUR] module)**			
Facility-wide Inpatient FacWideIN	1250-0	FACWIDEIN	This location represents all inpatient locations for the facility, where appropriate numerator and denominator counts can be collected. All of the facility's inpatient locations with an overnight stay must be represented for full inpatient facility coverage, where denominators can be accurately collected and there is the possibility of the MDRO to present, transmitted, and identified in that specific location. Currently, it is available for use in the MDRO/CDI Module for LabID Event reporting and in the AUR Module.

Facility-wide Outpatient FacWideOUT	1251-8	FACWIDEOUT	This location represents all outpatient locations for the facility, where appropriate numerator and accurate denominator counts can be collected. All of the facility's outpatient locations must be represented for full outpatient facility coverage, where denominators can be accurately collected and there is the possibility of the MDRO to be present, transmitted, and identified in that specific location. Currently, it is available for use in the MDRO/CDI Module for LabID Event reporting.
COMMUNITY LOCATIONS			
Blood Collection (Blood Drive Campaign)	1195-7	COMM:NONACUTE:CLINIC: BLOOD	A location not designated or equipped to perform healthcare functions (e.g., school gym or shopping mall) that have been set up specifically to collect donations of blood and blood products from the public.
Home Care	1192-4	COMM:NONACUTE: HOME	A patient's home location where medical services including routine noninvasive and other noninvasive procedures (e.g., insertion of indwelling urinary catheter, insertion of IV line) are performed by healthcare workers and family members under the supervision of a licensed independent practitioner (e.g., MD, CNP, PA).
Home-based Hospice	1194-0	COMM:NONACUTE:HOME: HSP	A patient's home location where end-of-life services are performed by healthcare workers, family members, and volunteers.

Location outside facility	1204-7	COMM:NOTFAC	A location outside this facility, including unknown outside location.
Specimen Collection Area (Community)	1196-5	COMM:NA:LAB:SPEC	A location not designated or equipped to perform healthcare functions (e.g., school gym or shopping mall) that have been set up specifically to collect body fluids for healthcare testing. Examples would be blood sugar or cholesterol screening clinics.
NON-PATIENT CARE LOCATIONS **(Non-Patient Care Areas available for use in Biovigilance or Healthcare Personnel Safety components only)**			
Administrative Areas	1184-1	NONPTC:NA:SUPPORT: ADMIN	Areas within a healthcare facility where administrative functions take place. No patient care takes place in these areas.
Assisted Living Area	1106-4	NONPTC:NA:HOME	A location where persons live and have available to them housekeeping, meal preparation, transportation, and other non-medical services. Patient care is not done in this area.
Blood Bank	1185-8	NONPTC:NA:LAB:BLOOD	An area within a healthcare facility that may collect, store, and distribute blood and blood products, and performs diagnostic tests on blood/components to determine compatibilities.
Central Sterile Supply	1186-6	NONPTC:NA:SUPPORT: CSS	An area within a healthcare facility where durable medical equipment is cleaned/decontaminated, wrapped, sterilized, and stored in preparation for transport to a landfill or incineration.

Central Trash Area	1187-4	NONPTC:NA:SUPPORT: SOILED *Will be listed as 'NONPTC:NA:SUPPORT: TRASH' within NHSN until NHSN Release 7.2 slated for late summer 2013.	An area adjacent to a healthcare facility where bio-hazardous and non-bio-hazardous wastes are collected in preparation for transport to a landfill or incineration.
Centralized Transfusion Service	1261-7	NONPTC:NA:LAB:CTS	A location outside the facility that stores, manipulates, issues, and/or performs compatibility testing on blood and blood products (e.g., a contracted transfusion service or a separate hospital that provides transfusion services for your facility).
Clinical Chemistry Laboratory	1011-6	NONPTC:NA:LAB:CHEM	An area within a diagnostic laboratory that performs general clinical chemistry analysis (clinical biochemistry), endocrinology, therapeutic substance monitoring, toxicology, blood pH and blood gas analysis, urinalysis and urine pregnancy testing.
Facility Grounds	118-2	NONPTC:NA:SUPPORT: GRNDS	Any outdoor area adjacent to a healthcare facility that belongs to the facility (e.g., sidewalks, parking ramps, lawns).
General Laboratory	1010-8	NONPTC:NA:LAB	An area that encompasses all clinical divisions within a diagnostic laboratory.
Hematology Laboratory	1012-4	NONPTC:NA:LAB:H	An area within a diagnostic laboratory that determines the specific properties of blood (e.g., CBC, white blood count).

Histology/Surgical Pathology Laboratory	1013-2	NONPTC:NA:LAB: HIST_PATH	An area within a diagnostic laboratory that uses high-power microscopy to evaluate cells and tissues for the presence or absence of disease.
Housekeeping/Environmental Services	1182-5	NONPTC:NA:SUPPORT: HSKP	An area within a healthcare facility where the activities of housekeeping/environmental services staff are coordinated and supplies are stored.
Laundry Room	1183-3	NONPTC:NA:SUPPORT: LAUN	An area within a healthcare facility where laundry is sorted, washed, dried, and prepared for transport and use.
Microbiology Laboratory	1014-0	NONPTC:NA:LAB:MICRO	An area within a laboratory that performs diagnostic tests to determine the presence or absence of bacteria and their related properties.
Pharmacy	1179-1	NONPTC:NA:SUPPORT: PHARM	An area within a healthcare facility where medications are prepared and labeled for patient use.
Physical Plant Operations Center	1181-7	NONPTC:NA:SUPPORT: ENG	An area within a healthcare facility where construction, renovation, and maintenance staff activities and supplies are coordinated. They may also include areas of machinery and equipment.
Public Area in Facility	1180-9	NONPTC:NA:SUPPORT: PUB	Any indoor area within a healthcare facility that is not used for patient care and that is available to the public (e.g., waiting rooms, cafeterias, hallways).
Serology Laboratory	1015-7	NONPTC:NA:LAB:SER	An area within a diagnostic laboratory that performs blood tests to determine the presence or absence of certain diseases or the levels of immunity.

Soiled Utility Area	1190-8	IN:NA:SUPPORT:TRASH	Area where used and/or soiled disposable or durable medical equipment is stored and/or cleaned in preparation for disposal or reprocessing/reuse.
Virology Laboratory	1016-5	NONPTC:NA:LAB:VIR	An area within a diagnostic laboratory that performs tests and/or culturing to determine the presence or absence of specific viruses.

References

1. American Academy of Pediatrics. Policy Statement Levels of Neonatal Care. Pediatrics 2012;130 (3): 587-597.

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Appendix C

Protocols, Analysis, and Reporting: Getting the Most from NHSN

Resources

Protocols, Analysis, and Reporting: Getting the Most from National Healthcare Safety Network (NHSN) Resources:

Table of Contents

Tab 1: Analysis Quick Reference Guides

Tab 2: Standardized Infection Ratio

Tab 3: SIRs for CMS IPPS

Tab 4: Locations Decision Tree

Tab 5: NHSN Surveillance Changes for 2013

Line List

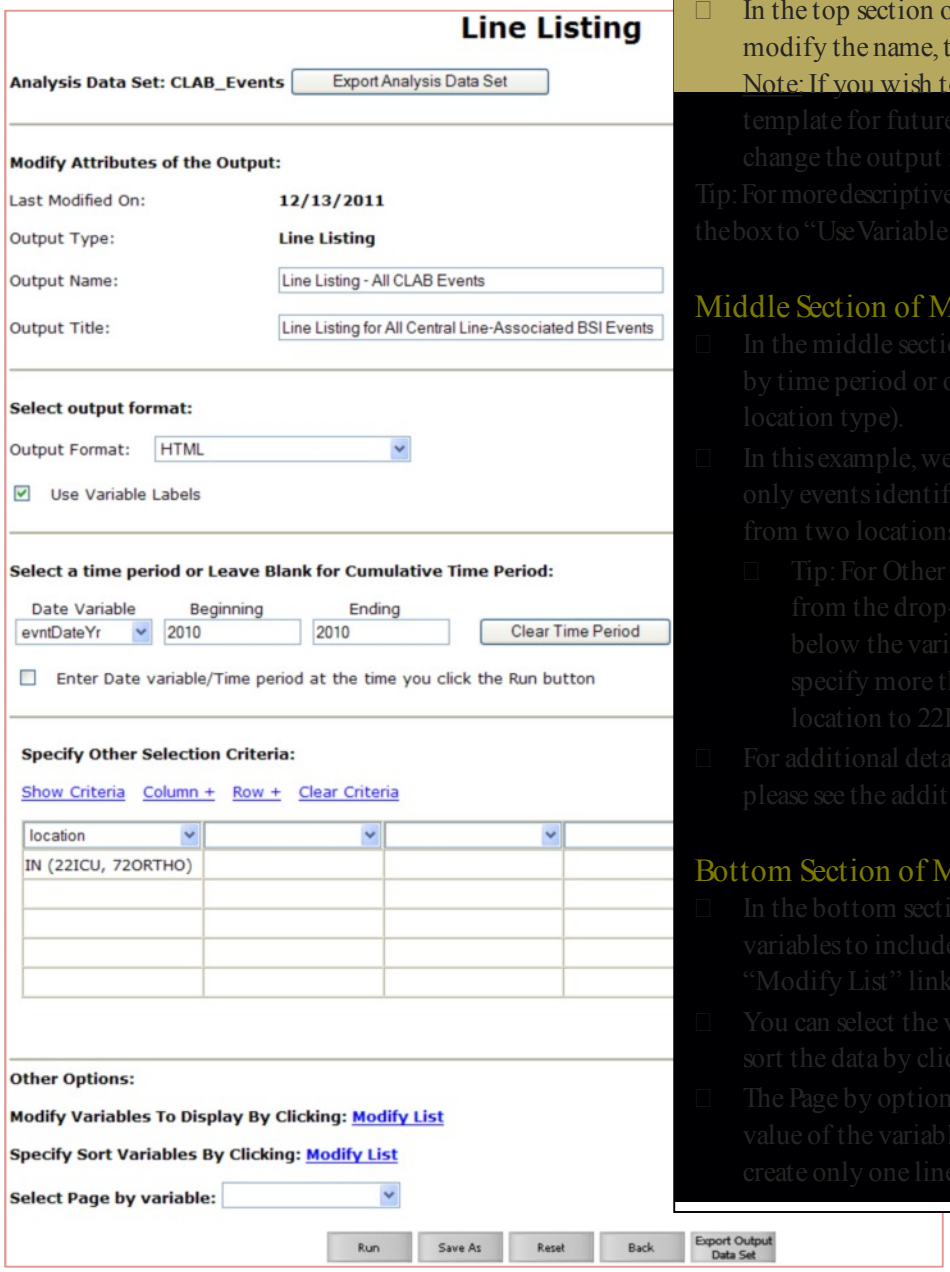
Description

A line list is an organized, detailed list of each record entered into NHSN.

Example

Suppose you are interested in looking at all CLABSI events in 2010 that occurred in the Pediatric ICU (22ICU) and the Orthopedic Unit (72ORTHO). You would like to produce a line list that includes basic patient demographics (patient ID, DOB, gender, and age at event), information on the event (date admitted, event ID, event date, and event type), as well as the location of the event. You would like the line list to be sorted by patient age at event.

Modification Page



Top Section of Modification Page:

- In the top section of the modification page, you can modify the name, title, and output format of the line list. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your line list, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

- In the middle sections of the page, you can filter output by time period or other criteria (e.g., limit to a single location type).
- In this example, we have limited the line list to include only events identified in 2010 (evntDateYr=2010) and from two locations (location IN 22ICU, 72ORTHO).
  - Tip: For Other Selection Criteria, select 'location' from the drop-down menu. Click in the empty cell below the variable and use the "in" operator to specify more than one value. In this case, set the location to 22ICU and 72ORTHO.
- For additional details about how to use this section, please see the additional resources listed on page 2.

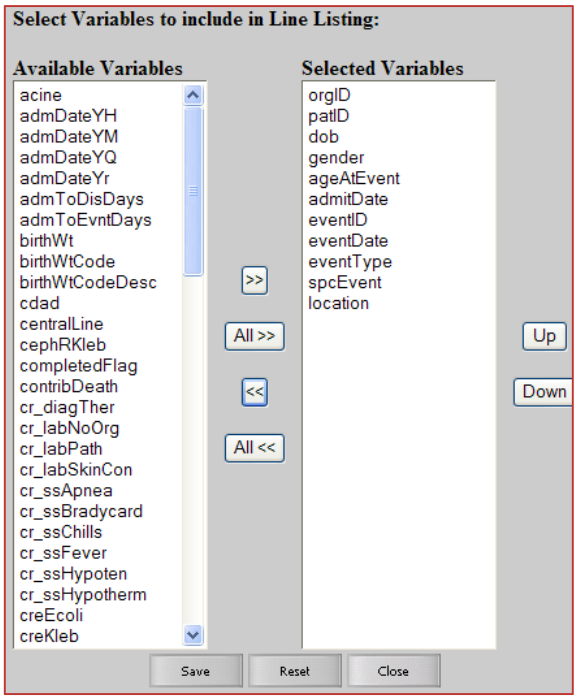
Bottom Section of Modification Page:

- In the bottom section of the page, you can specify variables to include in the line list by clicking the first "Modify List" link.
- You can select the variables on which you would like to sort the data by clicking the second "Modify List" link.
- The Page by option will create one line list for each value of the variable. Leaving this option blank will create only one line list.

About "Modify List"

- Both "Modify List" links will produce a similar window, shown on the right, which allows you to move variables from the available list in the left column to the selected list in the right column by using the directional arrows in the center. You can also re-order the selected variables using the "up" and "down" buttons, found to the right of the selected variables list.

- Tip: Not sure of the meaning of the variables in the list? Use the variable reference list: http://www.cdc.gov/nhsn/PDFs/pscManual/VarLabelXref6-5-0-PS.pdf



Output/Results

The example line list shown below is the result of the example modifications on page 1 of this document. There is one row for each CLABSI event and one column for each variable. The events are sorted by ascending order based on the patient's age at event.

National Healthcare Safety Network
Line Listing for All Central Line-Associated BSI Events

As of: April 2, 2012 at 1:54 PM

Date Range: CLAB_EVENTS evntDateYr 2010 to 2010

Org ID	Patient ID	Date of Birth	Gender	Age on Event Date	Fac Admission Date	Event ID	Event Date	Event Type	Specific Event	Location
10018	123444	06/15/2000	M	9	05/19/2010	27681	05/20/2010	BSI	LCBI	22ICU
10018	783464	09/18/1954	F	55	06/01/2010	26216	06/05/2010	BSI	LCBI	72ORTHO
10018	16651	10/11/1950	F	59	03/01/2010	28552	03/15/2010	BSI	LCBI	72ORTHO

Sorted by ageAtEvent

Data contained in this report were last generated on March 21, 2012 at 10:33 AM.

Additional Resources:

Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

Frequency Table

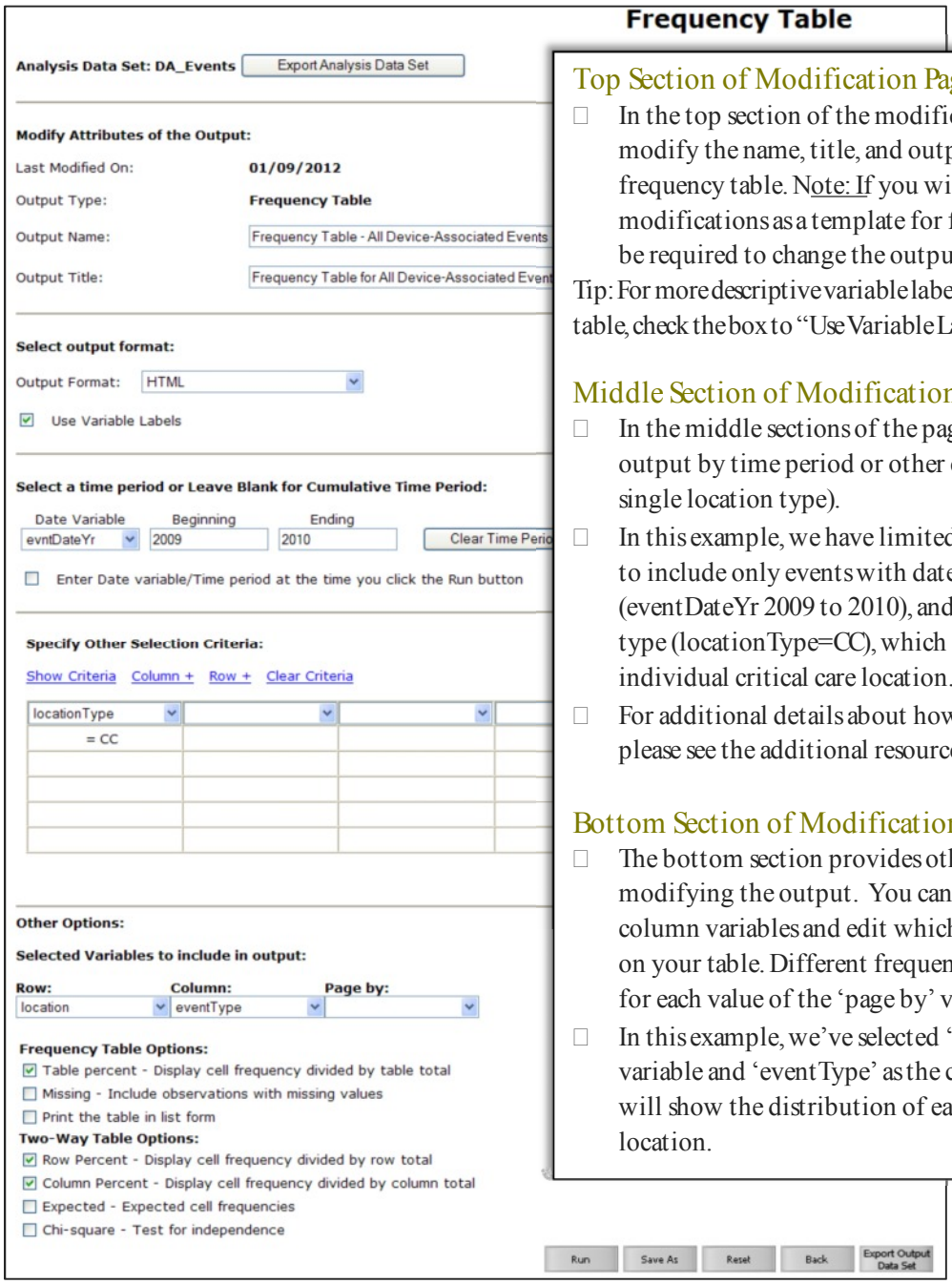
Description

A frequency table is an organized display of counts and percentages. The data are organized by a row variable and a column variable, and the frequency table provides a count of the number of observations in the data set that meet the specifications of both the row and column variables.

Example

Suppose you are interested in looking at the distribution of each device-associated (DA) event across the different critical care locations in your facility, for all events that were identified in 2009 and 2010.

Modification Page



Top Section of Modification Page:

- In the top section of the modification page, you can modify the name, title, and output format of the frequency table. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your frequency table, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

- In the middle sections of the page, you can filter output by time period or other criteria (e.g., limit to a single location type).
- In this example, we have limited the frequency table to include only events with dates in 2009-2010 (eventDateYr 2009 to 2010), and from a single location type (locationType=CC), which will include each individual critical care location.
- For additional details about how to use this section, please see the additional resources listed on page 2.

Bottom Section of Modification Page:

- The bottom section provides other options for modifying the output. You can designate the row and column variables and edit which statistics are shown on your table. Different frequency tables will be made for each value of the 'page by' variable.
- In this example, we've selected 'location' as the row variable and 'eventType' as the column variable. This will show the distribution of each DA event for each location.

Output/Results and Interpretation

This example frequency table is the result of the modifications shown on page 1. For each row/column combination, there are four cells of data. Let's look at the 71ICU location/BSI event type combination (boxed in red):

National Healthcare Safety Network
Frequency Table for All Device-Associated Events
As of: January 9, 2012 at 4:38 PM
Date Range: DA_EVENTS evntDateYr 2009 to 2010

Frequency
Percent
Row Pct
Col Pct

Table of location by eventType				
	eventType(Event Type)			
location(Location)	BSI	PNEU	UTI	Total
22ICU	1	0	0	1
	2.70	0.00	0.00	2.70
	100.00	0.00	0.00	
	4.00	0.00	0.00	
3- WEST	1	0	0	1
	2.70	0.00	0.00	2.70
	100.00	0.00	0.00	
	4.00	0.00	0.00	
5G	1	0	0	1
	2.70	0.00	0.00	2.70
	100.00	0.00	0.00	
	4.00	0.00	0.00	
61EAST	0	1	0	1
	0.00	2.70	0.00	2.70
	0.00	100.00	0.00	
	0.00	25.00	0.00	
71ICU	8	2	5	15
	21.62	5.41	13.51	40.54
	53.33	13.33	33.33	
	32.00	50.00	62.50	
F.SICU	0	0	1	1
	0.00	0.00	2.70	2.70
	0.00	0.00	100.00	
	0.00	0.00	12.50	
ICU	4	0	1	5
	10.81	0.00	2.70	13.51
	80.00	0.00	20.00	
	16.00	0.00	12.50	
INMEDCC	2	0	0	2
	5.41	0.00	0.00	5.41
	100.00	0.00	0.00	
	8.00	0.00	0.00	
MICU	1	0	0	1
	2.70	0.00	0.00	2.70
	100.00	0.00	0.00	
	4.00	0.00	0.00	
S-ICU	7	1	1	9
	18.92	2.70	2.70	24.32
	77.78	11.11	11.11	
	28.00	25.00	12.50	
Total	25	4	8	37
	67.57	10.81	21.62	100.00

- NOTE: In the top left corner of the table, there is a "legend" explaining what each cell in the frequency table represents (boxed in green).
- The top cell of each combination provides a simple count of the number of events (frequency) that have occurred meeting both the row and column criteria. In this example, there were 8 bloodstream infections (BSI) in the 71ICU between 2009 and 2010.
- The second cell for the 71 ICU is the percent of all events in the dataset that meet both the row and column variables (percent of table total). For example, 21.62% of all device-associated events in 2009 and 2010 were BSIs in the 71ICU (8/37).
- The third cell is the percent of events of a given type per total of a given row (row percent). In this example, 53.33% of all device-associated (DA) events in the 71ICU were bloodstream infections (BSI) (8/15).
- The fourth cell is the percent of events of a given type across all columns (Column Percent), and in this case shows the percent of each DA event type that occurred in a certain location. For example, 32% of all BSI events occurred in the 71ICU (8/25).
- The margins of the column and row variables (boxed in blue) contain the total counts (top cells) and total percentages (bottom cells) of data for each location (or strata). For example, in 71ICU, there were 15 DA events accounting for 40.54% (15/37) of all DA events reported from these locations during 2009-2010. Similarly, there were 25 BSIs accounting for 67.57% (25/37) of all DA events reported from these locations during 2009-2010.

Additional Resources:
Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

Pie Chart

Description

A pie chart is a graphical representation of data. The different slices of the pie represent different values of a variable, with the relative size of the slice representing the amount of data included in the slice.

Example

You would like to create a pie chart showing the distribution of urinary tract infections (UTI) across different critical care locations in your facility during 2009 through 2010.

Modification Page

Pie Chart

Analysis Data Set: DA_Events Export Analysis Data Set

Modify Attributes of the Output:

Last Modified On: **01/09/2012**

Output Type: **Pie Chart**

Output Name: Pie Chart - All Device-Associated Events

Output Title: Pie Chart for All Device-Associated Events

Select output format:

☑ Use Variable Labels

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

Date Variable	Beginning	Ending	
evntDateYr	2009	2010	Clear Time Period

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

Specify Other Selection Criteria:

Show Criteria Column + Row + Clear Criteria

locationType			
= CC			

Other Options:

Select Variables to include:

Chart Variable:	Stratification Variable:	Page by:
location	eventType	

Number of pies across a page = 2

Number of pies down a page = 1

Placement of the Percent = Outside

Placement of the Slice Label = Outside

Placement of the Value = Outside

Run Save As Reset Back

Top Section of Modification Page:

- In the top section of the modification page, you can modify the name and title of the pie chart.
  Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your pie chart, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

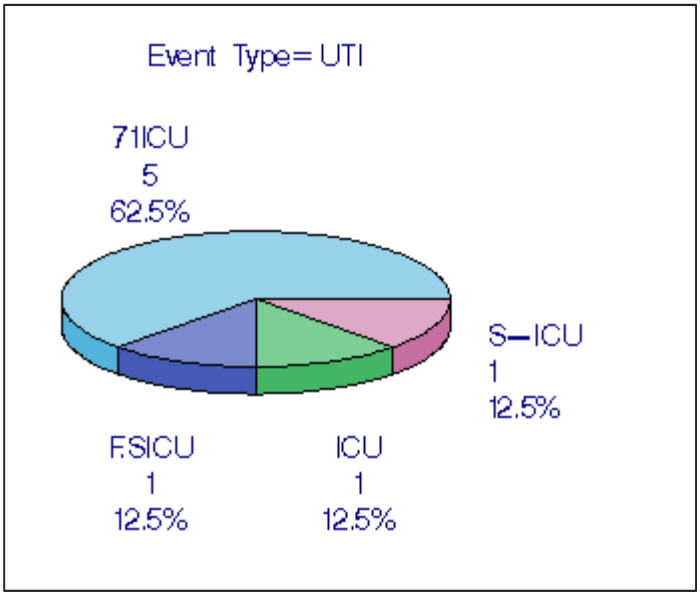
- In the middle sections of the page, you can filter output by time period or other criteria (e.g., limit to a single location type).
- In this example, we have limited the pie chart to include only events with dates in 2009 and 2010 (evntDateYr=2009 to 2010) and from a single location type (locationType=CC), which will include each individual critical care location.
- For additional details about how to use this section, please see the additional resources listed on page 2.

Bottom Section of Modification Page:

- The "chart variable" is the variable that will make up the slices of the pie.
- Different pies will be created for each value of the "stratification variable". In this case, we wish to look at the distribution of each event type within each location.
- Separate pages of output will be created based on values of the "page by" variable.
- You can also choose the number and orientation of pies on a page and to place various descriptive statistics inside or outside the pie.

Output/Results and Interpretation

In this example, location is the "chart variable" and event type is the "stratification variable". The output will include a different pie chart for each event type; only the UTI pie chart is shown below. Three values are given for each slice of the pie.



- The top value for each slice is the value of the "chart variable" (e.g., location).
- The second value is a count of the number of events included in each slice of the pie. Example: there were 5 UTIs in the 71ICU between 2009 and 2010.
- The bottom number is a percent corresponding to this slice's percent of the entire pie. Example: 62.50 % (5/8) of all UTIs were in the 71ICU.

Additional Resources:
Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

Bar Chart

Description

A bar chart is a graphical representation of data where the length or height of the bars represents counts of records meeting the criteria. Bar charts can only be produced as HTML output and therefore, the results will appear in a pop-up window in your browser.

Example

Suppose you are interested in using one bar chart to graphically represent the distribution of device-associated events identified in each critical care location in 2010.

Modification Page

Bar Chart

Analysis Data Set: DA_Events Export Analysis Data Set

Modify Attributes of the Output:

Last Modified On: **01/09/2012**

Output Type: **Bar Chart**

Output Name: Bar Chart - All Device-Associated Events

Output Title: Bar Chart for All Device-Associated Events

Select output format:

☑ Use Variable Labels

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

Date Variable	Beginning	Ending	
evntDateYr	2010	2010	Clear Time Period

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

Specify Other Selection Criteria:

Show Criteria Column + Row + Clear Criteria

locationType			
= CC			

Other Options:

Select Variables to include:

Chart Variable:	Stratification Variable:	Page by:
location	eventType	

Orientation of Bars: 3D Vertical

Placement of the Percent: Inside

Placement of the Value: Outside

Top Section of Modification Page:

- In the top section of the modification page, you can modify the name and title of the bar chart. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.
  Tip: For more descriptive variable labels on your bar chart, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

- In the middle section of the page, you can filter output by time period or other criteria (e.g., limit to a single location type).
- In this example, we have limited the bar chart to include only events with dates in 2010 (evntDateYr=2010) from a single location type (locationType=CC), which will include each individual critical care location.
- For additional details about how to use this section, please see the additional resources listed on page 2.

Bottom Section of Modification Page:

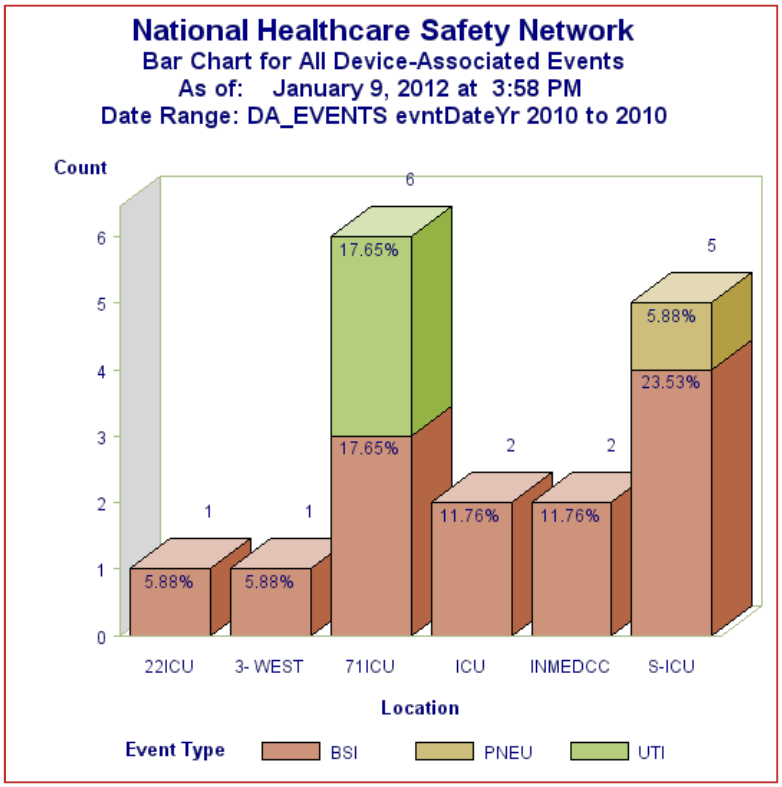
- The "chart variable" is the variable being graphed on the bar chart (horizontal axis); in this case, the variable is location.
- Different colored bars will be "stacked" on each bar to represent the different values of the "stratification variable". In this case, we wish to look at the distribution of each event type within each location.
- Different bar charts can be created for each value of the "page by" variable.
- You can select 2D or 3D bars, placed either horizontally or vertically on the chart. You can also decide to place descriptive statistics (i.e., percent and count) either inside or outside the bars.

Output/Results and Interpretation

- The count is the total number of events and is represented by the height of the bars (vertical axis). Look at the height of different colored bars separately.

- Because this chart is stratified on event type, BSIs are shown in dark brown, PNEUs are shown in lighter brown, and UTIs in green. Example: In the 71ICU, there were 3 BSI events and 3 UTI events in 2010. The total count of DA events in each location is shown at the top of each bar.

- The percent shown for each bar is the percent of all events (n=17) on this chart that are included in the specific bar. Example: Of all critical care patients with DA events reported in 2010, 17.65% (3/17) were BSIs in the 71ICU.



Additional Resources:
Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

Rate Table

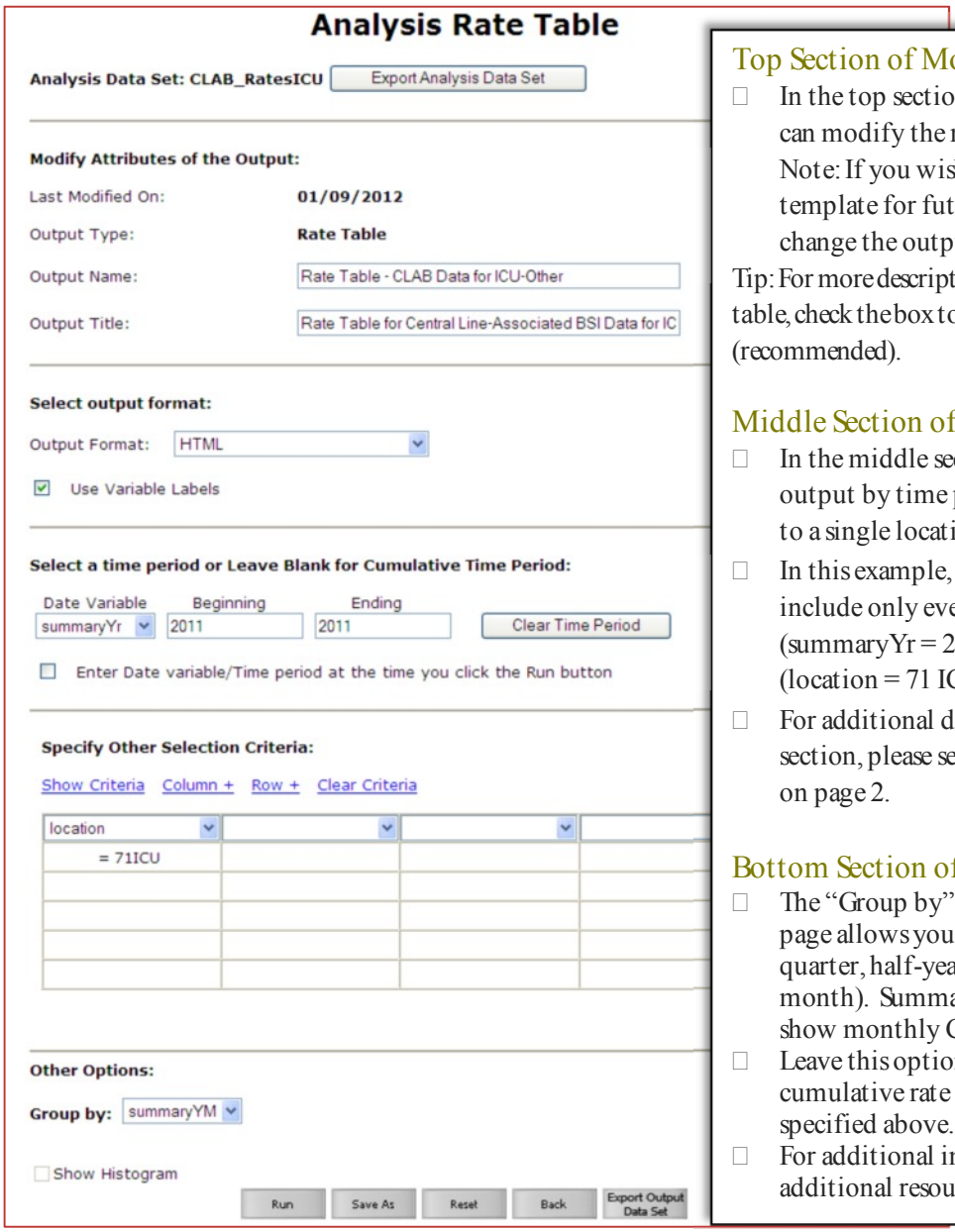
Description

Rate tables display a facility's calculated rates and device-utilization ratios (where appropriate). If available, rate tables also provide NHSN published pooled means and the comparison of the facility's rates and ratios to those pooled means. Descriptions of rates and ratios can be found in the event-specific chapters of the NHSN Patient Safety Component Manual.

Example

You would like to create a rate table for CLABSI data reported in 2011 for the cardiothoracic ICU (71 ICU) in your facility. You would also like to see separate CLABSI rates for each month in 2011.

Modification Page



Top Section of Modification Page:

- In the top section of the modification page, you can modify the name and title of the rate table. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your rate table, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

- In the middle sections of the page, you can filter output by time period or other criteria (e.g., limit to a single location type).
- In this example, we have limited our rates to include only events and summary data for 2011 (summaryYr = 2011) and from a single location (location = 71 ICU).
- For additional details about how to use this section, please see the additional resources listed on page 2.

Bottom Section of Modification Page:

- The "Group by" option found at the bottom of the page allows you to view your rates by month, quarter, half-year, or year (e.g., one rate per month). SummaryYM is used in this example to show monthly CLABSI rates.
- Leave this option blank in order to obtain a cumulative rate for the time period you have specified above.
- For additional information, please see the additional resources listed on page 2.

Output/Results and Interpretation

Different rate tables for each location are automatically created. Below is the example of a rate table for CLABSI events, grouped by month in 2011 in 71 ICU of this facility (the result of modifications made on page 1 of this document).

National Healthcare Safety Network

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

As of: February 15, 2012 at 9:54 AM

Date Range: CLAB_RATESICU summaryYr 2011 to 2011

Org ID=10018 CDC Location=IN: ACUTE: CC: CT

Location	Summary Yr/Mon	CLA BSI Count	Central Line Days	CLA BSIRate	NHSN CLAB Pooled Mean	Incidence Density p-value	Incidence Density Percentile	Patient Days	CL Util Ratio	NHSN Line DU Pooled Mean	Proportion p-value	Proportion Percentile
71ICU	2011M01	2	200	10.000	0.9	0.0155	100	300	0.667	0.68	0.3683	46
71ICU	2011M05	0	50	0.000	0.9	0.9543	25	150	0.333	0.68	0.0000	8

Source of aggregate data: Am J Infect Control 2011;39:798-816.

Data contained in this report were last generated on January 9, 2012 at 3:41 PM.

- During 2011, the cardiac ICU (71ICU) reported two months of CLABSI data. In January (2011M01), this location reported 2 central line-associated BSIs ("CLABSI Count") and a total of 200 days in which patients had central lines ("Central Line Days").
- Dividing 2 (numerator) by 200 (denominator) and multiplying by 1000 gives this location a CLABSI rate of 10.000 per 1000 central line days (CLABSI Rate).
- The "NHSN CLAB Pooled Mean" is the published pooled mean rate. Note that the source of this pooled mean is referenced below the rate table as a footnote.
- The "Incidence Density p-value" is the statistical measure that compares your CLABSI rate to the NHSN pooled mean. A p-value less than 0.05 indicates that a statistically significant difference (higher or lower) exists between the facility's rate for that location and the NHSN pooled mean. In this example, the CLABSI rate in the cardiac ICU is statistically significantly higher than the NHSN pooled mean (p=0.0155).
- The "Incidence Density Percentile" indicates the percent of all of similar-type locations contributing to the NHSN pooled mean that have a CLABSI rate lower than or equal to the facility's rate. In this example, the CLABSI rate for the cardiac ICU is at the 100th percentile, indicating that 100% of the cardiac ICU locations contributing to the NHSN pooled mean had a CLABSI rate at or below 10.0 per 1000 central line days.
- The device utilization (DU) ratio (CL Util Ratio) is calculated as the total number of central line days divided by the total number of patient days. The "NHSN Line DU Pooled Mean" is also shown in the table and is compared to your facility's DU ratio by the "Proportion p-value". This p-value (as well as the "Proportion Percentile") should be interpreted in the same manner as described above for the comparison of rates.

Note: There is a difference between statistical significance and meaningful significance. Even if two measures are not statistically different, there may still be reason to investigate a large increase or decrease in infection rates or device utilization ratios.

Additional Resources:

Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

Annual Reports: http://www.cdc.gov/nhsn/dataStat.html

Run Chart

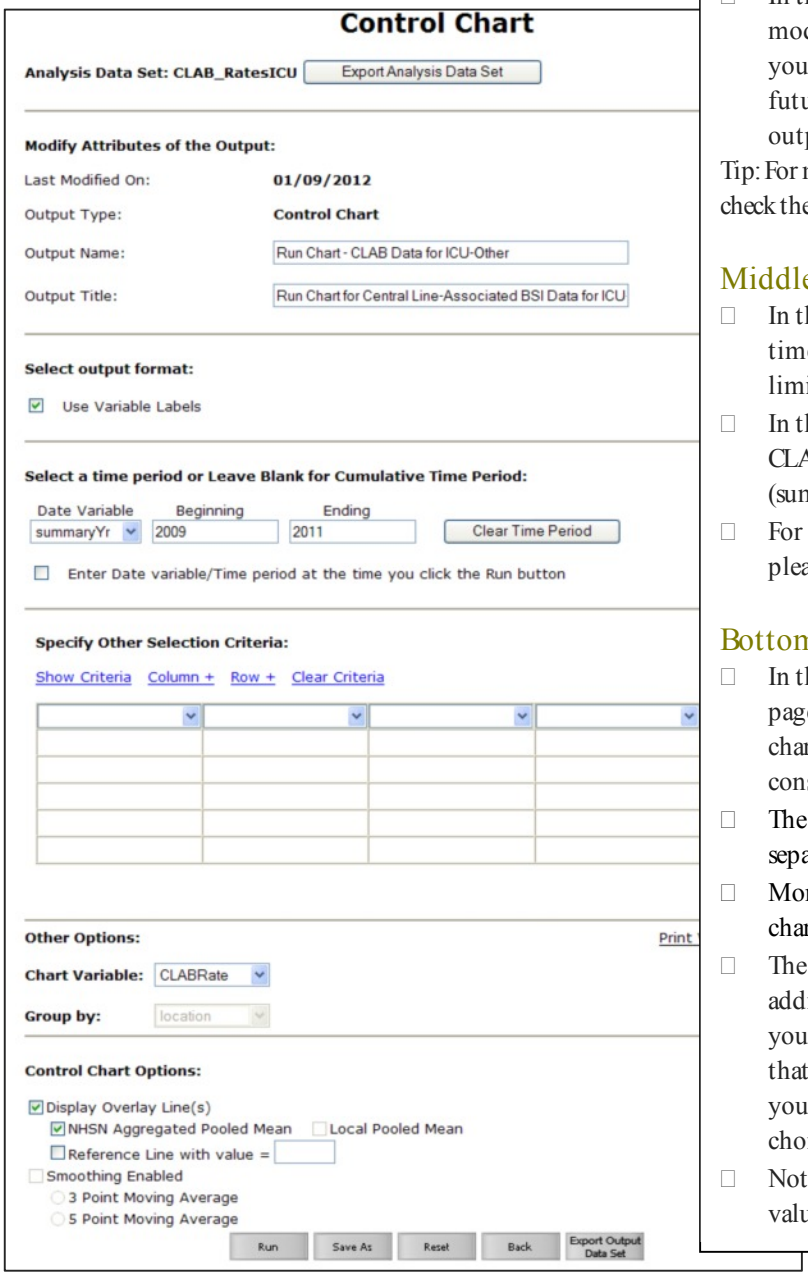
Description

A run chart (or control chart) is a line graph showing change in a variable over a selected time period. This is a useful output if you would like to view, for example, the change in CLABSI rate over time in each location at your facility.

Example

Let's create a graphical representation of the change in CLABSI rates from 2009 through2011 for each specific location in the facility. By checking the boxes to "Display Overlay Line(s)" and "NHSN Aggregated Pooled Mean" (at the bottom of the modification page), we are allowing a visual comparison of the facility's CLABSI rate with NHSN national aggregate data over the same time period.

Modification Page



Top Section of Modification Page:

- In the top section of the modification page, you can modify the name and title of the run chart. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your run chart, check the box to "Use Variable Labels" (recommended).

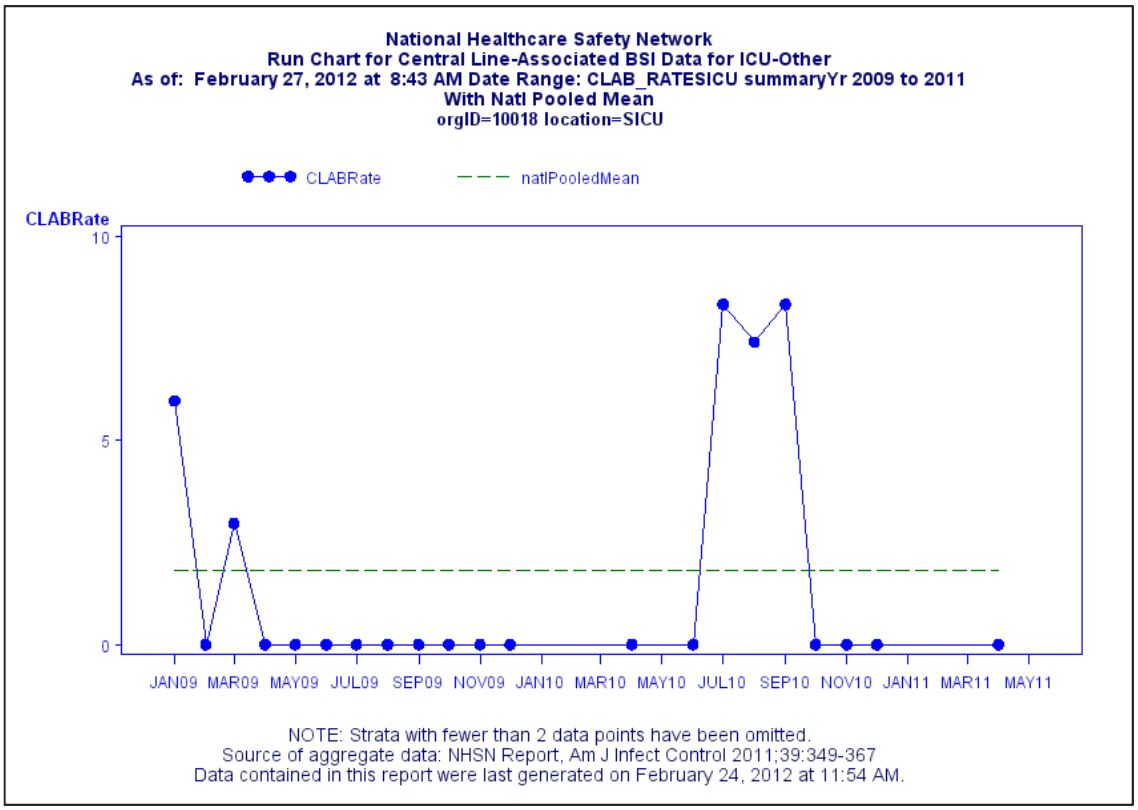
Middle Section of Modification Page:

- In the middle sections of the page, you can specify a time period and/or filter output by other criteria (e.g., limit to a single location type).
- In this example, we have limited the run chart to CLABSI rates during 2009 through 2011 (summaryYr=2009-2011).
- For additional details about how to use this section, please see the additional resources listed on page 2.

Bottom Section of Modification Page:

- In the "Other Options" section on the bottom of the page, select the variable you wish to view on the run chart, such as CLABSI rate (CLABRate); this is considered the "chart variable".
- The "Group by" option is automatically set to create separate run charts for each location.
- Monthly rates will always be displayed in the run chart.
- The last section on the modification page shows additional chart options. For comparison purposes, you can insert an overlay line onto your run chart that shows the NHSN aggregated pooled mean, or you can create a reference line with a value of your choice.
- Note: If you define your own reference line, the same value will be used for each run chart in the output.

Output/Results and Interpretation



- The facility's monthly CLABSI rates in the surgical ICU are shown by the bolded points connected by the blue solid line during the time period 2009-2011. The NHSN Aggregate Pooled Mean CLABSI rate for this type of ICU is shown as the green dashed line. In this example, the facility was able to keep their CLABSI rate at zero for most of 2010 and at the beginning of 2011; however, there was a drastic increase, above the NHSN pooled mean, from July to September 2010.

Additional Resources:
Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

Standardized Infection Ratio (SIR) Table

Device-Associated Infections

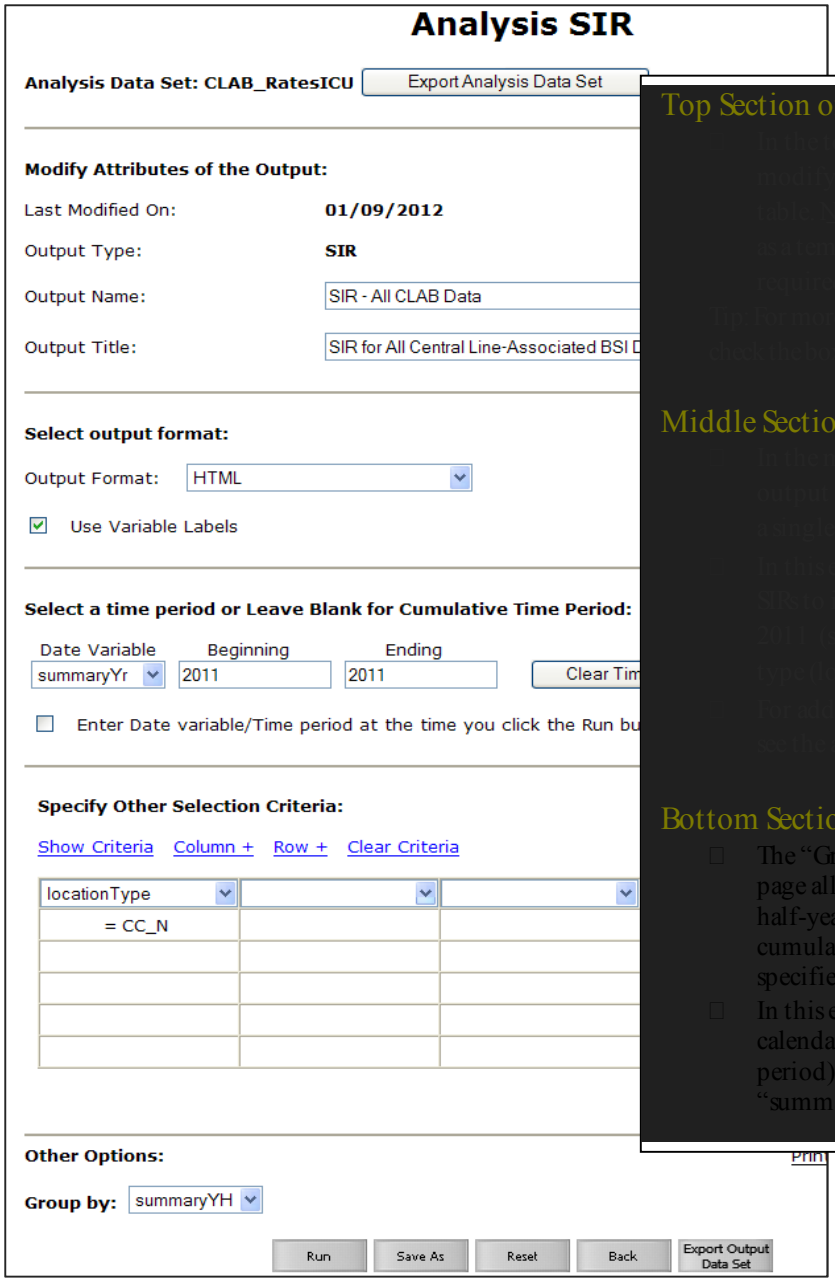
Description

The standardized infection ratio is a risk-adjusted summary measure that compares the observed number of infections to the expected number of infections based on NHSN aggregate data. This document explains how to calculate and interpret the SIR for device-associated infections. The example below is for CLABSI, but the CAUTI SIR is calculated and interpreted in a similar manner.

Example

Below is an example of an SIR table for CLABSI surveillance that occurred in neonatal critical care locations in 2011 grouped by half-year (6-month, calendar half-year).

Modification Page



Top Section of Modification Page:

In the top section of the modification page, you can modify the name, title, and output format of the SIR table. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your SIR table, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

In the middle sections of the page, you can filter output by time period or other criteria (e.g., limit to a single location type).

In this example of a CLABSI SIR we have limited the SIRs to include only events and summary data for 2011 (summaryYr=2011) and from a single location type (location type=CC_N).

For additional details about how to use this section, see the additional resources listed on page 2.

Bottom Section of Modification Page:

- The "Group by" option found at the bottom of the page allows you to view SIRs by month, quarter, half-year, or year. Leave the option blank to see a cumulative SIR for the time period you have specified above.
- In this example, we will produce SIRs for each calendar half-year of 2011 (i.e., 6 month time period) by selecting the Group By variable "summaryYH".

Output/Results and Interpretation

National Healthcare Safety Network

SIR for All Central Line-Associated BSI Data - By OrgID

As of: February 29, 2012 at 10:44 AM

Date Range: CLAB_RATESALL summaryYr 2011 to 2011

if (((locationType = "CC_N")))

Org ID	Summary	infCount	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
10018	2011H1	1	1.356	571	0.737	0.6071	0.019, 4.109
10018	2011H2	0	0.070	30	.	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.

Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.

SIR excludes those months and locations where device days are missing.

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805

Data contained in this report were last generated on January 9, 2012 at 3:41 PM.

- This facility reported 1 central line-associated BSI (infCount) in the neonatal critical care location (locationType="CC-N") during the first half of 2011. This is the observed number of CLABSIs.

- For each time period, the number of expected (or predicted) CLABSIs ("Number Expected") is calculated by multiplying each location's number of central line days by the NHSN pooled mean and dividing by 1000. The number expected for each location is then summed to result in the overall number expected.

- The SIR is the number of observed CLABSIs (numerator) divided by the number of expected CLABSIs (denominator); in this example, 1/1.356 = 0.737. An SIR will only be calculated if the number of expected infections is ≥ 1. When the expected number of infections is <1, it is considered too low to calculate a precise SIR and comparative statistics. Note that this is the case for the second half of 2011 in our example. When this occurs, you may wish to group your SIRs by a longer time period, such as calendar year (summaryYr).

- The SIR p-value is a statistical measure that tells you if the observed number of infections is significantly different from what was expected. A p-value less than 0.05 (an arbitrary and conveniently used cut point) indicates that the number of observed CLABSIs is statistically significantly different (higher or lower) from the number expected. In this example, the p-value for the first half of 2011 is greater than 0.05 and thus there is no significant difference between the number of infections observed and the number of infections expected.

- The 95% Confidence Interval is a range of values in which the true SIR is thought to lie, however the SIR reported under the SIR column is the most likely value. If the confidence interval includes the value of 1 (as in this example), then the SIR is not significant (the number of observed infections is not significantly different from the number expected, using the same convenient cut point). The statistical evidence should be interpreted as insufficient to conclude that the SIR is different than 1.

Additional Resources:

Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

NHSN Newsletter: Your Guide to the Standardized Infection Ratio: http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf

Standardized Infection Ratio (SIR) Table

Surgical-Site Infections

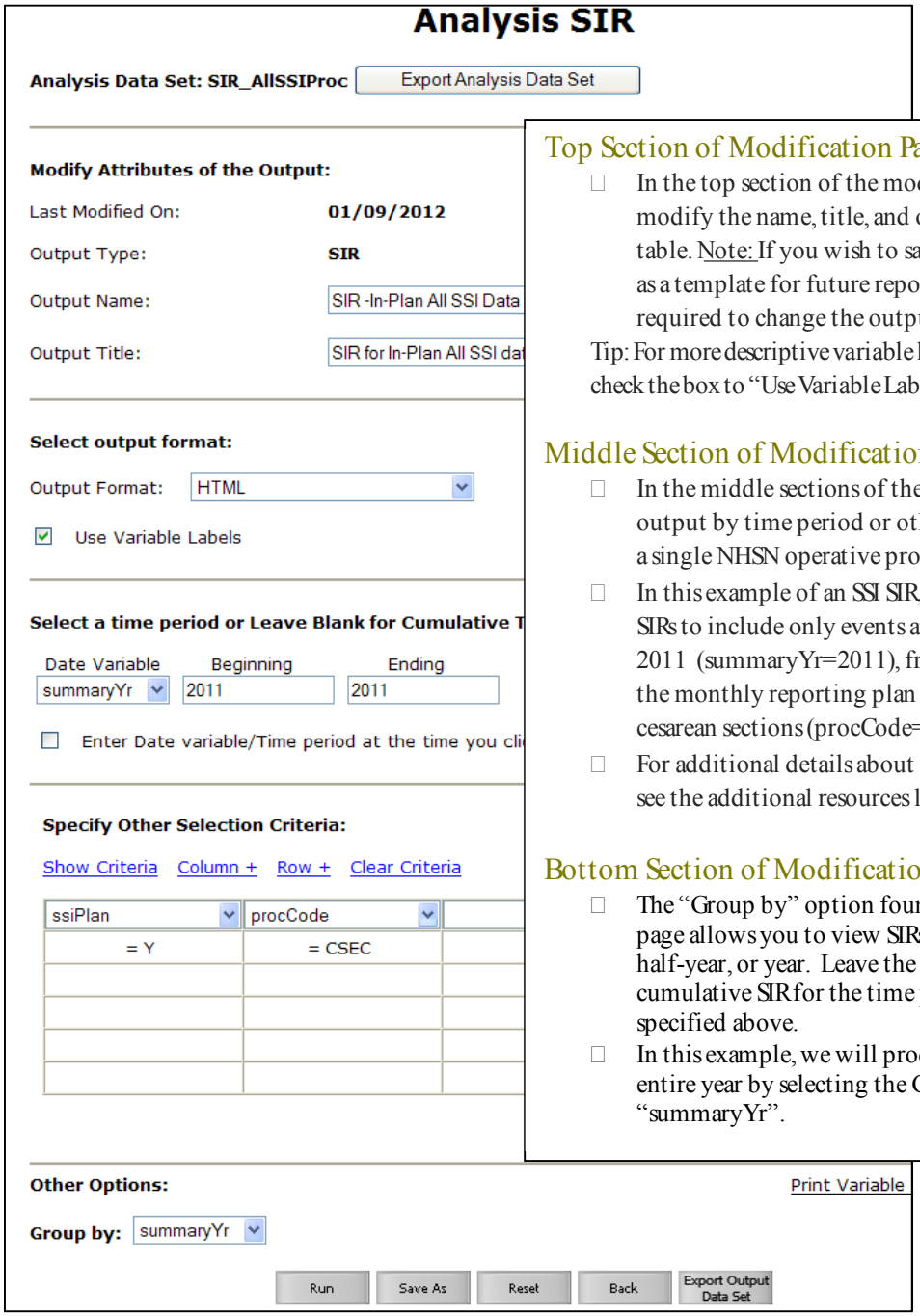
Description

The standardized infection ratio is a risk-adjusted summary measure that compares the observed number of infections to the expected number of infections based on NHSN aggregate data. This document describes how to calculate and interpret the SSI SIR.

Example

Below is an example of an SIR table for SSI surveillance that occurred for in-plan cesarean sections (CSEC) for 2011.

Modification Page



Top Section of Modification Page:

- In the top section of the modification page, you can modify the name, title, and output format of the SIR table. Note: If you wish to save your modifications as a template for future reports, you will be required to change the output name.

Tip: For more descriptive variable labels on your SIR table, check the box to "Use Variable Labels" (recommended).

Middle Section of Modification Page:

- In the middle sections of the page, you can filter output by time period or other criteria (e.g., limit to a single NHSN operative procedure category).
- In this example of an SSI SIR, we have limited the SIRs to include only events and denominators for 2011 (summaryYr=2011), from those procedures in the monthly reporting plan (ssiPlan=Y) and for cesarean sections (procCode=CSEC).
- For additional details about how to use this section, see the additional resources listed on page 2.

Bottom Section of Modification Page:

- The "Group by" option found at the bottom of the page allows you to view SIRs by month, quarter, half-year, or year. Leave the option blank to see a cumulative SIR for the time period you have specified above.
- In this example, we will produce one SIR for the entire year by selecting the Group By variable "summaryYr".

Output/Results and Interpretation

National Healthcare Safety Network

SIR for In-Plan All SSI data by Procedure - By OrgID

As of: February 29, 2012 at 10:39 AM

Date Range: SIR_ALLSSIPROC summaryYr 2011 to 2011

Org ID	Summary Yr	Procedure Count	All SSI Model Infection Count	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	2011	91	1	1.340	0.746	0.6127	0.019, 4.158

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.

Excludes Superficial Incisional Secondary (SIS) and Deep Incisional Secondary (DIS) SSIs.

Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.

Source of aggregate data: 2006-2008 NHSN SSI Data

Data contained in this report were last generated on January 9, 2012 at 3:41 PM.

- This facility reported 91 CSECs (procedure count) and 1 SSI (All SSI Model Infection Count) during 2011.
- The number of SSIs expected (All SSI Model Number Expected) for this time period was 1.340. For each operative procedure category, the number of expected SSIs is calculated based on statistical modeling of a standard population's data during the baseline time period (2006-2008).
- The SIR is the number of observed SSIs (numerator) divided by the number of expected SSIs (denominator) (e.g., 1/1.340 = 0.746). An SIR will only be calculated if the number of expected infections is ≥ 1. When the expected number of infections is <1, it is considered too low to calculate a precise SIR and comparative statistics. When this occurs, you may wish to group your SIRs by a longer time period, such as calendar year (summaryYr).
- The SIR p-value is a statistical measure that tells you if the observed number of infections is significantly different from what was expected. A p-value less than 0.05 (an arbitrary and conveniently used cut point) indicates that the number of observed SSIs is (statistically) significantly different (higher or lower) from the number expected. In this example, the p-value for the 2011 SIR is greater than 0.05 and thus there is no significant difference between the number of infections observed and the number of infections expected.
- The 95% Confidence Interval is a range of values in which the true SIR is thought to lie, however the SIR reported under the SIR column is the most likely value. If the confidence interval includes the value of 1 (as in this example), then the SIR is not significant (the number of observed infections is not significantly different from the number expected, using the same convenient cut point). The statistical evidence should be interpreted as insufficient to conclude that the SIR is different than 1.

Additional Resources:

Introduction to NHSN Analysis: http://www.cdc.gov/nhsn/PDFs/training/intro-AnalysisBasics-PSC.pdf

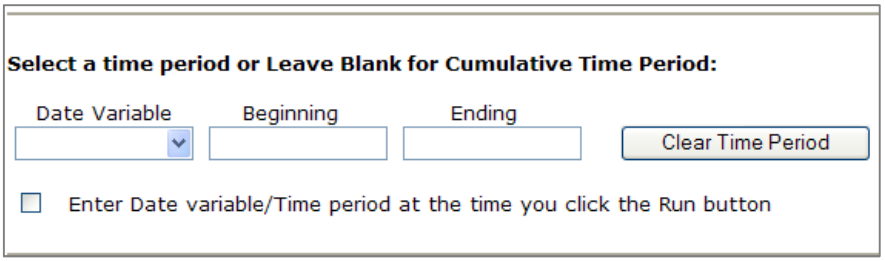
SSI Risk Model Paper: http://www.cdc.gov/nhsn/PDFs/pscManual/SSI_ModelPaper.pdf

NHSN Newsletter: Your Guide to the Standardized Infection Ratio:
http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf

How to Filter Data by Time Period

Description

- In the middle of the output modifications page for any output option, there is a section that allows you to "select a time period or leave blank for cumulative time period".



- To restrict output to a specific time period, select a date variable from the "Date Variable" drop down menu and specify the beginning and ending date for the desired time period.

Tip: If you plan to save this output, check the option to "enter the date variable/Time period at the time you click the Run button". This will allow you to specify the desired time period every time you generate the output without having to return to the Design Modification page.

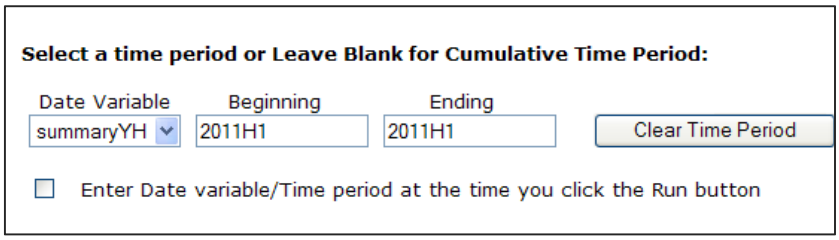
- The available date variables can vary with each output option. The table below provides examples of date variables based on event date, along with the format of each variable. You can filter your output by year, half-year, quarter, or month. Date variables are based on the calendar year; if fiscal year is desired, specify time period by exact date or month range.

Specify By	Date Variable	Beginning	Ending
Date	eventdate	1/1/2011	12/31/2011
Year	evntDateYr	2011	2011
Half-year	evntDateYH	2011H1	2011H2
Quarter	evntDateYQ	2011Q1	2011Q4
Month	evntDateYM	01/2011	12/2011

Tip: When entering Beginning and Ending dates, the computer will automatically enter the slash marks "/" and letters (H, Q) when applicable.

Example

- Suppose you wish to analyze CLABSIs that occurred during the first six months of 2011. One way to do this would be to select the date variable "evntDateYH", indicating that you wish to restrict the output to data based on the event date by half-year. The beginning and ending value would be 2011H1; the only CLABSIs included in the analysis will be those where the event date was in the first half of 2011. (*You only need to type "2011" and "1"; the H will be auto-entered).



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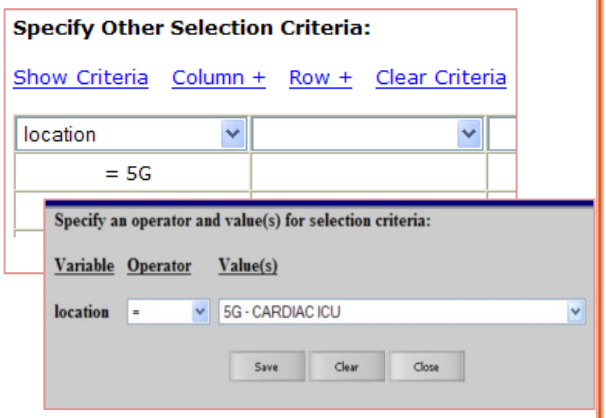
How to Filter Output by Additional Criteria

Description

Each output option allows for additional filtering of the data that will be considered for the output. The middle section of the modification screen ("Specify Other Selection Criteria") allows you to adjust the results based on your needs. While the list of variables is dependent on the dataset used for the output option, the operation of this section remains the same across all output option types.

How to Filter

- The drop-down menus in the "Specify Other Selection Criteria" allow you to select a variable for filtering.
- After selecting a variable to filter, click in the empty cell below the variable to specify desired values of that variable that should be included in the output.
- A pop-up will allow you to specify values. Use an operator to modify the values (operators described below). After specifying values, remember to click Save!!
- After specifying criteria, you can double check your criteria selection by clicking "Show Criteria". This will display the parenthetical equation used to filter your data.
- The example shown indicates that the output would be restricted to events that occurred in the location, 5G – Cardiac ICU (location=5G).

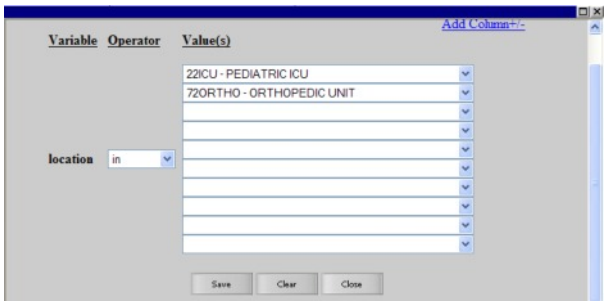


Descriptions of Operators

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

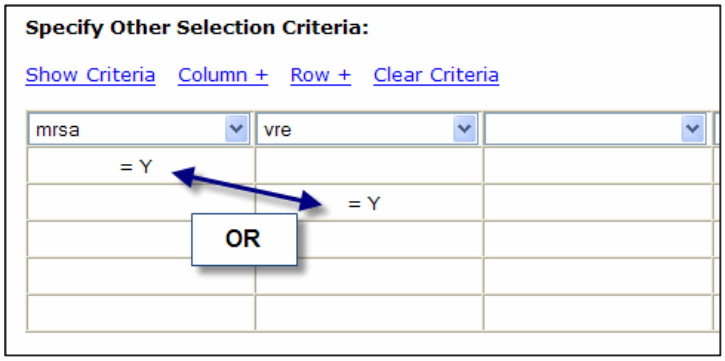
Tip: Use the "In" operator to select multiple values of a variable. For example, location In (22ICU, 72ORTHO) would include all records where the location is either 22ICU or 72ORTHO. Many variables, such as location, supply drop-down menus for selection; other variables, such as "age at event", allow a free text field for entry of values.



Example 1:

Suppose you wish to view a line list of CAUTIs in which MRSA or VRE were identified.

- Because we wish to restrict the output to specific multi-drug resistant organisms, notice that the "mrsa" and "vre" variables were selected from the drop-down menus in the "Specify Other Selection Criteria" section of the page.

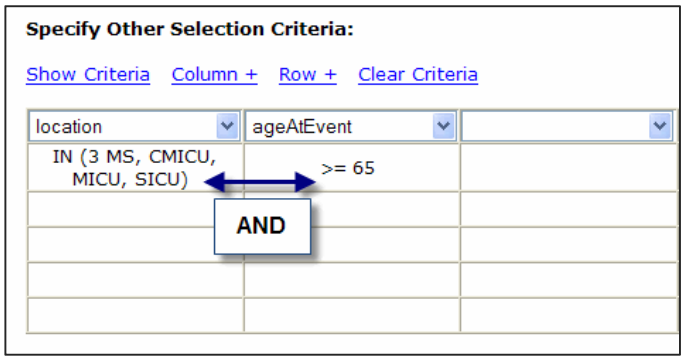


- Consider each row in the selection criteria grid its own equation/filter. Therefore, in this example, MRSA = Y and VRE = Y are on two separate rows.

Example 2:

You would like to view all CAUTI events in select ICU locations and for patients who were 65 years old, or older, at the time of the event.

- The operator ">=" was used so that the output would be restricted to those events where the age at event was greater than or equal to the desired age.

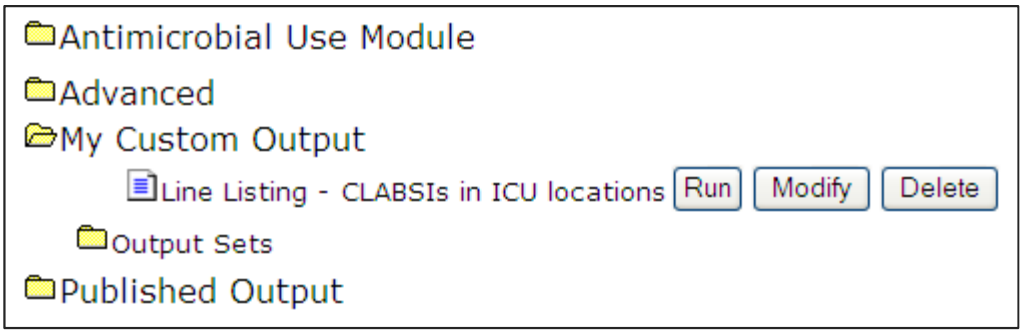


Description

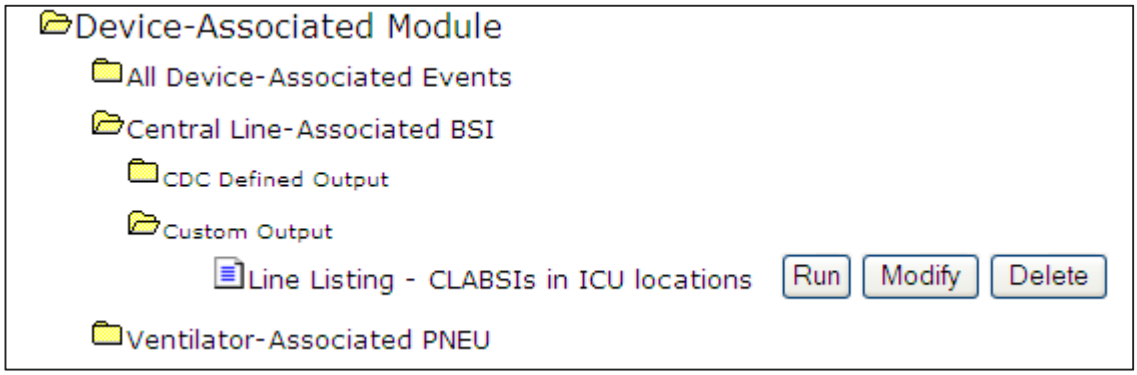
If you plan on running the same analysis in the future, you can save your modifications by clicking "Save as" on the bottom of the modification screen. This will save your modifications as a template; it will not save the results. Note: you must change the output name and title before saving. In this example, we have changed the output name to "Line Listing-CLABSIs in ICU locations".

This will save your output option as a template under both:

a. "My Custom Output" folder in the full Analysis>Output Options menu.



b. "Custom Output" folder in the original analysis folder that was used to create the output. In this example, it would be found under Analysis>Output Options>Device-Associated Module>Central Line-Associated BSI>Custom Output.



Note that you can run the custom output option as is, make additional modifications, or delete the custom output option by clicking on the appropriate button next to the name of the output.

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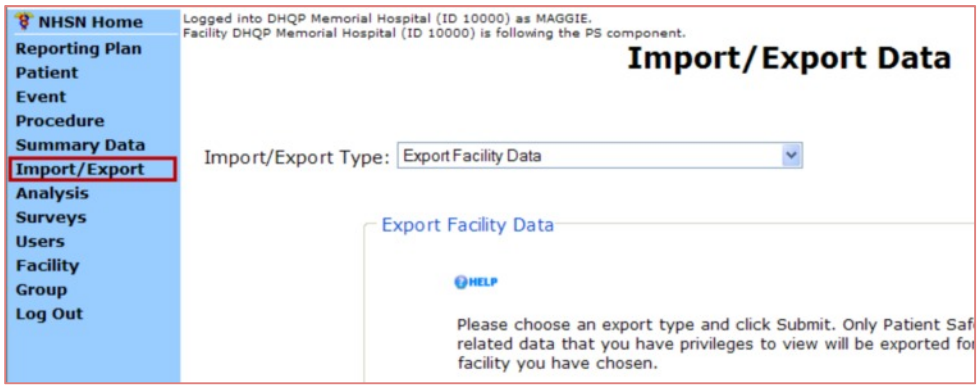
How to Export Data from NHSN

Description

There are three ways to export your data from NHSN.

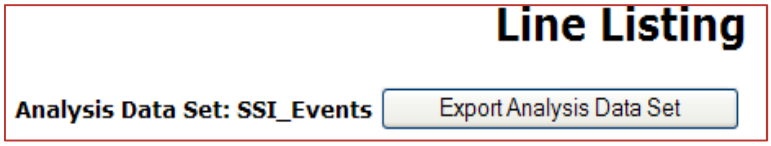
1. To export ALL data entered from your facility, click on the "Import/Export" option on the left navigation bar, then select "Export Facility Data" from the drop-down menu. You can then export the data into Excel or other available formats (SAS, .txt, etc.).



   Note: This option is only available to facility users with administrative rights. The export will include multiple data tables that mirror the structure in NHSN.

2. To export a specific analysis data set, you must first generate datasets by selecting Analysis > Generate Data Sets on the left navigation bar (this may take a few minutes). Once this is done, go to Analysis > Output Options where you can find the specific output option of the data set you would like to export (e.g., Line Listing-All SSI Events). Click "Modify" next to the desired option; at the top of the modification page, click the button to "Export Analysis Data Set". You can then select the data export format, such as Excel or SAS.

   Note: This option does not allow you to export calculated rates or SIRs. For rates or SIRs, export the output dataset, described below.



3. You can also export an output data set which would include any filtering options you have made, such as time period or location. On the bottom of the modification page, click "Export Output Data Set". You can then select the data export format, such as Excel or SAS.

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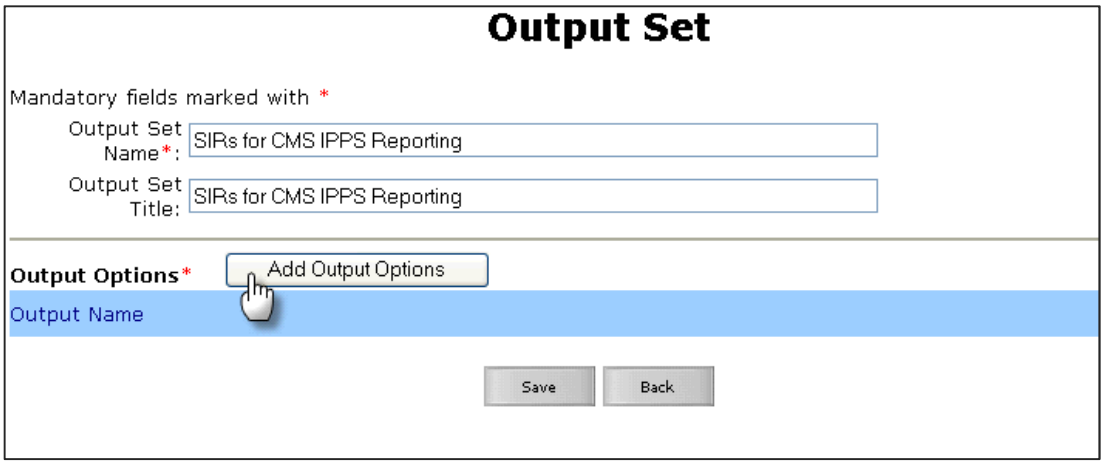
How to Run Multiple Reports at Once

Description

- You can run multiple output options at one time by creating a new output set. This option is found under Advanced > My Custom Output > Output Sets > Create New Output Set.

- Create a name and title for the output set and click "Add Output Options".



- The following screen will show a list of all CDC-defined and custom output options (shown below). You can sort this list by output name, the analysis dataset it was created from, or the date it was created by clicking on the appropriate column heading.

- For example, suppose your facility participates in the CMS IPPS program and reports all applicable CLABSI, CAUTI, and SSI data to NHSN for this program. Every month, you need to run the following output reports:
  - SIR – Complex 30-Day SSI Data for CMS IPPS
  - SIR – CLAB Data for CMS IPPS
  - SIR – CAUTI Data for CMS IPPS
- Select these output reports by checking the box to the left of the output description, and click "Submit" at the bottom of the screen.

Available Output Options

Select	Output Name	Analysis Data Set	Date Created
☐	User-Defined Rate Table - SCA	UserRatesSCA	03/13/201
☐	User-Defined Rate Table - NICU	UserRatesNICU	03/13/201
☐	User-Defined Rate Table - ICU-Other	UserRatesICU	03/13/201
☐	User-Defined Rate Table - All Events	Events	03/13/201
☐	SIR - In-plan Complex AR SSI data by Surgeon	SIR_ComplexSSISurg	03/13/201
☐	SIR - In-plan Complex AR SSI data by Procedure	SIR_ComplexSSIProc	03/13/201
☐	SIR - In-Plan CLAB Data	CLAB_RatesICU	03/13/201
☐	SIR - In-Plan CAU Data	CAU_RatesICU_SCA	03/13/201
☐	SIR - In-plan All SSI data by Surgeon	SIR_AllSSISurg	03/13/201
☐	SIR - In-plan All SSI Data by Procedure	SIR_AllSSIProc	03/13/201
☐	SIR - Complex AR SSI Data by Surgeon	SIR_ComplexSSISurg	03/13/201
☐	SIR - Complex AR SSI Data by Procedure	SIR_ComplexSSIProc	03/13/201
☑	SIR - Complex 30-Day SSI Data for CMS IPPS	SIR_Complex30dSSIProc	03/13/201
☑	SIR - CLAB Data for CMS IPPS	CLAB_RatesICU	03/13/201
☑	SIR - CAUTI Data for CMS IPPS	CAU_RatesICU_SCA	03/13/201
☐	SIR - All SSI Data by Surgeon	SIR_AllSSISurg	03/13/201
☐	SIR - All SSI Data by Procedure	SIR_AllSSIProc	03/13/201
☐	SIR - All CLAB Data	CLAB_RatesICU	03/13/201
☐	Bar Chart - % Hospitalized by Event Type	DE_Events	03/13/201
☐	Bar Chart - % Hospitalized by Access Type	DE_Events	03/13/201
☐	Bar Chart - % Deaths by Event Type	DE_Events	03/13/201
☐	Bar Chart - % Deaths by Access Type	DE_Events	03/13/201

Submit Back

- After clicking submit, you can further modify the output options or change the order that the selected output appears by using the Up and Down buttons. When you have the desired output set in the right order, click "Save".

Output Set

Mandatory fields marked with *

Output Set Name*: SIRs for CMS IPPS Reporting

Output Set Title: SIRs for CMS IPPS Reporting

Output Options* Add Output Options

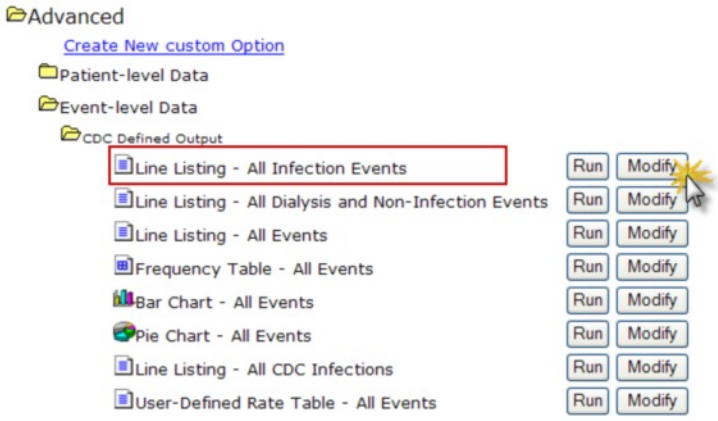
Output Name				
SIR - Complex 30-Day SSI Data for CMS IPPS	Up	Down	Modify	Delete
SIR - CLAB Data for CMS IPPS	Up	Down	Modify	Delete
SIR - CAUTI Data for CMS IPPS	Up	Down	Modify	Delete

Save Back

- This output set will now be saved under My Custom Output > Output Sets in the Advanced folder of the Analysis menu.

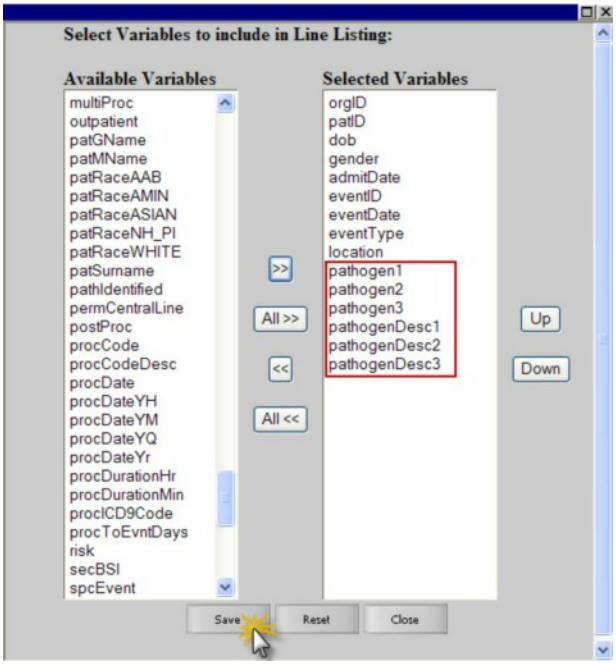
NHSN Analysis FAQs: How do I add pathogens to my event line list?

1. Navigate to the Advanced > Event-level output options folder and click the Modify button next to "Line Listing – All Infection Events".



2. Make any desired modifications to time period and/or other criteria (e.g., limit to specific locations, limit to event types).
3. Scroll down to the "Other Options" section and click the first Modify List link.

4. On the gray-pop up window that opens, select the appropriate pathogen variables from the list of Available variables and select the >> arrow to move the variables to the Selected Variables list. (NOTE: pathogen1-3 will provide the pathogen code; pathogenDesc1-3 will provide the pathogen code and description.) Click Save.
5. Make any additional modifications to your report and click the Run button. Your output will appear with all appropriate modifications, including the inclusion of the pathogen variable(s) selected.



Patient ID	Fac Admission Date	Event ID	Event Date	Event Type	Location	Pathogen 1 Description	Pathogen 2 Description	Pathogen 3 Description
MD-45677889	01/01/2011	4457362	01/12/2011	BSI	EDEPT	Candida albicans - CA		
20010	01/05/2011	4919841	01/17/2011	BSI	MICU	Staphylococcus coagulase negative - CNS		
8785625	01/05/2011	4999274	01/20/2011	BSI	CMICU	Staphylococcus epidermidis - SE		
KB4738	01/01/2011	5112246	01/21/2011	BSI	CMICU	Acinetobacter baumannii - ACBA	Corynebacterium striatum - CORST	

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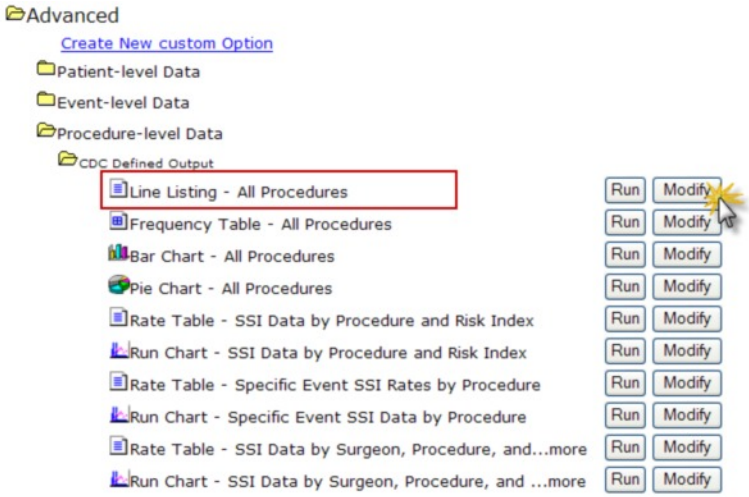
NHSN Analysis FAQs: How do I create a line list of procedures?

1. Navigate to the Advanced > Procedure-level output options folder and click the Modify button next to "Line Listing – All Procedures".



2. Make any desired modifications to time period and/or other criteria (e.g., limit to specific procedures).

3. Scroll down to the "Other Options" section and use the options to select variables for your line list, sort your line list, and determine a page-by variable. TIP: the Page By variable will provide you with one list per value. For example, if surgeonCode is selected, you will obtain one line list per surgeon.

4. Make any additional modifications to your report and click the Run button. Your output will appear with all appropriate modifications.

National Healthcare Safety Network
Line Listing for All Procedures
As of: September 19, 2011 at 2:54 PM
Date Range: PROCEDURES procDateYQ 2011Q1 to 2011Q2

Surgeon Code=2142

Patient ID	Date of Birth	Gender	Procedure ID	Procedure Date	Procedure Code	Risk using All SSI Model	Surgeon Code
COVMAR11	04/13/1950	M	5205507	03/11/2011	KPRO	0.0066	2142

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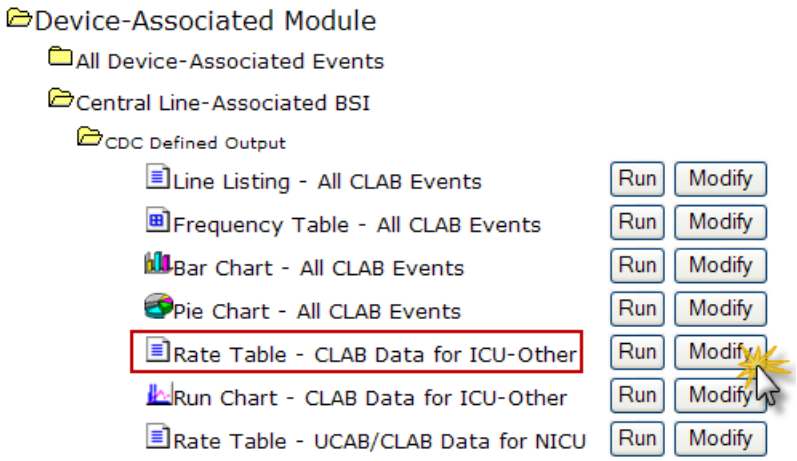
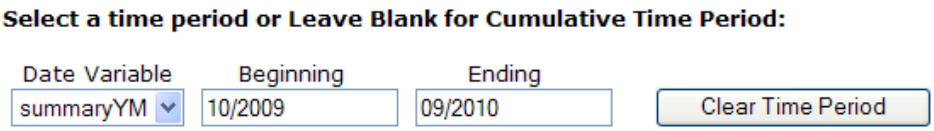
NHSN Analysis FAQs – How do I run a rate table or SIR report by fiscal year?

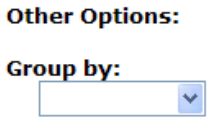
1. Navigate to the report you would like to run for the fiscal year and click the Modify button.



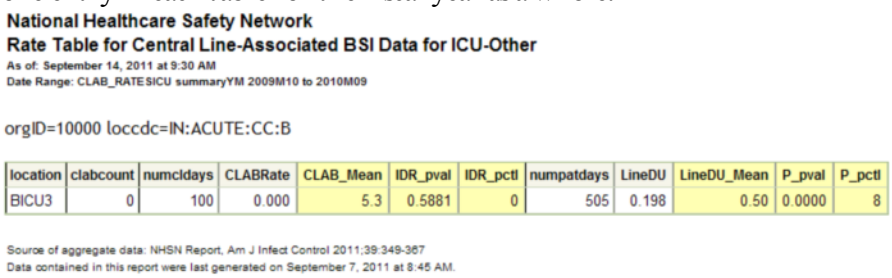
2. Scroll to "Select a Time Period" section of modification screen. Select Summary YM as the Date Variable. Enter the month that your fiscal year begins in the Beginning field and the month that your fiscal year ends in the End field.



3. Scroll to the "Group By" section of the modification screen. Change the value of the dropdown menu from SummaryYM to blank.



4. Make any additional modifications to your report and click the Run button. Your report will be displayed with one entry in each table for the fiscal year as a whole.



National Healthcare Safety Network
Rate Table for Central Line-Associated BSI Data for ICU-Other
As of: September 14, 2011 at 9:30 AM
Date Range: CLAB_RATESICU summaryYM 2009M10 to 2010M09

orgID=10000 loccdc=IN:ACUTE:CC:B

location	clabcount	numcldays	CLABRate	CLAB_Mean	IDR_pval	IDR_pctl	numpatdays	LineDU	LineDU_Mean	P_pval	P_pctl
BICU3	0	100	0.000	5.3	0.5881	0	505	0.198	0.50	0.0000	8

Source of aggregate data: NHSN Report, Am J Infect Control 2011;39:349-367
Data contained in this report were last generated on September 7, 2011 at 8:45 AM.

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Using the Statistics Calculator

Description

The statistics calculator allows you to conduct statistical tests to determine whether there is a statistically significant difference between two measures. The statistics calculator can be accessed from the left navigation bar by selecting Analysis>Statistics Calculator.

Options

There are four options available on this calculator, each described below.

1. Compare Two Proportions

Select this option when comparing proportions such as SSI rates and device utilization ratios. Run the appropriate analyses to find each proportion, and take note of the proportion's numerator and the denominator data. For example, suppose you wish to compare the January urinary catheter device utilization ratio in the orthopedic ward to the February ratio in the same location. In this example, you would need to run two CAUTI rate tables, one for each year.

- In January, you find that there were 300 catheter days and 500 patient days, giving a device utilization ratio of 0.60.
- In February, you find that there were 250 catheter days and 550 patient days, giving a device utilization ratio of 0.45.
- Are these two ratios significantly different from each other?

Compare Two Proportions

When comparing two proportions (e.g. SSI Rates, Device Utilization ratios etc.), 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 trials as the denominator (e.g. procedures, patient days) for two data sources. Press calculate.

	Data Source #1	Data Source #2
Group Labels:	January	February
Numerator (Number of Events):	300	250
Denominator (Number of Trials):	500	550

Title: Urinary Catheter Utilization Ratio Comparison

Calculate Back

- Enter a group label for each proportion you wish to compare. In this example, we used 'January' and 'February' as the group labels.
- Enter the numerator data (# of catheter days) for each month; 300 for January and 250 for February.
- Enter the denominator data (# of patient days) for each month; 500 for January and 550 for February.
- You may create a title for the comparison.
- Click 'Calculate' on the bottom of the screen.

Output/Results and Interpretation

The statistics calculator will calculate the proportions and a proportion p-value. If this p-value is less than 0.05 (a convenient cut point), then there is a significant difference (higher or lower) between the two proportions.

National Healthcare Safety Network

Urinary Catheter Utilization Ratio Comparison

As of: May 7, 2012 at 2:20 PM

	January	February
Numerator	300	250
Denominator	500	550
Proportion	60.000%	45.455%
Proportion p -value	0	

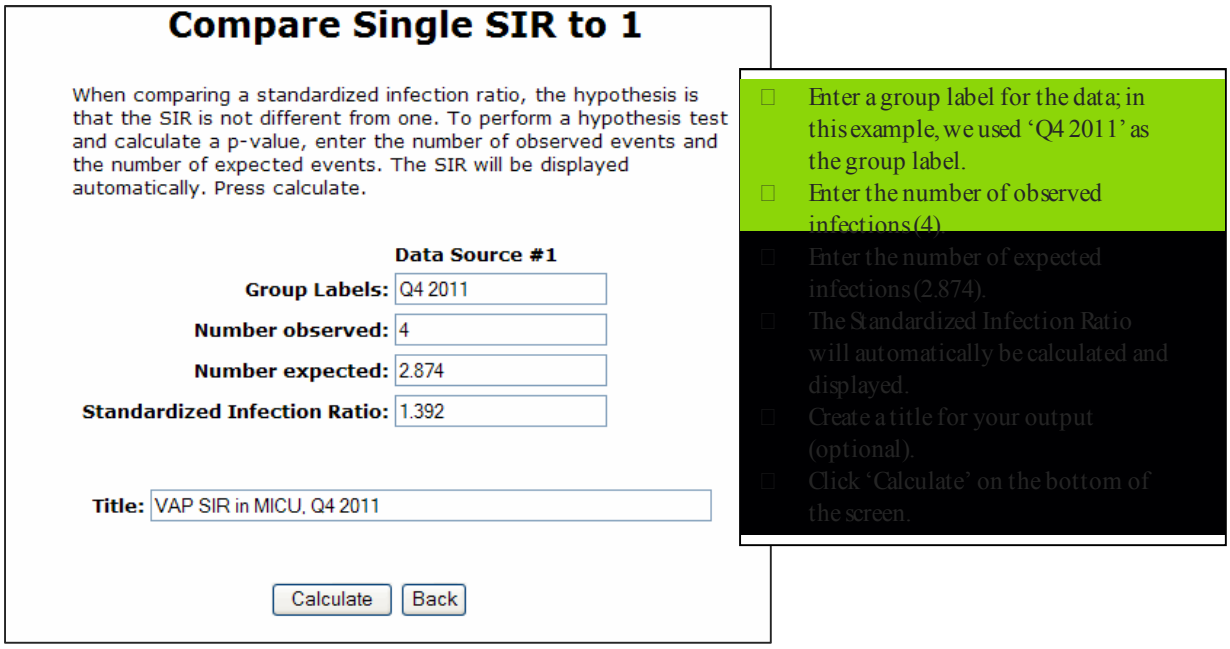
In this example, the proportion p-value is 0, indicating that the February urinary catheter device utilization ratio is significantly different (higher) from the January ratio.

2. Compare Single SIR to 1

This option will allow you to compare a standardized infection ratio (SIR) to 1. Because an SIR is calculated as the number of infections observed divided by the number of infections expected, comparing this ratio to 1 will allow you to see whether the number of infections observed is statistically significantly different from the number of infections expected. NOTE: This comparison is made using NHSN aggregate data from the referenced published report when running the SIR output options within NHSN Analysis. Therefore, this option is recommended for those SIRs that are calculated using aggregate data from a source other than NHSN (e.g., state aggregate).

For example, you would like to test whether the number of ventilator-associated pneumonias (VAPs) in your MICU for the 4th quarter of 2011 is different from what would be expected based on the NHSN aggregate data.

- Your facility observed 4 VAPs in Q4 of 2011, and the expected infection count was 2.874.



Output/Results and Interpretation

National Healthcare Safety Network

VAP SIR in MICU, Q4 2011

As of: March 1, 2012 at 1:37 PM

Q4 2011 Number Observed	Q4 2011 Number Expected	SIR	SIR p-value	SIR95CI
4	2.874	1.392	0.3246	0.379, 3.564

The statistics calculator will calculate the SIR and its p-value; if the p-value is less than 0.05, then the SIR is significantly different from 1 (and the number of observed infections is significantly different from the number expected). In this case, the SIR p-value is 0.3246, and the SIR is not statistically different from 1.

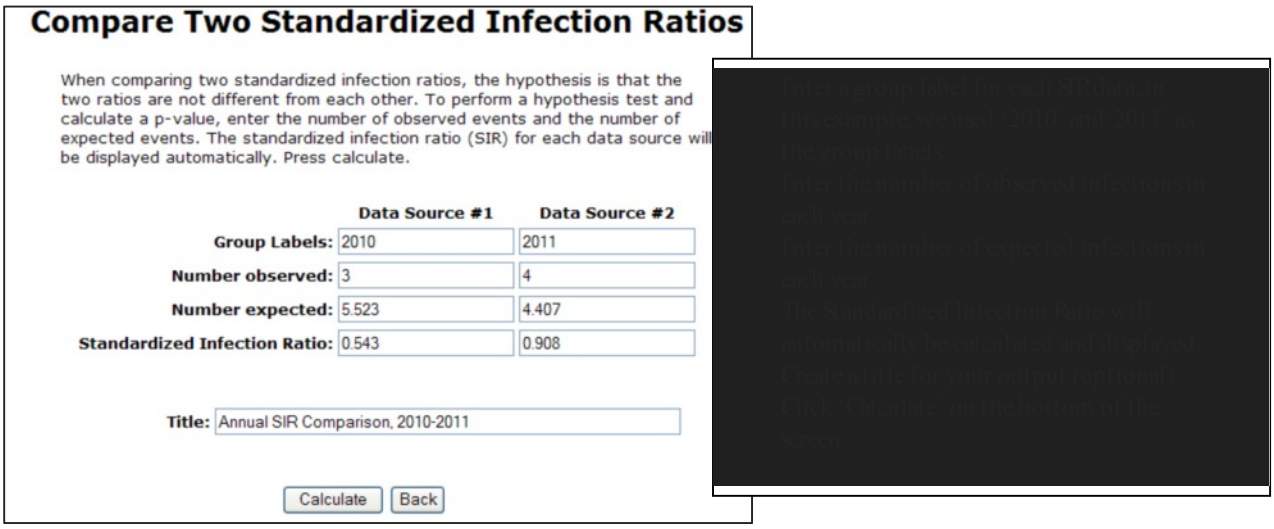
The output also includes a 95% confidence interval (SIR95CI). This gives the range of values for the SIR. If the confidence interval includes the value of 1 (as it does in our example), then SIR is not significantly different from 1. Note: the p-value and the 95% confidence interval should lead you to draw the same conclusion regarding the significance of the SIR.

3. Compare Two Standardized Infection Ratios

This option will allow you to compare two SIRs to each other. You must first run SIR tables from NHSN Analysis and take note of the numerator (# of observed infections) and the denominator (# of expected infections) for both SIRs.

For example, you are interested to know whether your surgical site infection (SSI) SIR in 2011 is significantly different from the SSI SIR in 2010.

- In 2010, your facility observed 3 SSIs. Based on NHSN aggregate data, the number expected was 5.523.
- In 2011, your facility observed 4 SSIs, and 4.407 infections were expected.



Enter a group label for each SIR data; in this example, we used '2010' and '2011' as the group labels.
Enter the number of observed infections in each year.
Enter the number of expected infections in each year.
The Standardized Infection Ratio will automatically be calculated and displayed.
Create a title for your output (optional).
Click 'Calculate' on the bottom of the screen.

Output/Results and Interpretation

National Healthcare Safety Network

Annual SIR Comparison, 2010-2011

As of: March 5, 2012 at 1:52 PM

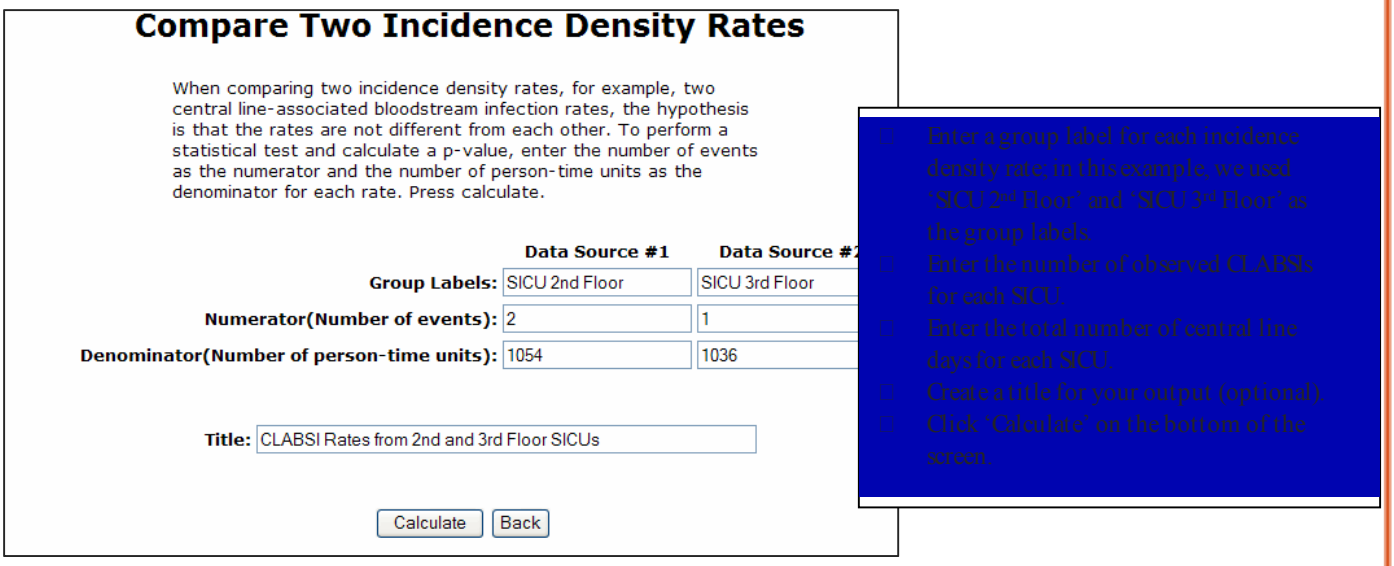
	2010	2011
Observed	3	4
Expected	5.523	4.407
SIR	0.543	0.908

Number of trials: 7
Number of successes: 4
Observed percent (%): 57.143
Expected percent (%): 44.381
Probability of success: 0.4438
One-tailed p -value: 0.3786
Two-tailed p -value: 0.7072 (Recommended)
95% Conf. Interval: 1, 6

- The output will include several statistics, however, the recommended statistic is the two-tailed p-value.
- In this example, the two-tailed p-value is greater than 0.05, and thus the two SIRs are not significantly different from each other.

4. Compare Two Incidence Density Rates

Using this option will allow you to compare two incidence density rates (e.g., CLABSI or CAUTI rates) from different time periods or groups. The following example will compare CLABSI rates from two surgical ICUs.



Output/Results and Interpretation

National Healthcare Safety Network

n and r Floor SICU

As of: March 5, 2012 at 2:46

	SICU 2nd Floor	SICU 3rd Floor
Numerator	2	1
Denominator	1054	1036
Incidence Density Rate	1.898	0.965
IDR p-value	0.2706	

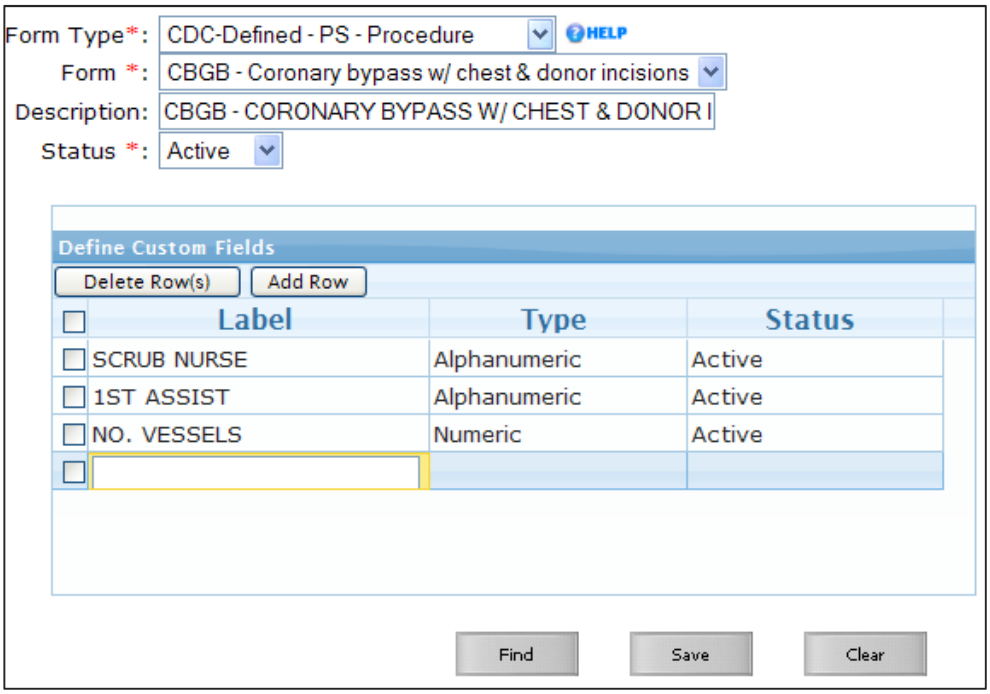
- The output will include incidence density rates; in this example, this is the CLABSI rate for each SICU in the comparison.
- The IDR p-value is a comparison of the two rates; if the p-value is less than 0.05, then the two rates are significantly different from each other. In this case, the 2 SICU CLABSI rates are not significantly different from each other.

How to Run Analyses with Custom Fields

Description

Custom fields are variables that a user can create for event or procedure-specific data. The list of custom fields can be found under the Custom Options page accessed by selecting Facility> Customize Forms from the left navigation bar.

- In this example, we have created three custom fields (variables) for the CBGB procedure form (scrub nurse, 1st assistant, and number of vessels) and have been entering data into these fields in NHSN.

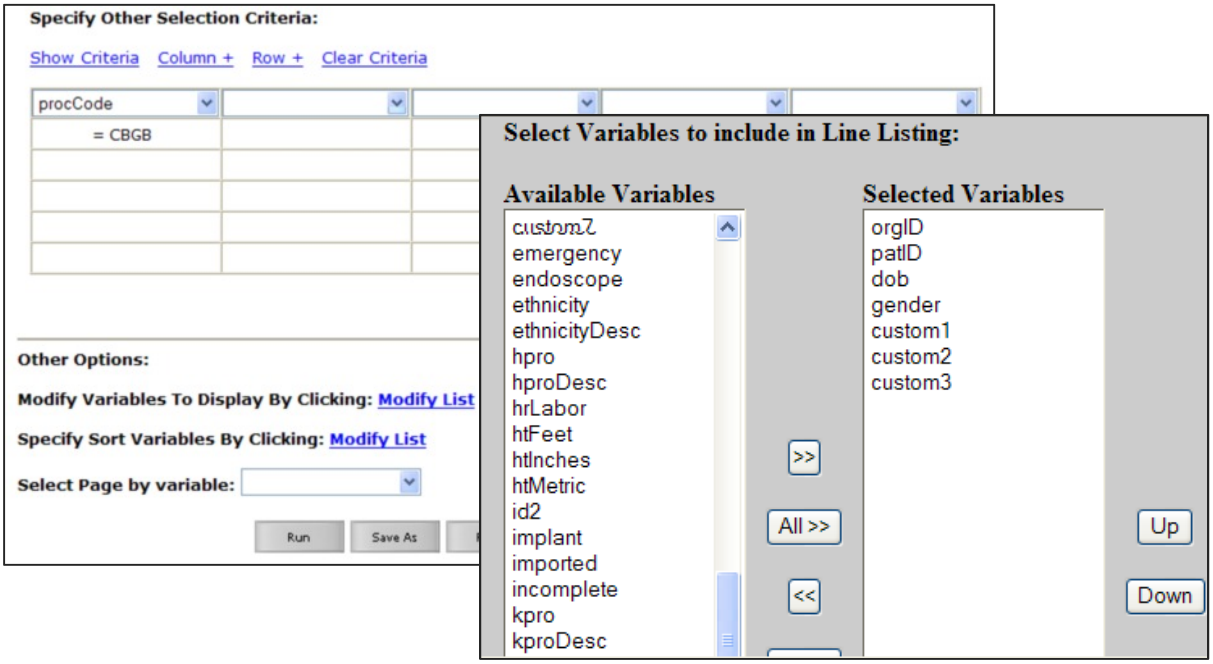


- To analyze data from these custom fields, analysis must be done from the Advanced folder (Analysis>Output Options>Advanced). In this example, because the custom fields are entered for a defined procedure (CBGB), we will use the procedure-level data analysis option.

- It is important to note that for analysis, NHSN will label the custom field variables as "custom 1", "custom 2", etc. rather than the labels you have created. NHSN will number the variables based on the order they appear in custom options manager. For help on how to re-order the variables, select the NHSN help icon found next to the form type.

- In this example, scrub nurse will be "custom 1", 1st assist will be "custom 2", and no. vessels will be "custom 3".

Example



- To look at these variables in a line list, select the "modify variables to display" link at the bottom of the line list modification screen. Move "custom 1", "custom 2" and "custom 3" from the Available Variables column to the Selected Variables column.

Output

- In the ouput, the custom variables will be labeled custom 1, 2, and 3 rather than the variable labels you have designated.

National Healthcare Safety Network
Line Listing for All Procedures
As of: March 7, 2012 at 10:20 AM
Date Range: PROCEDURES procDateYM 2012M01 to 2012M01

Org ID	Patient ID	Procedure Date	Custom 1	Custom 2	Custom 3
10018	874592	01/13/2012	SMITH	JONES	2
10018	8968900	01/27/2012	JOHNSON	CLARK	3

Sorted by procCode
Data contained in this report were last generated on March 7, 2012 at 10:15 AM.

Tip: Change the output format to RTF (Rich Text Format) and replace the numbered custom labels with your descriptive label.

NHSN Patient Safety Component Measures and Source of Aggregate Data Used for Comparisons

Measure	Source of Aggregate Data *(as of 5/4/2012)*
CLABSI Rates*	NHSN Annual Report: data summary for 2010 Am J Infect Control 2011;39:798-816 http://www.cdc.gov/nhsn/PDFs/dataStat/NHSNReport_DataSummaryfor2010.pdf
CLABSI SIRs**	NHSN Annual Report: data summary for 2006-2008, issued December 2009 Am J Infect Control 2009;37:783-805 http://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.PDF
CAUTI Rates*	NHSN Annual Report: data summary for 2010 Am J Infect Control 2011;39:798-816 http://www.cdc.gov/nhsn/PDFs/dataStat/NHSNReport_DataSummaryfor2010.pdf
CAUTI SIRs**	NHSN Annual Report: data summary for 2009 Am J Infect Control 2011;39:349-67 http://www.cdc.gov/nhsn/PDFs/NHSNReport_DataSummaryfor2009.pdf
VAP Rates*	NHSN Annual Report: data summary for 2010 Am J Infect Control 2011;39:798-816 http://www.cdc.gov/nhsn/PDFs/dataStat/NHSNReport_DataSummaryfor2010.pdf
SSI SIRs** *(excluding Complex 30-day SSI SIR for CMS IPPS reporting)*	Improving Risk-Adjusted Measures of Surgical Site Infection for the National Healthcare Safety Network Infect Control Hosp Epidemiol 2011;32(10):970-986 http://www.cdc.gov/nhsn/PDFs/pscManual/SSI_ModelPaper.pdf
Complex 30-Day SSI SIR for CMS IPPS	NHSN 2006-2008, unpublished data For more information, please see: http://www.cdc.gov/nhsn/PDFs/FINAL-ACH-SSI-Guidance.pdf

*Comparisons (e.g., pooled means, percentiles) within NHSN Analysis are updated with each publication of the NHSN Annual Report.

**SIR baselines remain consistent in order to measure progress as part of the HHS Action Plan to Prevent Healthcare-associated Infections.

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Special Edition!

October 2010, Updated December 2010

NHSN e-News
The Centers for Disease Control and Prevention (CDC)

Your Guide to the Standardized Infection Ratio (SIR)

With the new version of NHSN (version 6.3), new output options are available that will permit the calculation of standardized infection ratios (SIRs) for central line-associated bloodstream infection (CLABSI) and surgical site infection (SSI) data. Each of these measures fall in line with the State-Specific Healthcare-associated Infections Summary Data Report, published by CDC. For SSIs, we will make the transition from SSI rates to the SSI SIR with this new version of the NHSN tool. The SSI SIR is the result of logistic regression modeling that considered all procedure-level data collected by NHSN facilities in order to provide better risk adjustment than afforded by the risk index. In addition, the SSI SIR provided to facilities within NHSN will be more precise and be calculated only if appropriate for comparisons. As we make this transition, we understand that you will have numerous questions, including how to operationalize this new statistic in your facility to drive prevention practices. This guide is intended to answer some of these questions.

Standardized Infection Ratio (SIR)

What is a standardized infection ratio (SIR)?

The standardized infection ratio (SIR) is a summary measure used to track HAIs at a national, state, or local level over time. The SIR adjusts for patients of varying risk within each facility. The method of calculating an SIR is 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.

*****Important Take Away Points*****

- The new SSI SIRs provide improved risk adjustment and replace risk-stratified SSI rates.
- The SIRS use 2006-2008 as the baseline period, and therefore, SIRs are calculated for 2009 and forward.
- To allow for more precise comparisons, SIRs are calculated only if the number of expected HAIs (numExp) is ≥1.

Inside this issue:

Central Line-associated Bloodstream Infection (CLABSI) SIRs 2
Surgical Site Infection (SSI) SIRs 4
Samples of SIR Output and List of SIR Risk Factors 9

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTION (CLABSI) SIRS

How is the SIR calculated for CLABSI?

The SIR is calculated by dividing the number of observed infections by the number of expected infections. The number of expected infections, in the context of statistical prediction, is calculated using CLABSI rates from a standard population during a baseline time period. The baseline period for CLABSI SIR calculations is 2006-2008 NHSN aggregate as reported in the NHSN Report. Therefore SIRs are calculated for CLABSI data in 2009 and forward.

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

NOTE: The SIR will be calculated only if the number of expected HAIs (numExp) is ≥ 1. When the numExp is <1, this indicates that, based on the NHSN aggregate rates, the central line-day count in your facility or location is too low to calculate a precise SIR and comparative statistics. When this is the case, you may wish to group your SIRs by a longer time period, such as year (summaryYr).

This table provides an example of how a facility's CLABSI data from four different locations can be "rolled up" into a single risk-adjusted summary statistic, i.e., the SIR. The expected number of CLABSI for each location is calculated by multiplying the location's number of central line days by the NHSN rate and dividing by 1,000. Then, the expected number of CLABSI are summed and used as the denominator for the overall SIR across these locations.

Type of ICU Location	# CLABSI	# Central line-days	CLABSI Rate	NHSN Rate	p-value	Expected # of CLABSI
Medical cardiac	2	380	5.26	2.0	0.09	0.76
Medical	1	257	3.89	2.6	0.15	0.67
Med/Surgical	3	627	4.78	1.5	0.11	0.94
Neurosurgical	2	712	2.81	2.5	0.32	1.78
Total	*8*	*1976*	*4.05*	---	---	*4.15*
Overall CLABSI SIR = Observed/Expected = 8/4.15 = 1.93						

What is the advantage of using CLABSI SIRs instead of CLABSI rates?

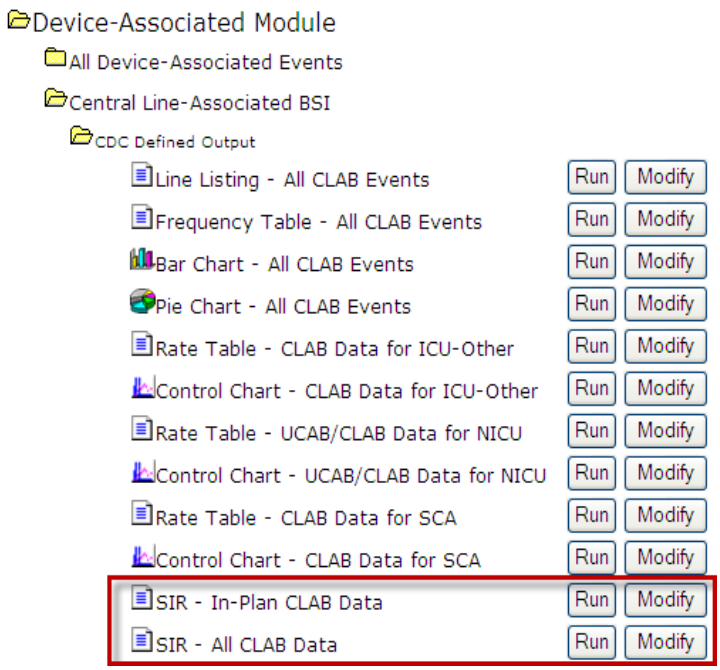
The CLABSI SIR allows you to summarize your data by more than a single location, adjusting for differences in the incidence of infection among the location types. For example, you will be able to obtain one CLABSI SIR adjusting for all locations reported. Similarly, you can obtain one CLABSI SIR for all specialty care areas in your facility.

Additionally, the CLABSI SIR may be an easier measure to discuss among internal and external stakeholders.

Location-specific CLABSI rates will continue to be a useful tool in your prevention efforts. CLABSI rates will provide the information needed to identify granular, temporal changes in CLABSI occurrence and device utilization.

What CLABSI SIR options are available?

There are two CLABSI SIR output options available – one for in-plan CLABSI data only and one for all CLABSI data.



Each CLABSI SIR output option will produce SIRs by half-year (summaryYH) for 2009 and forward. The following tables will be included with each output option to allow analyses from a "big picture" overall level to a granular location level:

- Overall SIR
- SIR for each location group (e.g., all ICUs and Wards [non-NICU or SCA] combined)
- SIR for each CDC location type (e.g., all Surgical ICUs combined)
- SIR for each individual location (e.g., 22ICU)

For a detailed explanation of a sample CLABSI SIR output, please see Appendix A.

How do I interpret the CLABSI SIR?

Example: Overall CLABSI SIR

The below SIR table is an example of an Overall CLABSI SIR. This facility reported CLABSI data for four locations of different types during 2009. Note that while the infection count and central line days are provided, this information should not be used for comparison of a crude CLABSI rate. Instead, the central line days are provided to inform you of the precision of the SIR.

Org ID	Summary Yr	Infection Count	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
10018	2009	9	7.191	3786	1.25	0.2962	0.653, 2.184

- During 2009, there were 9 CLABSIs identified in our facility, and we observed 3786 central line days from the locations from which the CLABSIs were reported.
- Based on the NHSN 2006-2008 baseline data, 7.191 CLABSIs were expected.
- This results in an SIR of 1.25 (9/7.191), signifying that during this time period our facility identified 25% more CLABSIs than expected.
- The p-value and 95% Confidence Interval indicate that the number of observed CLABSIs is not significantly higher than the number of expected CLABSIs.

When the infection count is 0, the lower bound of the 95% Confidence Interval will not be calculated. When analyzing these data as a group user, an additional overall CLABSI SIR will be calculated for all facilities reporting these data to the group.

SURGICAL SITE INFECTION (SSI) SIRS

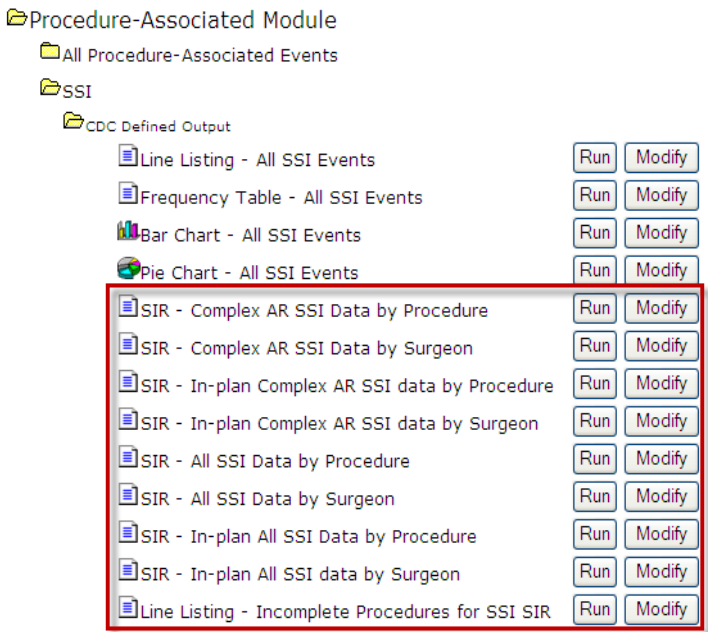
How is the SIR calculated for SSIs?

The SIR is calculated by dividing the number of observed infections by the number of expected infections. For a given operative procedure category, the number of expected infections, in the context of statistical prediction, is derived from a logistic regression model using a baseline time period. The baseline for the SIR calculations uses 2006-2008 data, and therefore SSI SIRs are calculated for procedure data in 2009 and forward.

NOTE: The SIR will be calculated only if the number of expected HAIs (numExp) is ≥ 1. When the numExp is <1, this indicates that the number of procedures performed is too low to calculate a precise SIR and comparative statistics. When this is the case, you may wish to group your SIRs by a longer time period, such as year (summaryYr).

What SSI SIR options are available?

There are eight different SSI SIR output options available – four output options by procedure and four output options by surgeon.



For a detailed explanation of sample output, please see Appendix B.

Each SSI SIR output option will produce SIRs by half-year (summaryYH) for 2009 and forward. The following tables will be included with each output option:

- Overall SIR
- SIR for each procedure
- SIR for each procedure, by outpatient (Y or N) (All SSI SIRs only)
- Incomplete and Custom Procedures not Included in SIR

The All SSI SIRs will include all procedures and superficial incisional primary, deep incisional primary, and organ/space SSIs. Secondary SSIs are not included.

The Complex AR SIRs will include only inpatient procedures and Deep Incisional Primary and Organ/Space SSIs that were identified during admission (A) or readmission to your facility (R), as defined in the NHSN Manual.

The In-Plan SIRs will include only those procedures that were included in your monthly reporting plans.

How do I interpret the SSI SIR?

Example #1: Overall SSI SIR

Org ID	Summary Yr	Procedure Count	infCountAll	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	2009	524	13	6.687	1.94	0.0196	1.150, 3.091

- During 2009, there were 524 procedures performed and 13 SSIs identified.
- Based on the NHSN 2006-2008 baseline data, 6.687 SSIs were expected.
- This results in an SIR of 1.94 (13/6.687), signifying that during this time period our facility identified 94% more SSIs than expected.
- The p-value and 95% Confidence Interval indicate that the number of observed SSIs is significantly higher than the number of expected SSIs.

Example #2: SSI SIR by Procedure and Half-Year with Number Expected < 1

Org ID	Procedure Code	Summary Yr/Half	Procedure Count	infCountAll	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	HPRO	2009H1	26	1	0.295	.	.	
10018	HPRO	2009H2	102	0	1.432	0.00	.	

- During the first half of 2009 (2009H1), there were 26 HPRO procedures performed and 1 SSI identified.
- Based on the NHSN 2006-2008 baseline data, <1 SSI was expected and therefore, a precise SIR could not be calculated.

When the number expected is less than 1, you should check your data for procedures that were excluded from the SIR, as described in Appendix C.

Will any procedures be excluded from the SIRs?

Yes. The All SSI SIR will exclude any procedure record that meets the exclusion criteria defined in Appendix C, as well as custom procedures. The Complex A/R SSI SIR will exclude all outpatient procedures in addition to those procedures meeting the exclusion criteria, and custom procedures.

You will be able to obtain a detailed list of all non-Custom excluded procedures that meet the exclusion criteria, by using a new output option: "Line Listing – Incomplete Procedures for SSI SIR." For an explanation of this output option, please see Appendix C.

In addition, SIRs will not be calculated for the current time period. For example, if running the SIRs in November, 2010 by half-years, the 2010H2 data will not be calculated or displayed, as the time period is not yet complete.

Will any SSIs be excluded from the SIRs?

Yes. All superficial incisional secondary (SIS) and deep incisional secondary (DIS) SSIs will be excluded from all SIR calculations. In addition, any SSI will be excluded if its corresponding procedure is excluded from the SIR.

How is this different from the current SSI SIRs in NHSN?

The previous SSI SIRs were based on the basic risk index and published risk-stratified SSI rates. The new SSI SIRs will use improved risk adjustment calculated through logistic regression modeling. Not only does this allow for all available risk factors to be considered, but it also allows for the risk factors to be procedure-specific. Note that each risk factor's contribution will vary according to its significant association with risk. Based on this logistic regression modeling, it was determined that for all NHSN procedures, the models predicted SSI risk better than the basic risk index, and as a result, the basic risk index will no longer be used when analyzing SSI data at a national level.

Please see Appendix D for a list of predictive risk factors obtained from the logistic regression models for each of the NHSN operative procedures.

Example: Logistic Regression Model

This table lists the risk factors found to be significant for a particular NHSN operative procedure category. Note that each risk factor's contribution varies, as represented by the parameter estimate for each factor.

Factor	Parameter Estimate	OR	p-value
Intercept	*-5.448*	-	-
Age (≤44 vs >44)	0.520	1.659	<0.0001
ASA (3/4/5 vs 1/2)	0.425	1.529	0.0415
Duration (>100 vs ≤100)	0.501	1.650	0.0019
Med school affiliation (Y vs N)	1.069	2.912	<0.0001

The model represented in this table is for teaching purposes only and should not be considered an actual model from which to calculate a patient's risk of SSI.

The parameter estimates above can be plugged into the following formula:

$$\text{logit}(\hat{p}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

= -5.448 + 0.520 (Age ≤ 44*)+ 0.425 (ASA 3/4/5*) +0.501 (Duration >100*)+ 1.069 (Med school affiliation*)

**For these risk factors, if present = 1; if not = 0*

Example: Applying the Logistic Regression Model to Determine Each Patient's Risk

The probability of SSI is calculated using the logistic regression model above. For example, the probability of SSI for Patient 1 in the table below can be calculated as:

$$\text{logit}(\hat{p}) = -5.448 + 0.520(1) + 0.425(1) + 0.501(1) + 1.069(1) = -2.934$$

$$\text{Solve for } \hat{p}: \hat{p} = e^{\text{logit}(\hat{p})} / (1 + e^{\text{logit}(\hat{p})})$$

$$\hat{p} = e^{-2.934}/1+e^{-2.934} = 0.050 = \text{probability of SSI for Patient 1}$$

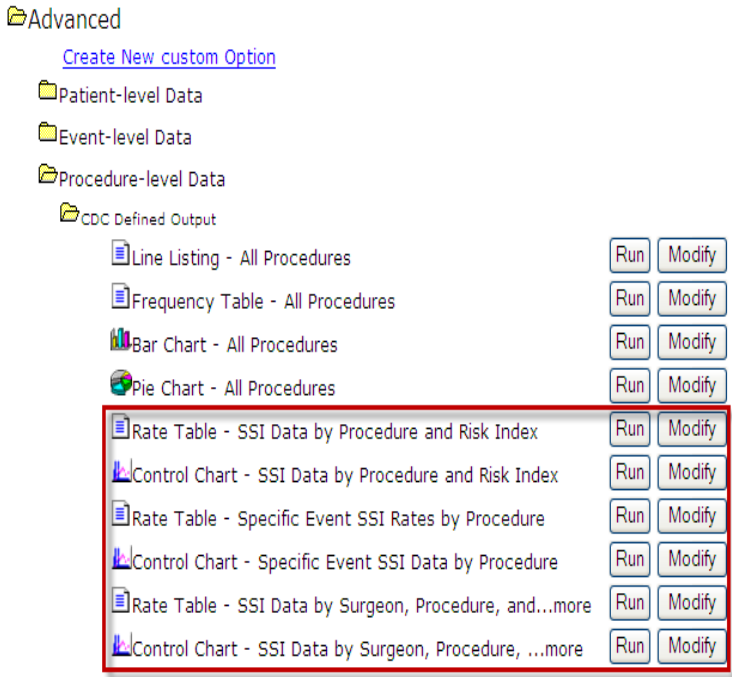
Note that this can also be interpreted as a 5.0% risk of infection for Patient 1.

The probability of SSI is calculated for each patient and then summed to give the expected number of SSIs for this population.

This table represents a partial list of 100 hypothetical patients who have undergone this particular procedure, and the risk factors present for each.

Patient	Age	Duration	ASA	Medical School Aff.	SSI	Probability of SSI
1	40	117	4	Y	0	0.050
2	53	95	2	N	0	0.004
3	30	107	2	Y	1	0.033
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
100	37	128	4	Y	1	0.050
				TOTAL	Observed (O) 3	Expected (E) 2.91
SIR= O/E =3/2.91 = 1.03						

Will I still be able to obtain SSI rates from NHSN?



You will still be able to obtain SSI rates, using the legacy basic risk index, within NHSN analysis. These rates have been moved to the "Advanced" section of the output options. Note that while these options are available, you will be able to obtain only your facility's SSI rates; comparison to the previously-published NHSN SSI pooled means will no longer be available.

Where can I find more information?

First State-Specific Healthcare-Associated Infections Summary Data Report CDC's National Healthcare Safety Network (NHSN) January-June, 2009, available at: http://www.cdc.gov/HAI/statesummary.html

2009 NHSN Report, available at: http://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.PDF

For in-depth Analysis Training, please visit: http://www.cdc.gov/nhsn/training.html

For a Basic Analysis Quick Tips guide, please visit: http://www.cdc.gov/nhsn/PDFs/AnalysisBasics.pdf

For questions, please email us at: nhsn@cdc.gov

Appendices A-E: SIR Output and Risk Factor Samples

Appendix A: Sample CLABSI SIR Output

National Healthcare Safety Network

SIR for All Central Line-Associated BSI Data - By OrgID

As of: September 15, 2010 at 12:18 PM

Date Range: CLAB_RATESICU summaryYr 2009 to 2009

Org ID=10018

Org ID	Summary Yr/Half	infCount	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
10018	2009H1	9	7.043	3746	1.28	0.2766	0.667, 2.230

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.

Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805

Data contained in this report were last generated on September 15, 2010 at 12:03 PM.

The first table represents an overall SIR for those locations for which CLABSIs were monitored in your facility during the specified time period(s). In this example, there is an overall SIR for the first half of 2009 (2009H1).

National Healthcare Safety Network

SIR for All Central Line-Associated BSI Data - By OrgID/Location Type

As of: September 15, 2010 at 12:18 PM

Date Range: CLAB_RATESICU summaryYr 2009 to 2009

Org ID=10018

Org ID	locationType	Summary Yr/Half	infCount	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
10018	ICU-OTHER	2009H1	9	7.043	3746	1.28	0.2766	0.667, 2.230

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.

Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805

Data contained in this report were last generated on September 15, 2010 at 12:03 PM.

The second table provides an SIR by location type and the time period(s) specified. The following are location types that may appear in this table: **ICU-OTHER** (all ICUs and Other non-NICU and non-SCA locations), **SCA**, and **NICU**. All locations would be grouped into one of these defined types.

National Healthcare Safety Network

SIR for All Central Line-Associated BSI Data - By OrgID/CDC Location Code

As of: September 15, 2010 at 12:18 PM

Date Range: CLAB_RATESICU summaryYr 2009 to 2009

Org ID=10018

Org ID	CDC Location	Summary Yr/Half	infCount	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
10018	IN:ACUTE:CC:CT	2009H1	4	2.205	1575	1.81	0.1816	0.620, 4.151
10018	IN:ACUTE:CC:CT_PED	2009H1	0	1.036	314	0.00	0.1816	
10018	IN:ACUTE:CC:MS	2009H1	2	1.785	850	1.12	0.5327	0.199, 3.527
10018	IN:ACUTE:CC:S	2009H1	3	1.564	680	1.92	0.2074	0.523, 4.958

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.

Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805

Data contained in this report were last generated on September 15, 2010 at 12:03 PM.

The third table provides an SIR by CDC Location and time period(s) specified. For example, if your facility reported CLABSIs for two Medical ICUs, this table would show one SIR for the two locations represented by that CDC Location designation (IN:ACUTE:CC:M).

National Healthcare Safety Network

SIR for All Central Line-Associated BSI Data - By OrgID/Location

As of: September 15, 2010 at 12:18 PM

Date Range: CLAB_RATESICU summaryYr 2009 to 2009

Org ID=10018

Org ID	Location	Summary Yr/Half	Months	infcount	Number Expected	Central Line Days	SIR	SIR p-value	95% Confidence Interval
10018	22ICU	2009H1	1	0	1.036	314	0.00	.	
10018	71ICU	2009H1	3	4	2.205	1575	1.81	0.1816	0.620, 4.151
10018	ICU	2009H1	3	2	1.785	850	1.12	0.5327	0.199, 3.527
10018	S-ICU	2009H1	3	3	1.564	680	1.92	0.2074	0.523, 4.958

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.

Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.

Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805

Data contained in this report were last generated on September 15, 2010 at 12:03 PM.

The fourth table is the most granular table, as it provides an SIR for each individual location and time period(s) specified. Using the previous example, if your facility reported CLABSIs for two Medical ICUs, each of those locations would have an SIR calculated in this last table.

Appendix B: Sample SSI SIR Output

National Healthcare Safety Network
SIR for All SSI Data by Procedure - By OrgID
As of: October 7, 2010 at 7:23 AM
Date Range: SIR_ALLSSIPROC summaryYr 2009 to 2009
if (((procCode IN ("CBGB", "HPRO", "KPRO"))))

Org ID=10018

Org ID	Summary Yr/Half	Procedure Count	All SSI Model Infection Count	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	2009H1	77	4	1.217	3.29	0.0352	1.123, 7.524
10018	2009H2	347	2	3.413	0.59	0.3373	0.104, 1.845

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: 2006-2008 NHSN SSI Data
Data contained in this report were last generated on October 7, 2010 at 7:20 AM.

The first table represents an overall SIR for those operative procedures for which SSI were monitored in your facility, during the specified time period(s). In this example, there is an overall SIR for the first and second halves of 2009 (2009H1 and 2009H2).

National Healthcare Safety Network
SIR for All SSI Data by Procedure - By OrgID/ProcCode
As of: October 7, 2010 at 7:23 AM
Date Range: SIR_ALLSSIPROC summaryYr 2009 to 2009
if (((procCode IN ("CBGB", "HPRO", "KPRO"))))

Org ID=10018

Org ID	Procedure Code	Summary Yr/Half	Procedure Count	All SSI Model Infection Count	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	CBGB	2009H1	20	3	0.610	.		
10018	CBGB	2009H2	39	2	0.852	.		
10018	HPRO	2009H1	26	1	0.295	.		
10018	HPRO	2009H2	101	0	0.932	.	.	
10018	KPRO	2009H1	31	0	0.312	.	.	
10018	KPRO	2009H2	207	0	1.628	0.00	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: 2006-2008 NHSN SSI Data
Data contained in this report were last generated on October 7, 2010 at 7:20 AM.

The second table provides an SIR by NHSN operative procedure category and the time period(s) specified. The SIRs that appear in this table will group inpatient and outpatient procedures within each category.

National Healthcare Safety Network
SIR for All SSI Data by Procedure - By OrgID/ProcCode/Outpatient
As of: October 7, 2010 at 7:23 AM
Date Range: SIR_ALLSSIPROC summaryYr 2009 to 2009
if (((procCode IN ("CBGB", "HPRO", "KPRO"))))

Org ID=10018

Org ID	Procedure Code	Performed in Outpatient Setting?	Summary Yr/Half	Months	Procedure Count	All SSI Model Infection Count	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	CBGB	N	2009H1	3	20	3	0.610	.		
10018	CBGB	N	2009H2	4	39	2	0.852	.		
10018	HPRO	N	2009H1	1	26	1	0.295	.		
10018	HPRO	N	2009H2	3	101	0	0.932	.	.	
10018	KPRO	N	2009H1	1	31	0	0.312	.	.	
10018	KPRO	N	2009H2	3	207	0	1.628	0.00	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: 2006-2008 NHSN SSI Data
Data contained in this report were last generated on October 7, 2010 at 7:20 AM.

The third table provides an SIR by NHSN operative procedure category and outpatient status, as well as the time period(s) specified. Note that this table will be available only in the "All SSI SIR" output options.

National Healthcare Safety Network
SSI Data Not Included in SIR
As of: October 7, 2010 at 7:23 AM
Date Range: SIR_ALLSSIPROC summaryYr 2009 to 2009
if (((procCode IN ("CBGB", "HPRO", "KPRO"))))

Org ID=10018

Summary Yr/Half	Org ID	Procedure Code	Performed in Outpatient Setting?	Procedure Count	All SSI Model Infection Count
2009H2	10018	HPRO	Y	1	0
2009H1	10018	KPRO	Y	2	1

Source of aggregate data: 2006-2008 NHSN SSI Data
Data contained in this report were last generated on October 7, 2010 at 7:20 AM.

The fourth table provides a count of the number of procedures and SSIs that were excluded from the SIRs above. Note that this will list only those procedures that were excluded from the SIR due to the exclusion criteria. For detailed information on these excluded procedures, you may review the "Line Listing – Incomplete Procedures for SSI SIR" (see Appendix C).

Appendix C: Sample Line List of Procedures Excluded from SIR

Procedures will be excluded from the SIR if they meet any of the following exclusion criteria:

- Missing one or more of the risk factors as defined in Appendix D.
- Procedure duration is <5 minutes or >IQR5, which is defined as five times the interquartile range above the 75th percentile. For example, if the interquartile range is 30 minutes (Q3-Q1) and the 75th percentile is 100 minutes, the IQR5 would be 100 +(5*30) = 250 minutes. Please see Appendix E for a list of IQR5 values for each NHSN Operative Procedure.
- Procedure date is ≤ patient date of birth.
- Patient's age at procedure is ≥ 109 years.
- Wound Class (swClass) = 'U'.
- Approach = 'N' (for FUSN and RFUSN only.)
- Spinal Level = 'N' (for FUSN only.)

TIP: When obtaining a line list of procedures excluded from the SIR, it's best to modify this output option in order to limit to the procedure, time period, and risk factors in question. The example below was limited to CBGB procedures in May, 2010, and includes only those variables of interest to this procedure category.

National Healthcare Safety Network

Line Listing for Incomplete Procedures for SSI SIR

As of: September 28, 2010 at 9:10 AM

Date Range: PROCEDURES procDateYM 2010M05 to 2010M05

Org ID	Patient ID	Procedure ID	all_incomplete	cmpx_incomplete	Procedure Date	Procedure Code	Date of Birth	Gender	ASA Class	Duration of Procedure - hr	Duration of Procedure - min	Number of Beds
10018	MD-123456	22472	Y	N	05/01/2010	CBGB	09/10/1954	F		3	15	467

After reviewing this line list, the following steps are recommended:

1. Obtain the missing information or correct data. In the example above, the ASA class would need to be obtained.
2. Edit the procedure record in NHSN to include this information. Save the edited record.
3. Re-generate datasets.
4. Run the desired SSI SIR output option.

Appendix D: Predictive Risk Factors from the All SSI† Logistic Regression Models

NHSN Operative Procedure‡	Risk Factor(s) – ALL SSIs
AAA	duration
AMP	duration, hospital bed size*
APPY	emergency, gender, hospital bed size*, wound class
AVSD	age
BILI	asa, duration, hospital bed size*
BRST	asa, duration, hospital bed size*
CBGB/C	age, asa, duration, gender, hospital bed size*
CARD	age, asa, duration
CHOL	age, asa, duration, endoscope, wound class
COLO	age, anesthesia, asa, duration, endoscope, medical school affiliation*, hospital bed size*, wound class
CRAN	age, asa, duration, hospital bed size*,trauma
CSEC	age, anesthesia, asa, BMI, duration, emergency, labor, wound class
FUSN	approach, asa, diabetes, duration, medical school affiliation*, spinal level, trauma, wound class
FX	age, asa, duration, hospital bed size*, outpatient
GAST	asa, duration, emergency
HER	age, asa, duration, gender, outpatient
HPRO	age, anesthesia, asa, duration, total/partial/revision, hospital bed size*, trauma
HYST	age, anesthesia, asa, duration, endoscope, hospital bed size*
KPRO	age, anesthesia, asa, duration, gender, revision, hospital bed size*, trauma
KTP	age, asa, duration, hospital bed size*
LAM	anesthesia, asa, duration, endoscope
LTP	age, duration, emergency
NECK	duration
NEPH	duration
OVRY	asa
PRST	duration
PVBY	age, asa, duration, gender, medical school affiliation*
REC	duration, endoscope, gender, wound class
RFUSN	approach, diabetes, duration
SB	duration, hospital bed size*
THOR	duration, hospital bed size*
THYR	age
VHYS	age, asa, duration, medical school affiliation*
VSHN	age, medical school affiliation*, hospital bed size*, wound class
XLAP	age, duration, hospital bed size*

*These risk factors originate from the Patient Safety Annual Facility Survey.

†All SSI = superficial incision, deep incisional, and organ/space SSI detected during admission, readmission, or post-discharge

‡ There were insufficient data for the following procedures in order to detect significant differences in risk, thus overall incidence will be used in the SIR calculations: CEA, HTP, PACE, SPLE.

Appendix D (cont'd.): Predictive Risk Factors from the Complex A/R SSI^ Logistic Regression Models

NHSN Operative Procedure‡	Risk Factor(s) – Complex A/R SSIs^
AAA	duration, wound class
APPY	emergency, gender, hospital bed size*, wound class
AVSD	age
BILI	asa, duration, hospital bed size*
BRST	asa, duration, hospital bed size*
CBGB/C	age, asa, duration, gender, medical school affiliation*, age-gender (interaction)
CARD	age, duration, emergency
CHOL	age, asa, duration, hospital bed size*
COLO	age, asa, duration, endoscope, medical school affiliation*, hospital bed size*, wound class
CRAN	age, duration, hospital bed size*
CSEC	age, anesthesia, asa, BMI, duration, labor, hospital bed size*, wound class
FUSN	approach, asa, diabetes, duration, medical school affiliation*, spinal level
FX	age, duration, hospital bed size*
GAST	age, duration
HER	age, asa, duration, gender, hospital bed size*
HPRO	age, anesthesia, asa, duration, total/partial/revision, medical school affiliation*, hospital bed size*, trauma
HYST	age, asa, duration, hospital bed size*
KPRO	age, asa, duration, gender, revision, medical school affiliation*, hospital bed size*, trauma
KTP	asa, duration
LAM	asa, duration, medical school affiliation*, hospital bed size*
LTP	age, duration
NECK	duration
PVBY	age, asa, duration, medical school affiliation*
REC	duration, gender, hospital bed size*
RFUSN	duration
SB	duration, hospital bed size*
THOR	duration
VHYS	age, duration, medical school affiliation*
VSHN	age, medical school affiliation*, hospital bed size*, wound class
XLAP	duration

*These risk factors originate from the Patient Safety Annual Facility Survey.

^Includes only inpatient procedures and deep incisional and organ/space SSIs identified during admission or readmission to the facility, as defined in the NHSN Manual.

‡ There were insufficient data for the following procedures in order to detect significant differences in risk, thus overall incidence will be used in the SIR calculations: AMP, CEA, HTP, NEPH, OVRY, PACE, PRST, SPLE, THYR.

Appendix E: IQR5 Values, in minutes, for NHSN Operative Procedures

NHSN Operative Procedure	IQR5*	NHSN Operative Procedure (cont'd.)	IQR5*
AAA	827	HYST	479
AMP	334	KPRO	354
APPY	300	KTP	717
AVSD	422	LAM	615
BILI	1290	LTP	1254
BRST	711	NECK	1578
CARD	941	NEPH	923
CBGB	846	OVRY	722
CBGC	895	PACE	303
CEA	425	PRST	835
CHOL	314	PVBY	786
COLO	668	REC	1189
CRAN	929	RFUSN	1165
CSEC	171	SB	760
FUSN	879	SPLE	920
FX	515	THOR	744
GAST	565	THYR	500
HER	342	VHYS	449
HPRO	380	VSHN	309
HTP	1051.5	XLAP	830

*The IQR5 is used as an indicator of an extreme outlier for procedure durations when calculating the SSI SIRs. The IQR5 is calculated as five times the interquartile range (Q1-Q3) above the 75th percentile. For example, if the interquartile range is 30 minutes, and the 75th percentile is 100 minutes, the IQR5 would be calculated as: 100 + (30*5) = 250 minutes. Procedures with a duration greater than the IQR5 were excluded from the baseline data and will be excluded from all SSI SIR calculations for your facility.

Using the "SIR - CLAB Data for CMS IPPS" Output Option

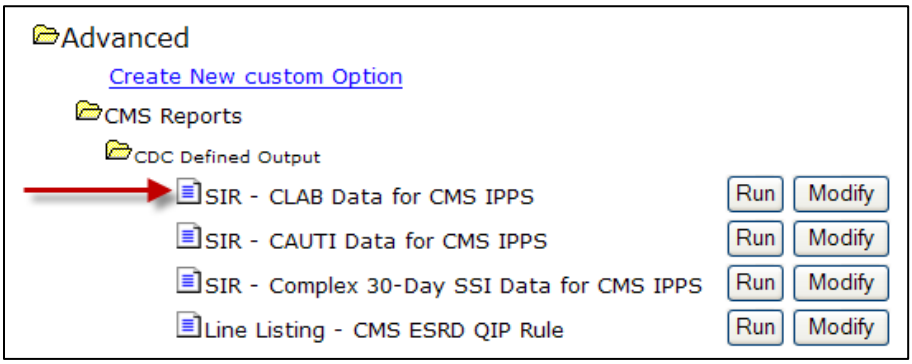
The NHSN Analysis Output Option, "SIR - CLAB Data for CMS IPPS" was created in order to allow facilities to review those data that would be submitted to CMS on their behalf. It's important to keep in mind the following as you begin to use this report:

a. These data will only be submitted for those facilities that are participating in the CMS IPPS Hospital IQR Program, as indicated by their CCN recorded in NHSN.
b. This report will only include **in-plan CLABSI data for each adult, pediatric, and neonatal ICU beginning with 2011 data**. Other locations/earlier years for which you may have reported CLABSI data will not be included in this output.
c. **IMPORTANT!** Beginning with 2012 data, facilities must appropriately **Report No Events** for those locations and months for which no events of each type under surveillance were identified.
d. This output option represents an SIR for each hospital, not each CCN. If your hospital shares a CCN, this SIR will only represent the data that your hospital has contributed to the overall SIR for all hospitals that share the CCN. You may wish to use the Group feature in NHSN to obtain a single SIR for all the hospitals that share a CCN. More information about the Group feature can be found here: http://www.cdc.gov/nhsn/library.html#group .
e. The data in this report will represent data current as of the last time you generated datasets. Note that data in the Provider Participation Report are not updated simultaneously with your data in NHSN. Data changes made in NHSN will be reflected in the next monthly submission to CMS. **EXCEPTION:** Quarterly data are frozen as of the final submission date for that quarter (e.g., Q1 data will be frozen as of 1am ET on August 16th); any changes made to these data in NHSN after the final submission deadline will not be reflected in later months on the Provider Participation Report or on Hospital Compare. If you have specific questions about the data appearing on your APU dashboard, please contact your QIO or the QIOSC at hrpqiosc@iaqio.sdps.org.
f. To learn more about the standardized infection ratio (SIR), including how it is calculated for CLABSI data, please see the SIR Newsletter at: http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf .
g. The information in this document should be used in conjunction with the document, "Helpful Tips for CLABSI Reporting for the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program (CMS Reporting Program)", available at: http://www.cdc.gov/nhsn/PDFs/CMS/Helpful-Tips-for-CLABSI-Reporting.pdf .

Example of the "SIR – CLAB Data for CMS IPPS": Interpretation and Data Checking

Before running this output option, remember to generate your datasets for the most up-to-date data reported to NHSN by your facility! To generate datasets, go to Analysis > Generate Data Sets, then click "Generate New".

1. After selecting Analysis > Output Options, navigate through the following folders: Advanced > CMS Reports > CDC-Defined Output. Click "Run" next to "SIR – CLAB Data for CMS IPPS", as shown below:



2. By default, the results will appear in an HTML window. If a second window does not pop-up, please be sure to check your pop-up blocker and allow pop-ups from *.cdc.gov.

   Within the output, there will be 4 tables, each described below:

   i. SIR CLAB Data for CMS IPPS – **By OrgID**

      The first table represents an overall, single SIR for your facility, per calendar-year quarter, as shown below. This is the information that will be submitted to CMS for each IPPS-participating facility, as indicated by the facility's CCN.

National Healthcare Safety Network
SIR for CLAB Data for CMS IPPS - By OrgID
As of: July 25, 2011 at 8:13 AM
Date Range: CLAB_RATESALL summaryYr After and Including 2011
if (((bsiPlan = "Y") AND (locationType IN ("CC", "CC_N"))))

orgid=10000

orgid	summaryYQ	infCount	numExp	numCLDays	SIR	SIR_pval	SIR95CI
10000	2011Q1	3	3.535	2057	0.849	0.5291	0.175, 2.480
10000	2011Q2	0	0.260	124	.	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
Data contained in this report were last generated on July 25, 2011 at 8:10 AM.

Notice that the SIR will not be calculated if the number of expected infection (numExp) is <1. Using the above table, one can conclude the following:

a. This facility identified 3 CLABSIs (infCount) among 2057 central line days (numCLDays) during the 1st quarter of 2011 (2011Q1).
b. The number of CLABSIs expected (numExp), based on national data, was 3.535.
c. The overall SIR for this facility during this time period is 0.849, indicating that this facility observed approximately 15% fewer infections than expected.
d. Based on the p-value (SIR_pval) and the 95% confidence interval (SIR95CI), the SIR for this facility is not statistically different from 1, indicating that there were not significantly fewer infections identified than were expected.

ii. SIR CLAB Data for CMS IPPS – **By OrgID/Location Type**

The second table provides an SIR for each quarter and location type (e.g., ICU, NICU). "ICU-OTHER" in this table will represent all adult and pediatric ICUs with reported in-plan CLABSI data during each time period; NICU will include all level 2/3 and level 3 neonatal ICUs with reported in-plan CLABSI data during each time period.

National Healthcare Safety Network
SIR for CLAB Data for CMS IPPS - By OrgID/Location Type
As of: July 25, 2011 at 8:13 AM
Date Range: CLAB_RATESALL summaryYr After and Including 2011
if (((bsiPlan = "Y") AND (locationType IN ("CC", "CC_N"))))

orgid=10000

orgid	locationtype	summaryYQ	infCount	numExp	numCLDays	SIR	SIR_pval	SIR95CI
10000	ICU-OTHER	2011Q1	2	2.600	1686	0.769	0.5183	0.093, 2.778
10000	ICU-OTHER	2011Q2	0	0.260	124	.	.	
10000	NICU	2011Q1	1	0.935	371	.	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
Data contained in this report were last generated on July 25, 2011 at 8:10 AM.

The data in this table can be interpreted similar to the first SIR table, described above. Note that this table will allow you to see the how many CLABSIs and device days were reported in each location type, as defined by CDC.

iii. SIR for CLAB Data for CMS IPPS – **By OrgID/CDC Location Code**

The third table provides an SIR for each quarter and CDC location (e.g., adult medical ICU, pediatric medical/surgical ICU). Note that if your facility reports data for more than one location of the same CDC type (for example, 2 medical ICUs), these locations will be grouped into one SIR in this table.

National Healthcare Safety Network
SIR for CLAB Data for CMS IPPS - By OrgID/CDC Location Code
As of: July 25, 2011 at 8:13 AM
Date Range: CLAB_RATESALL summaryYr After and Including 2011
if (((bsiPlan = "Y") AND (locationType IN ("CC", "CC_N"))))

orgid=10000

orgid	loccdc	summaryYQ	infCount	numExp	numCLDays	SIR	SIR_pval	SIR95CI
10000	IN:ACUTE:CC:C	2011Q1	2	0.800	400	.	.	
10000	IN:ACUTE:CC:CT	2011Q1	0	1.800	1286	0.000	0.1652	, 2.049
10000	IN:ACUTE:CC:MS	2011Q2	0	0.260	124	.	.	
10000	IN:ACUTE:CC:NURS	2011Q1	1	0.935	371	.	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
Data contained in this report were last generated on July 25, 2011 at 8:10 AM.

iv. SIR for CLAB Data for CMS IPPS – **By OrgID/Location**

The fourth table provides an SIR for each quarter and individual location within your facility. This is also the only table that will allow you to see how many months of data are included in each location's quarterly SIR.

For example, looking at the CMICU location below, we can see that the "months" column shows a value of 2, indicating that only 2 months of data have contributed to the quarterly SIR for this location. This will indicate that the SIRs in this output option are incomplete and additional data checking is needed.

National Healthcare Safety Network
SIR for CLAB Data for CMS IPPS - By OrgID/Location
As of: July 25, 2011 at 8:13 AM
Date Range: CLAB_RATESALL summaryYr After and Including 2011
if (((bsiPlan = "Y") AND (locationType IN ("CC", "CC_N"))))

orgid=10000

orgid	location	summaryYQ	months	infcount	numExp	numcldays	SIR	SIR_pval	SIR95CI
10000	3 MS	2011Q2	1	0	0.260	124	.	.	
10000	CMICU	2011Q1	2	2	0.800	400	.	.	
10000	CTICU	2011Q1	3	0	1.800	1286	0.000	0.1652	, 2.049
10000	NICU 3	2011Q1	3	1	0.935	371	.	.	

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: NHSN Report, Am J Infect Control 2009;37:783-805
Data contained in this report were last generated on July 25, 2011 at 8:10 AM.

3. What can be done if data are incomplete, as in the CMICU example above, or if the number of infections or central line days is incorrect?
    i. Check that the summary data for this location have been entered for each month in the quarter. This includes central line days and patient days.
    ii. If summary data have been entered, double-check your monthly reporting plan for each month in the quarter. Check to make sure that each location is included in your monthly reporting plan, with the CLABSI box checked.
    iii. If summary data have been entered and no CLABSIs have been identified, be sure to check the 'Report No Events' box on the summary record, next to the Central Line days count.
    iv. If the number of infections is less than you reported *and* you've confirmed that the summary data have been entered in-plan, double check the BSI events in NHSN: if central line is entered as "No", the event is *not* considered a CLABSI and will not appear in this report. Note that you can edit the event with the correct information.

REMEMBER: If you have made any changes to your data, regenerate your datasets in order to review your output options with the most up-to-date data in NHSN.

Using the "SIR – CAUTI Data for CMS IPPS" Output Option

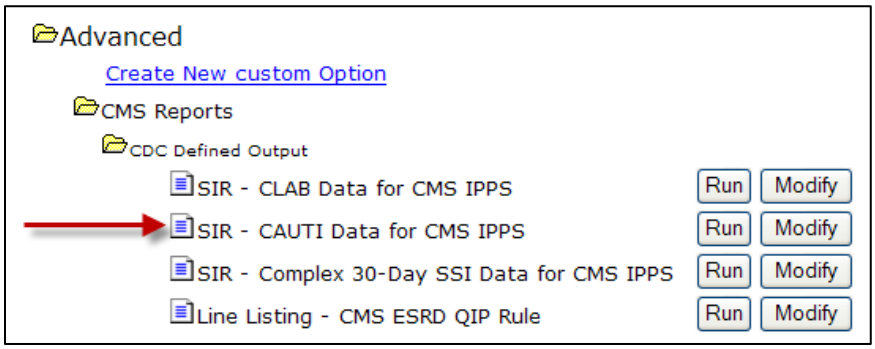
The NHSN Analysis Output Option, "SIR – CAUTI Data for CMS IPPS" was created in order to allow facilities to review those CAUTI data that would be submitted to CMS on their behalf. It's important to keep in mind the following as you begin to use this report:

a. These data will only be submitted for those facilities that are participating in the CMS IPPS Hospital IQR Program, as indicated by their CCN recorded in NHSN.
b. This report will only include **in-plan CAUTI data for each adult and pediatric ICU beginning with 2012 data**. Other locations/earlier years for which you may have reported CAUTI data will not be included in this output.
c. **IMPORTANT!** Beginning with 2012 data, facilities must appropriately **Report No Events** for those locations and months for which no events of each type under surveillance were identified.
d. This output option represents an SIR for each hospital, not each CCN. If your hospital shares a CCN, this SIR will only represent the data that your hospital has contributed to the overall SIR for all hospitals that share the CCN. You may wish to use the Group feature in NHSN to obtain a single SIR for all the hospitals that share a CCN. More information about the Group feature can be found here: http://www.cdc.gov/nhsn/library.html#group .
e. The data in this report will represent data current as of the last time you generated datasets. Note that data in the Provider Participation Report are not updated simultaneously with your data in NHSN. Data changes made in NHSN will be reflected in the next monthly submission to CMS. **EXCEPTION:** Quarterly data are frozen as of the final submission date for that quarter (e.g., Q1 data will be frozen as of 1am ET on August 16th); any changes made to these data in NHSN after the final submission deadline will not be reflected in later months on the Provider Participation Report or on Hospital Compare. If you have specific questions about the data appearing on your APU dashboard, please contact your QIO or the QIOSC at hrpqiosc@iaqio.sdps.org.
f. To learn more about the standardized infection ratio (SIR), including how it is calculated for device-associated data, please see the SIR Newsletter at: http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf .
g. The information in this document should be used in conjunction with the document, **"Helpful Tips for CAUTI Reporting for the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program (CMS Reporting Program)"**, available at: http://www.cdc.gov/nhsn/PDFs/CMS/Helpful-Tips-for-CAUTI-Reporting.pdf

Example of the "SIR – CAUTI Data for CMS IPPS": Interpretation and Data Checking

Before running this output option, remember to generate your datasets for the most up-to-date data reported to NHSN by your facility! To generate datasets, go to Analysis > Generate Data Sets, then click "Generate New".

1. After selecting Analysis > Output Options, navigate through the following folders: Advanced > CMS Reports > CDC-Defined Output. Click "Run" next to "SIR – CAUTI Data for CMS IPPS", as shown below:



2. By default, the results will appear in an HTML window. If a second window does not pop-up, please be sure to check your pop-up blocker and allow pop-ups from *.cdc.gov.

   Within the output, there will be 4 tables, each described below:

   i. SIR CAUTI Data for CMS IPPS – **By OrgID**

   The first table represents an overall, single SIR for your facility, per calendar-year quarter, as shown below. This is the information that will be submitted to CMS for each IPPS-participating facility, as indicated by the facility's CCN.

National Healthcare Safety Network
SIR for CAUTI Data for CMS IPPS - By OrgID
As of: April 2, 2012 at 1:40 PM
Date Range: CAU_RATESICU_SCA summaryYr After and Including 2012
if (((utiPlan = "Y") AND (locationType IN ("CC"))))

orgid=10018

orgid	summaryYQ	infCount	numExp	numucathdays	SIR	SIR_pval	SIR95CI
10018	2012Q1	2	5.573	2538	0.359	0.0840	0.043, 1.296

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
SIR excludes those months and locations where device days are missing.
Source of aggregate data: NHSN Report, Am J Infect Control 2011;39:349-367
Data contained in this report were last generated on April 2, 2012 at 1:36 PM.

Using the above table, one can conclude the following:

a. This facility identified 2 CAUTIs (infCount) among 2538 urinary catheter days (numucathDays) during the 1st quarter of 2012 (2012Q1).
b. The number of CAUTIs expected (numExp), based on national data, was 5.573.
c. The overall SIR for this facility during this time period is 0.359, indicating that this facility observed approximately 66% fewer infections than expected.
d. Based on the p-value (SIR_pval) and the 95% confidence interval (SIR95CI), the SIR for this facility is not statistically different from 1, indicating that there were not significantly fewer infections identified than were expected.

ii. SIR CAUTI Data for CMS IPPS – **By OrgID/Location Type**

The second table provides an SIR for each quarter and location type (e.g., ICU). "ICU-OTHER" in this table will represent all adult and pediatric ICUs with reported in-plan CAUTI data during each time period.

National Healthcare Safety Network
SIR for CAUTI Data for CMS IPPS - By OrgID/Location Type
As of: April 2, 2012 at 1:40 PM
Date Range: CAU_RATESICU_SCA summaryYr After and Including 2012
if (((utiPlan = "Y") AND (locationType IN ("CC"))))

orgid=10018

orgid	locationtype	summaryYQ	infCount	numExp	numucathdays	SIR	SIR_pval	SIR95CI
10018	ICU-OTHER	2012Q1	2	5.573	2538	0.359	0.0840	0.043, 1.296

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
SIR excludes those months and locations where device days are missing.
Source of aggregate data: NHSN Report, Am J Infect Control 2011;39:349-367
Data contained in this report were last generated on April 2, 2012 at 1:36 PM.

The data in this table can be interpreted similar to the first SIR table, described above. Note that this table will allow you to see the how many CAUTIs and device days were reported in each location type, as defined by CDC.

iii. SIR for CAUTI Data for CMS IPPS – **By OrgID/CDC Location Code**

The third table provides an SIR for each quarter and CDC location (e.g., adult medical ICU, pediatric medical/surgical ICU). Note that if your facility reports data for more than one location of the same CDC type (for example, 2 medical ICUs), these locations will be grouped into one SIR in this table.

National Healthcare Safety Network
SIR for CAUTI Data for CMS IPPS - By OrgID/CDC Location Code
As of: April 2, 2012 at 1:40 PM
Date Range: CAU_RATESICU_SCA summaryYr After and Including 2012
if (((utiPlan = "Y") AND (locationType IN ("CC"))))

orgid=10018

orgid	loccdc	summaryYQ	infCount	numExp	numucathdays	SIR	SIR_pval	SIR95CI
10018	IN:ACUTE:CC:C	2012Q1	2	1.760	880	1.136	0.5252	0.138, 4.105
10018	IN:ACUTE:CC:M	2012Q1	0	3.813	1658	0.000	0.0221	, 0.967

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
SIR excludes those months and locations where device days are missing.
Source of aggregate data: NHSN Report, Am J Infect Control 2011;39:349-367
Data contained in this report were last generated on April 2, 2012 at 1:36 PM.

iv. SIR for CAUTI Data for CMS IPPS – **By OrgID/Location**

The fourth table provides an SIR for each quarter and individual location within your facility. This is also the only table that will allow you to see how many months of data are included in each location's quarterly SIR.

For example, looking at the MICU location below, we can see that the "months" column shows a value of 3, indicating that 3 months of data have contributed to the quarterly SIR for this location (as one would expect). If less than 3 months contribute to a quarterly SIR, than this will indicate that the SIRs in this output option are incomplete and additional data checking is needed.

National Healthcare Safety Network
SIR for CAUTI Data for CMS IPPS - By OrgID/Location
As of: April 2, 2012 at 1:40 PM
Date Range: CAU_RATESICU_SCA summaryYr After and Including 2012
if (((utiPlan = "Y") AND (locationType IN ("CC"))))

orgid=10018

orgid	location	summaryYQ	months	infcount	numExp	numucathdays	SIR	SIR_pval	SIR95CI
10018	5G	2012Q1	3	2	1.760	880	1.136	0.5252	0.138, 4.105
10018	MICU	2012Q1	3	0	3.813	1658	0.000	0.0221	, 0.967

If infCount in this table is less than you reported, aggregate data are not available to calculate numExp.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
SIR excludes those months and locations where device days are missing.
Source of aggregate data: NHSN Report, Am J Infect Control 2011;39:349-367
Data contained in this report were last generated on April 2, 2012 at 1:36 PM.

3. What can be done if data are incomplete or if the number of infections or urinary catheter days is incorrect?
   i. Check that the summary data for this location have been entered for each month in the quarter. This includes urinary catheter days and patient days.
   ii. If summary data have been entered, double-check your monthly reporting plan for each month in the quarter. Check to make sure that each location is included in your monthly reporting plan, with the CAUTI box checked.
   iii. If summary data have been entered and no CAUTIs have been identified, be sure to check the 'Report No Events' box on the summary record, next to the Urinary Catheter days count.
   iv. If the number of infections is less than you reported *and* you've confirmed that the summary data have been entered in-plan, double check the UTI events in NHSN: if urinary catheter is entered as "NEITHER", the event is *not* considered a CAUTI and will not appear in this report. Note that you can edit the event with the correct information, if necessary.

REMEMBER: If you have made any changes to your data, regenerate your datasets in order to review your output options with the most up-to-date data in NHSN.

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Using the "SIR – Complex 30-Day SSI Data for CMS IPPS" Output Option

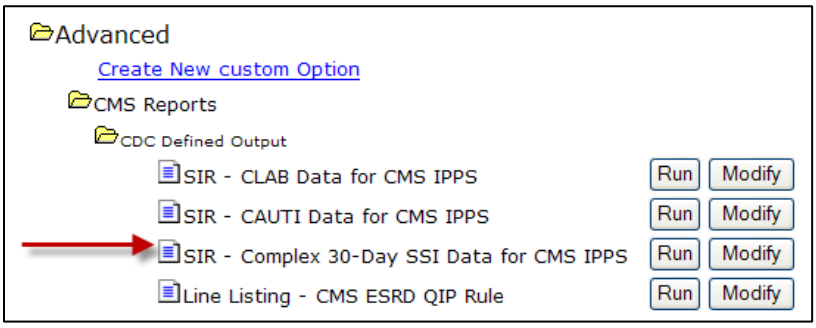
The NHSN Analysis Output Option, "SIR – Complex 30-Day SSI Data for CMS IPPS" was created in order to allow facilities to review those SSI data that would be submitted to CMS on their behalf. It's important to keep in mind the following as you begin to use this report:

a. These data will only be submitted for those facilities that are participating in the CMS IPPS Hospital IQR Program, as indicated by their CCN recorded in NHSN.
b. While facilities performing SSI surveillance for COLO and HYST must report to NHSN all types of SSIs identified from all COLO and HYST procedures performed, this report will only include the following SSI and procedure data beginning with procedures performed on or after January 1, 2012, per the CMS requirements:
    i. In-plan, inpatient COLO and HYST procedures in adult patients (i.e., ≥ 18 years of age at the time of the procedure)
    ii. Deep incisional primary and organ/space SSIs with an event date (i.e., identified) within 30 days of the operative procedure
c. **IMPORTANT!** Beginning with 2012 data, facilities must appropriately **Report No Events** for those procedures and months for which no SSIs were identified.
d. This output option represents SIRs for each hospital, not each CCN. If your hospital shares a CCN, the SIRs will only represent the data that your hospital has contributed to the overall SIR for all hospitals that share the CCN. You may wish to use the Group feature in NHSN to obtain a single SIR for all the hospitals that share a CCN. More information about the Group feature can be found here: http://www.cdc.gov/nhsn/library.html#group .
e. The data in this report will represent data current as of the last time you generated datasets. Note that data in the Provider Participation Report are not updated simultaneously with your data in NHSN. Data changes made in NHSN will be reflected in the next monthly submission to CMS. **EXCEPTION:** Quarterly data are frozen as of the final submission date for that quarter (e.g., Q1 data are frozen as of 1am ET on August 16th); any changes made to these data in NHSN after the final submission deadline will not be reflected in later months on the Provider Participation Report or on Hospital Compare. If you have specific questions about the data appearing on your APU dashboard, please contact your QIO or the QIOSC at hrpqiosc@iaqio.sdps.org.
f. To learn more about the standardized infection ratio (SIR), including how it is calculated for SSI data, please see the SIR Newsletter at: http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf .
g. The information in this document should be used in conjunction with the document, **"Helpful Tips for SSI Reporting for the Centers for Medicare and Medicaid Services' Hospital Inpatient Quality Reporting Program (CMS Reporting Program)",** available at: http://www.cdc.gov/nhsn/PDFs/CMS/Helpful-Tips-for-SSI-Reporting.pdf

Example of the "SIR – Complex 30-Day SSI Data for CMS IPPS": Interpretation and Data Checking

Before running this output option, remember to generate your datasets for the most up-to-date data reported to NHSN by your facility! To generate datasets, go to Analysis > Generate Data Sets, then click "Generate New".

1. After selecting Analysis > Output Options, navigate through the following folders: Advanced > CMS Reports > CDC-Defined Output. Click "Run" next to "SIR – Complex 30-Day SSI Data for CMS IPPS", as shown below:



2. By default, the results will appear in an HTML window. If a second window does not pop-up, please be sure to check your pop-up blocker and allow pop-ups from *.cdc.gov.

   Within the output, there will be up to 2 tables, each described below:

   i. SIR for Complex 30-Day SSI Data for CMS IPPS – By OrgID/ProcCode

   The first table represents 2 SIRs for your facility (one for COLO and one for HYST), per calendar-year quarter, as shown below. This is the information that will be submitted to CMS for each IPPS-participating facility, as indicated by the facility's CCN.

National Healthcare Safety Network
SIR for Complex 30-Day SSI Data for CMS IPPS by Procedure - By OrgID/ProcCode
As of: April 3, 2012 at 2:33 PM
Date Range: All SIR_COMPLEX30DSSIPROC

orgid=10541

orgid	proccode	summaryYQ	procCount	infCountComplex30d	numExpComplex30d	SIRComplex30d	SIRComplex30d_pval	SIRComplex30d95CI
10541	COLO	2012Q1	504	4	13.532	0.296	0.003	0.081, 0.757
10541	HYST	2012Q1	386	3	2.45	1.224	0.443	0.253, 3.578

Includes in-plan, inpatient COLO and HYST procedures in patients >=18 years of age.
Includes SSIs with an event date within 30 days of the procedure date.
Excludes all Superficial Incisional SSIs and Deep Incisional Secondary (DIS) SSIs.
Lower bound of 95% Confidence Interval only calculated if infCount > 0. SIR values only calculated if numExp >= 1.
Source of aggregate data: 2006-2008 NHSN SSI Data
Data contained in this report were last generated on April 3, 2012 at 2:30 PM.

Using the above table, one can conclude the following:

a. This facility identified 4 SSIs (infCountComplex30d) among 504 COLO procedures (procCount) during the 1st quarter of 2012 (2012Q1).
b. The number of SSIs expected (numExpComplex30d), based on national data, was 13.532.
c. The SIR for COLO procedures during this time period is 0.296, indicating that this facility observed approximately 70% fewer SSIs than expected.
d. Based on the p-value (SIRComplex30d_pval) and the 95% confidence interval (SIRComplex30d95CI), the SIR for COLO procedures in this facility is statistically different from 1, indicating that there were significantly fewer SSIs identified than were expected.

ii. Incomplete Procedures Not Included in SIR

The second table provides a count of the number of procedures and SSIs that were excluded from the SIRs above. Note that this will list only those procedures that were excluded from the SIR due to either incomplete data or those meeting the exclusion criteria for SSI SIRs.

3. What can be done if data are incomplete, missing, or if the number of infections or procedures is incorrect?
   i. Check that all procedure records for the operative procedure category have been entered for each month in the quarter.
   ii. If all procedures have been entered, double-check your monthly reporting plan for each month in the quarter. Check to make sure that each procedure category (COLO and HYST) is included in your monthly reporting plan for INPATIENT SSI surveillance.
   iii. If all procedures have been entered and no SSIs have been identified, make sure that you have checked "Report No Events" for SSIs for that month and procedure category on the 'Missing PA Events' tab of the Alerts screen.

REMEMBER: If you have made any changes to your data, regenerate your datasets in order to review your output options with the most up-to-date data in NHSN.

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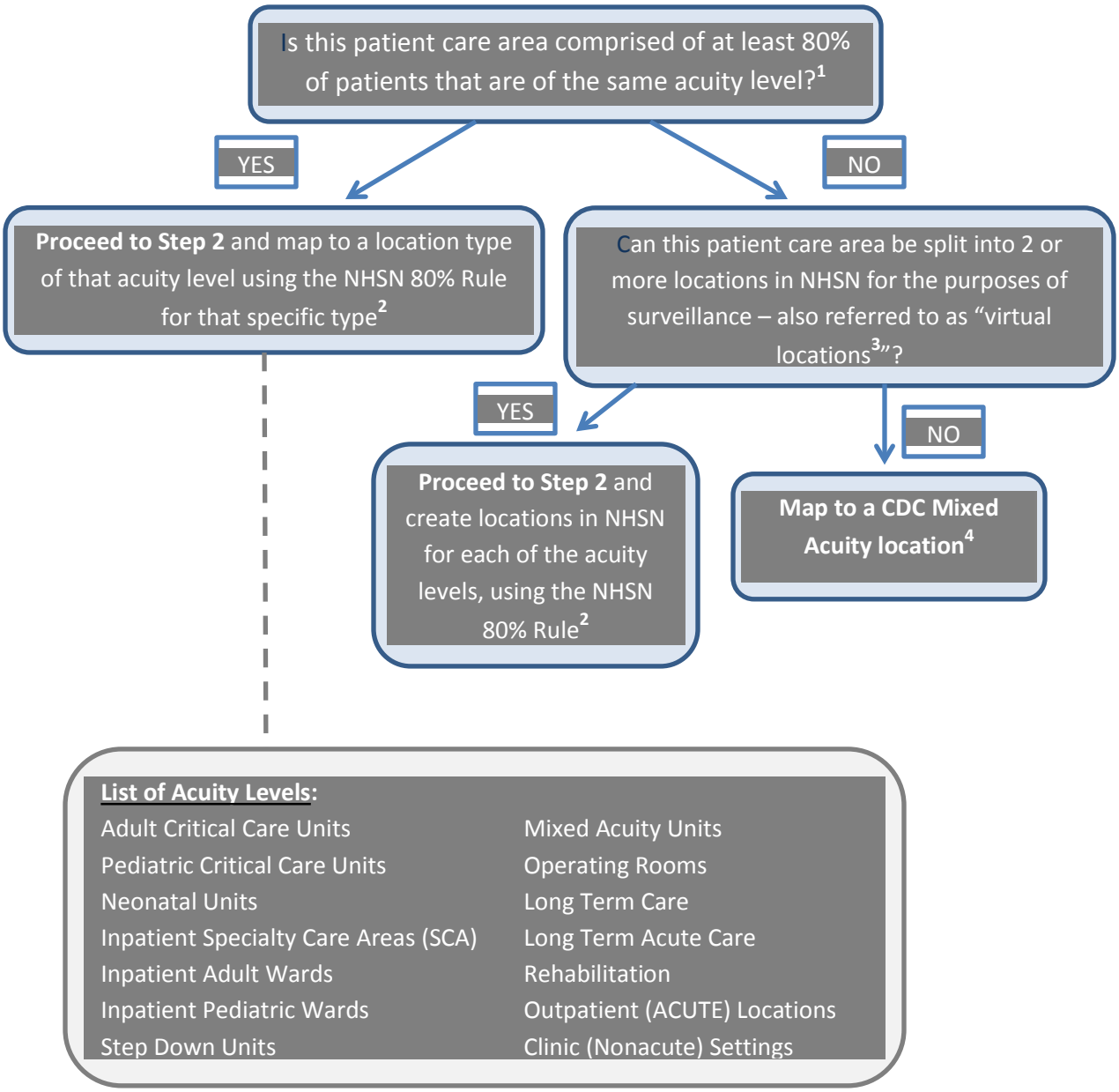
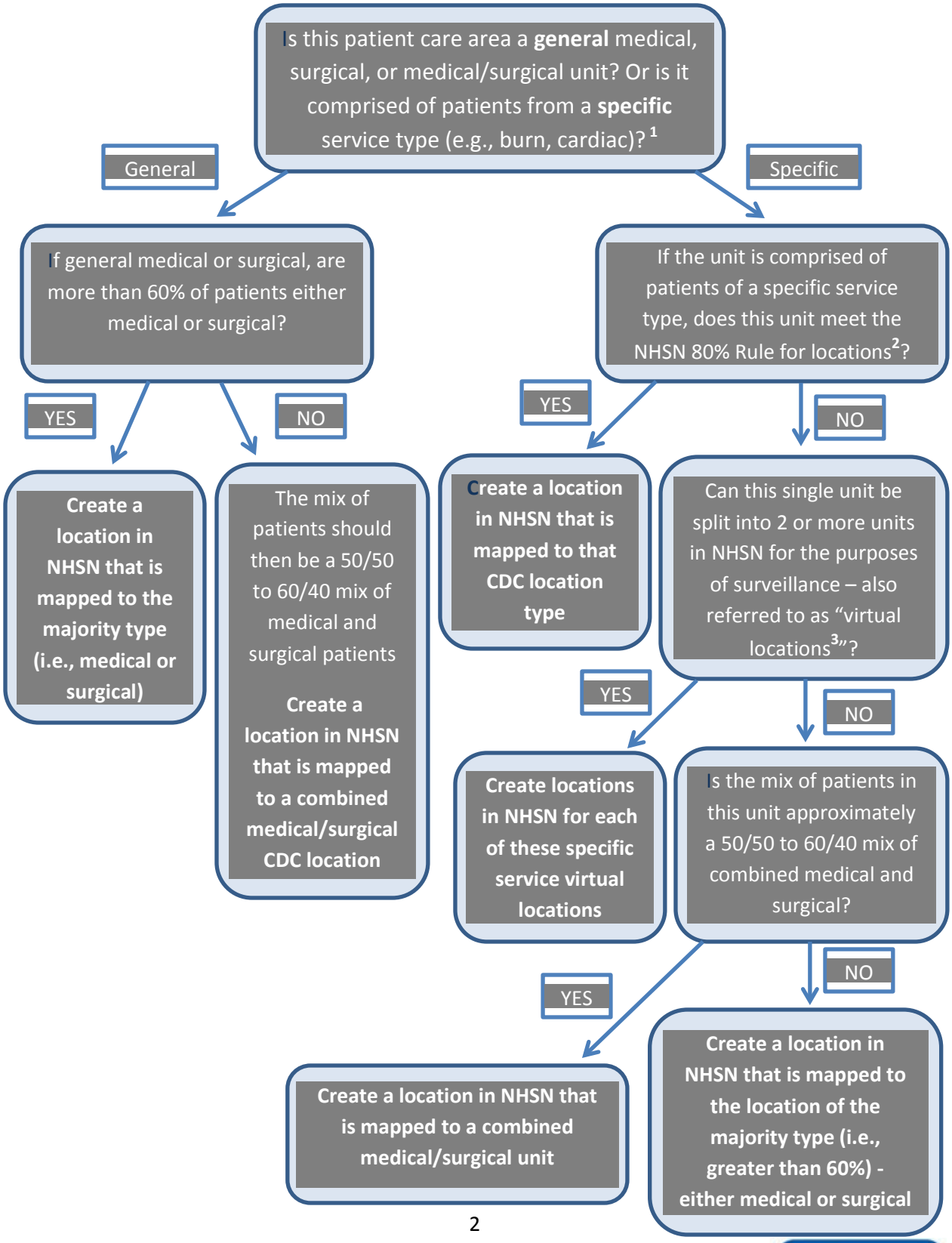
Instructions for Mapping Patient Care Locations in NHSN

NHSN requires that facilities map each patient care area in their facility to one or more locations as defined by NHSN in order to report surveillance data collected from these areas. This document functions as a decision-making tool when determining the appropriate CDC location for NHSN surveillance, as defined in the NHSN Manual. This process should be followed when adding any new unit to NHSN for surveillance and should be repeated for any unit when there has been a significant change in patient mix (e.g., merging of units, taking on a new service).

Step 1: Define the acuity level for the location



Step 2: Define the type of service for the location



Please see the CDC Location descriptions listed in this document for definitions of each CDC Location used for NHSN surveillance.

1. Patient mix: When determining the appropriate CDC Location mapping for a unit, facilities should review the patient mix in that unit for the last full calendar year. If a full year is not available, facilities should review patient mix based on the data they have available for that unit.

2. NHSN 80% Rule: Each patient care area in a facility that is monitored in NHSN is "mapped" to one or more CDC Locations. The specific CDC Location code is determined by the type of patients cared for in that area according to the 80% Rule. That is, if 80% of patients are of a certain type (e.g., pediatric patients with orthopedic problems) then that area is designated as that type of location (in this case, an Inpatient Pediatric Orthopedic Ward).

3. Virtual locations: Virtual locations are created in NHSN when a facility is unable to meet the 80% rule for location designation in a single physical unit but would like to report their NHSN surveillance data for each of the major, specific patient types in that unit. For example, a facility has an ICU – called 5 West – that is comprised of approximately 50% neurology patients and 50% neurosurgery patients. Rather than map as a medical/surgical critical care unit, the facility decides to create 2 new locations in NHSN:

5WEST_N: Neurologic Critical Care
5WEST_NS: Neurosurgical Critical Care

This facility will collect and enter data for 5WEST_N and 5WEST_NS separately. The facility will also to be able to obtain rates and standardized infection ratios (SIRs) for each location separately. The option of creating virtual locations may be easier for those physical units that are geographically split by patient service or those in which beds are designated by service. For those facilities that use an electronic source for collecting their data, we recommend that you discuss compatibility of virtual locations in NHSN with your facility's EHR contact prior to reporting data for these locations.

4. Mixed Acuity Unit: This location is intended for those units comprised of patients with varying levels of acuity. Because of the varying range of risk in mixed acuity units, CDC does not have plans to publish national pooled mean rates for this location type. Therefore, if your facility chooses to use this location designation for reporting, you will not be able to compare your mixed acuity unit rates to an NHSN pooled mean, nor will these data be included in any SIR analyses.

NOTE: Mapping a location in NHSN to the CDC "Mixed Acuity" designation may have implications on data that your facility reports for the CMS Hospital Inpatient Quality Reporting Program and/or your state's reporting mandate(s). Although a Mixed Acuity location may have ICU beds and ICU patients, it is not considered an ICU location type for the purposes of NHSN reporting and therefore, would not be included in any ICU-specific reporting requirements. For information about how this location designation may impact your facility's compliance with CMS HAI reporting measures, please contact your Quality Improvement Organization (QIO). For information about how this location designation may impact your facility's compliance with your state mandate (if applicable), please contact your state HAI coordinator: http://www.cdc.gov/HAI/state-based/index.html .

Examples

Example 1: An ICU that is 85% Burn patients, 15% Trauma

CDC Location: Burn Critical Care (IN:ACUTE:CC:B)

Why? Meets 80% rule for critical care acuity level and 80% rule for specific service (burn)

Example 2: An ICU that is 55% medical and 45% Surgical

CDC Location: Medical/Surgical Critical Care (IN:ACUTE:CC:MS)

Why? Meets 80% rule for critical care acuity level and does not meet the 60% rule for designation as either medical or surgical service level alone, therefore, use combined medical/surgical designation

Example 3: An ICU that is 40% Neurosurgical, 40% Surgical, and 20% Medical

Option 1 - Single CDC Location: Surgical Critical Care

Why? Meets 80% rule for critical care acuity level and does not meet the 80% rule for a specific service level alone, but when surgical patients are combined, that total does equal 80%.

Option 2 - Multiple CDC Virtual Locations: Neurosurgical Critical Care and Surgical Critical Care, with the medical patients reported with the Surgical Critical Care location since the general surgical designation is the least specific of the two

Why? By splitting this unit into 2 virtual locations, each meets the 80% rule for critical care acuity level and one meets the 80% rule for designation as Neurosurgical Critical Care, while the other meets the 60% rule as general surgical service (when combining surgical and medical patients).

Example 4: A unit that is comprised of 60% Medical ICU and 40% Step-Down patients

Option 1 - Single CDC Location: Mixed Acuity Unit

Why? This location is not comprised of at least 80% of the patients of the same acuity level and therefore meets the single location definition of a mixed acuity unit. Note that this location is not considered an ICU location type for the

purposes of NHSN reporting and therefore, would not be included in any ICU-specific reporting requirements.

Option 2 - Multiple CDC Virtual Locations: Medical Critical Care and Step-Down Unit

Why? By splitting this unit into 2 virtual locations, each meets the 80% rule for the appropriate acuity level and each meets the 80% rule for type of service.

Example 5: A pediatric ward that is comprised of 70% neurosurgical patients and 30% orthopedic patients

Option 1 - Single CDC Location: Pediatric Surgical Ward

Why? Meets 80% rule for ward-level acuity and does not meet the 80% rule for a specific service level alone, but meets the 60% rule for general surgical service.

Option 2 - Multiple CDC Virtual Locations: Pediatric Neurosurgical Ward and Pediatric Orthopedic Ward

Why? By splitting this unit into 2 virtual locations, each meets the 80% rule for the appropriate acuity level and each meets the 80% rule for type of service.

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Appendix D

NHSN Surveillance Changes January, 2013

SURGICAL SITE INFECTION SURVEILLANCE:

1) The definition of primary closure will be changed to include procedures where devices remain extending through the incision at the end of the surgical procedure. New terminology:
    i) "*NOTE: Primary closure is defined as closure of all tissue levels, regardless of the presence of wires, wicks, drains, or other devices or objects extruding through the incision. However, if there is nothing extruding from the incision but the skin edges are not fully reapproximated for the entire length of the incision (e.g., is loosely closed with gaps between suture/staple points), the incision is not considered primarily closed and therefore the procedure would not be considered an operation. In such cases, any subsequent infection would not be considered an SSI, although it may be an HAI if it meets criteria for another specific infection site (e.g., skin or soft tissue infection)."
2) NHSN will no longer collect information on "implants" utilized during operative procedures as part of surgical site infection surveillance.
3) Duration of SSI surveillance will no longer be determined by presence of surgical implant, nor type of SSI, but instead will be determined by the NHSN Procedure Category only. 30 or 60 day surveillance will be required as follows:
    a) 30-day: AAA, AMP, APPY, AVSD, BILI, CEA, CHOL, COLO, CSEC, GAST, HTP, HYST, KTP, LAM, LTP, NECK, NEPH, OVRY, PRST, REC, SB, SPLE, THOR, THYR, VHYS, XLAP
    b) 90-day: BRST, CARD, CBGB, CBGC, CRAN, FUSN, FX, HER, HPRO, KPRO, PACE, PVBY, RFUSN, VSHN.
4) Deep Incisional SSI and Organ/Space SSI criteria will no longer include the phrase "appears to be
5) "Endoscope" will be referred to as "Scope" on Denominator for Procedure form (57.121) and within NHSN manual.
6) NHSN Principal Operative Procedure Category Selection Lists in SSI manual chapter will be updated to reflect more current NHSN SSI data. Main changes are: COLO will be higher on list than SB in abdominal operations list; will insert CRAN after RFUSN in NS (Spine) operations list; will add RFUSN, FUSN, and LAM to NS (Brain) operations list as follows: VSHN, RFUSN, CRAN, FUSN, LAM.
7) Several specific site criteria for organ/space SSI and for nonsurgical HAI events (as found in Chapter 17 of the NHSN Patient Safety Component Manual) will be updated to change the criterion "Radiographic evidence of infection" to "Imaging testing evidence of infection" and change "Other evidence of infection found on direct exam, during surgery, or by diagnostic tests" to "Other evidence of infection found on direct exam, during invasive procedure, or by diagnostic tests". This will bring the definitions more in line with current diagnostic and treatment practices.
8) If a patient has a documented POA infection* in the organ/space being operated on in the first 2-day period of hospitalization, subsequent continuation of this infection type during the remainder of that hospitalization is not considered an organ/space SSI. However, if SSI becomes evident >2 calendar days after discharge** and within the surveillance period for the operative procedure, it is reportable as an organ/space SSI. If at any time during the surveillance period the incision becomes

involved, report either SI or DI SSI as appropriate. Note: A *Denominator for Procedure* form must still be completed for every procedure performed which is included in the operative procedure category under surveillance, regardless of POA status.
*POA infection: occurs on day of admission or next day and fully meets a CDC/NHSN site-specific infection criterion.
**Day of discharge is Day 1

DEVICE ASSOCIATED INFECTION SURVEILLANCE (CLABSI, CAUTI, VAE)

1) New/Updated Key Terms:

a) Present on Admission (POA): An infection is considered POA if it occurs on the day of admission to the hospital or the next day and fully meets a CDC/NHSN site-specific infection criterion.

b) Healthcare-associated Infection (HAI): An infection is considered an HAI if it occurs on or after the 3rd hospital day and meets a CDC/NHSN site-specific infection criterion. The onset of the HAI (e.g. fever) may occur during the initial 2-day period of hospitalization as long as the infection criterion is not fully met during that period.

c) Device-associated Infection: An infection is considered device-associated if the device has been in place for > 2 calendar days and meets a CDC/NHSN site-specific infection criterion. The onset of the infection (e.g. fever) may occur during the initial 2-day period of device placement as long as the infection criterion is not fully met during that period. Infections occurring on Day 1 or 2 following device discontinuation, with day of discontinuation = Day 1, are device-associated infections.

d) Transfer Rule: If an HAI develops ≤ 2 calendar days of transfer from one inpatient location to another in the same facility, it is attributed to the transferring location (i.e., it occurs on the day of transfer or the next day). Likewise, if an HAI develops ≤ 2 calendar days of transfer from one inpatient facility to another, it is attributed to the transferring facility. Receiving facilities should share information about such HAIs with the transferring facility to enable reporting. Day of transfer = Day 1

2) Discontinuation of Ventilator-associated Pneumonia (VAP) Surveillance in Adults:

a) Ventilator-associated Events (VAE) surveillance will replace VAP surveillance in patients ≥ 18 years of age.