

Evaluating Entered Data for Completeness, Consistency and Accuracy

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NHSN Training Course
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Outline

- ❑ **Discuss the importance of data quality**
- ❑ **Demonstrate the use of NHSN Analysis Options to review quality of reported data**
- ❑ **Review NHSN Alerts and how they impact your data**
- ❑ **Discuss reasons data may be excluded from SIRs**
 - Helpful troubleshooting steps for SIRs
- ❑ **Tips for investigating HAI data posted on Hospital Compare**

The Importance of Data Quality

- ❑ **Data entered into NHSN are used for national, aggregate analyses published in CDC annual reports**
 - *May also be used by your state health department or your hospital's corporation
- ❑ **In order for risk adjustment to be applied correctly, data must be reported accurately and collected according to NHSN protocols. Includes:**
 - Annual surveys
 - Denominator/Summary data
 - Events
- ❑ **Important to regularly check and confirm data accuracy**
- ❑ **Inaccurately reported data will result in incorrect SIRs posted to Hospital Compare!**

Annual Surveys

- ❑ **Completed at the beginning of every year, due March 1st**
- ❑ **Variables from the hospital survey are used for risk adjustment:**
 - Total bed size
 - Medical School Affiliation/Teaching status
- ❑ **Ensure accuracy!! Review and edit your survey if needed**
- ❑ **If survey data are incorrect, your SIRs will not be properly adjusted**
 - May also impact the rate benchmark for certain locations

Annual Survey Instructions:

Hospital -http://www.cdc.gov/nhsn/forms/instr/57_103-TOI.pdf

Long term Acute Care-<http://www.cdc.gov/nhsn/forms/instr/TOI-57.150-LTAC.pdf>

Rehab-<http://www.cdc.gov/nhsn/forms/instr/TOI-57.151-IRF.pdf>

Data Comparison, *C.difficile* SIR 240 beds vs. 270 beds

National Healthcare Safety Network SIR - CDI FacwideIN LabID Data

As of: May 1, 2014 at 4:35 PM
Date Range: All LABID_RATESCDIF

Number of beds = 240
Number expected = 26.410
SIR = 1.098

orgID	location	summaryYQ	months	CDIF_facIncHOCcount	numExpCDI	numpatdays	SIR	SIR_pval	sir95ci
10018	FACWIDEIN	2013Q4	3	29	26.410	42297	1.098	0.5992	0.749, 1.557

National Healthcare Safety Network SIR - CDI FacwideIN LabID Data

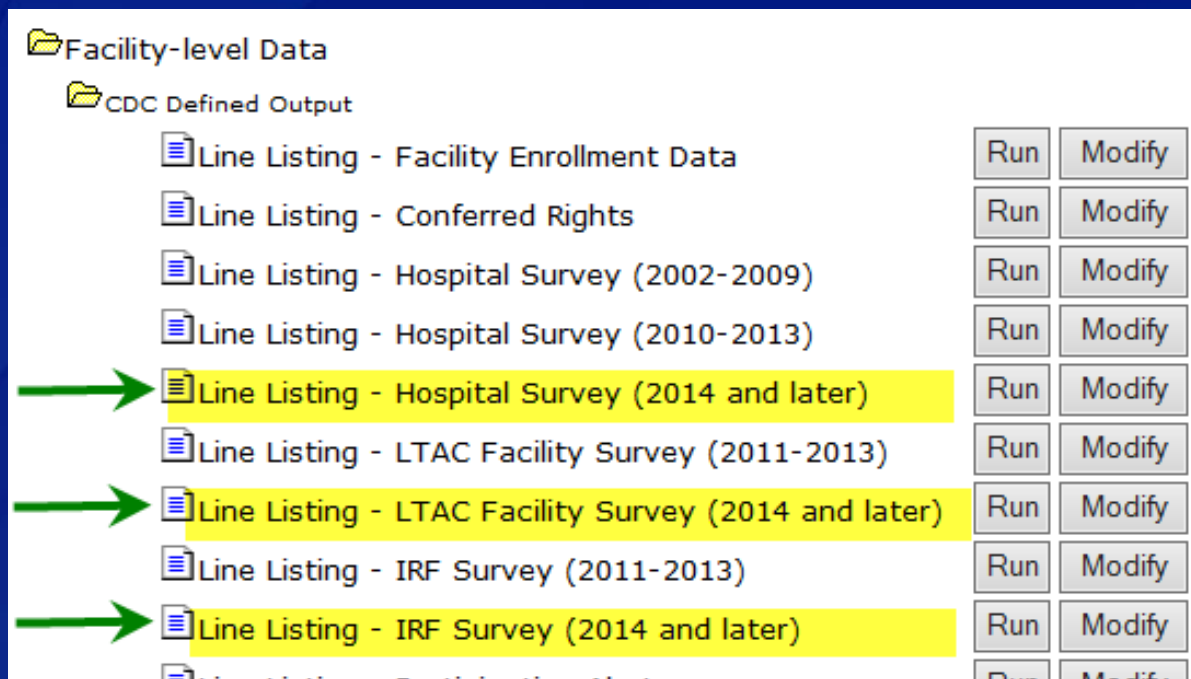
As of: May 1, 2014 at 4:30 PM
Date Range: All LABID_RATESCDIF

Number of beds = 270
Number expected = 36.004
SIR = 0.805

orgID	location	summaryYQ	months	CDIF_facIncHOCcount	numExpCDI	numpatdays	SIR	SIR_pval	sir95ci
10018	FACWIDEIN	2013Q4	3	29	36.004	42297	0.805	0.2399	0.550, 1.142

Where to Find Survey Data in NHSN Analysis

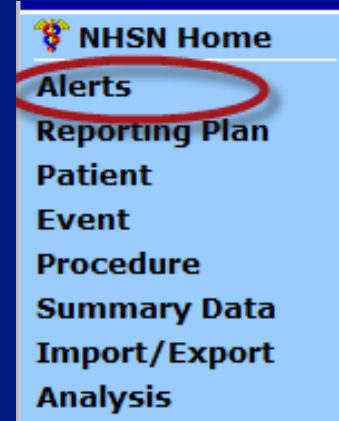
- ❑ Survey line list options are available in **Advanced > Facility-level Data > CDC Defined Output**
- ❑ Separate line list options for each facility type and time period
- ❑ Groups (e.g., QIOs, State Health Depts.)



ALERTS

General Alerts Guidance

- ❑ Alerts were created to ensure accurate and complete data entry in accordance with NHSN protocols
- ❑ An alert indicates incomplete or missing data
 - Rates and SIRs only calculated for “complete” months of data with no outstanding alerts
- ❑ Appear on the Home Page for each user
- ❑ Alerts are generated for in-plan data only



NHSN Patient Safety Component Home Page

Use the Navigation bar on the left to access the features of the application.

Action items

You must complete these items.

- Confer rights [not accepted](#)
- A survey is required for [2013](#)

Alerts

- You have [42](#) missing events
- You have [14](#) incomplete summary items
- You have [16](#) missing summary items
- You have [1](#) incomplete procedure
- You have [39](#) missing procedures
- You have [15](#) missing Procedure-associated events

General Alerts Guidance

Incomplete/Missing List

Incomplete Events	Missing Events	Incomplete Summary Data	Missing Summary Data	Incomplete Procedures	Missing Procedures	Missing Procedure-associated Events	Unusual Susceptibility Profile
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- ❑ **Clicking on any alert will take you to the Incomplete/Missing List**
- ❑ **Each type of alert has its own tab**
 - Incomplete/missing events
 - Incomplete/missing summary data
 - Incomplete/missing procedures
 - Event with an unusual antibiotic susceptibility profile
- ❑ **Starting in 2015, an alert will be generated if both summary data AND events are missing for any month in which that event type is specified in the monthly reporting plan**

Missing Events

Incomplete/Missing List

Incomplete Events	Missing Events	Incomplete Summary Data	Missing Summary Data	Incomplete Procedures	Missing Procedures	Missing Procedure-associated Events	Unusual Susceptibility Profile
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- ❑ **You will see this alert for:**
 - Months in which surveillance of the device-associated or MDRO/CDI modules were indicated in the monthly reporting plan, but no events have been entered
 - Months in which CLIP is listed on the monthly reporting plan, but no CLIP events have been reported
- ❑ **Until the alert is cleared, data for this month/location/event will be excluded from rate and SIR calculations**

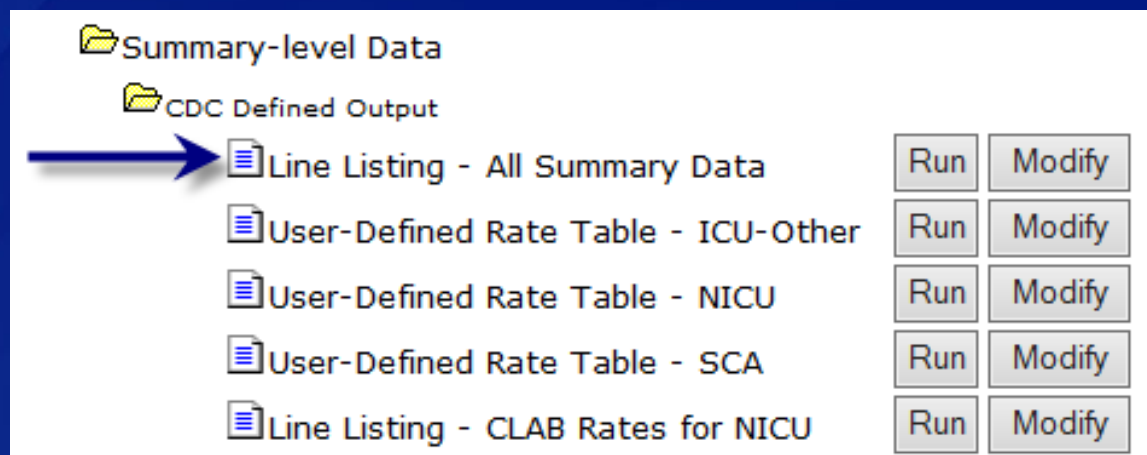
How To Clear the Missing Events Alert

- ❑ If events were identified in the facility, enter them into NHSN
- ❑ If no events were identified, check the “Report No Events” box
 - For CLIP surveillance: use “no events” box to indicate no insertions
- ❑ If surveillance of this event type was not performed in this location, remove from the monthly reporting plan

Incomplete Events	Missing Events	Incomplete Summary Data	Missing Summary Data	Incomplete Procedures	Missing Procedures	
First Previous Next Last						
Location	CDC Location	Month/Year	Alert Type	Event Type/	Summary Data Form Type	Report No Events
1098REHABW	IN:ACUTE:WARD:REHAB	10/2014	Missing in-plan events	CLIP	N/A	<input type="checkbox"/>
5G	IN:ACUTE:CC:C	10/2014	Summary but no events	CLABSI	DA-ICU/Other	<input type="checkbox"/>
5G	IN:ACUTE:CC:C	10/2014	Summary but no events	CAUTI	DA-ICU/Other	<input type="checkbox"/>

Groups Can View a Facility's Completion of Alerts Using the Summary Data Line List

- ❑ Can be used to review denominator data for each facility/month/location
- ❑ This is the only analysis report that includes "No Event" variables for device-associated and LabID monthly data
- ❑ Available in Advanced → Summary-level Data → CDC Defined Output



“No Events” on the Summary Data Line List

National Healthcare Safety Network Line Listing for All Summary Data

As of: December 29, 2014 at 3:33 PM

Date Range: PSSUMMARY summaryYM 2014M01 to 2014M01

orgid	summaryYM	summarytype	location	loccdc	eventtype	numpatdays	numddays	modifyDate	noEvents
10401	2014M01	ICU	2N	IN:ACUTE:WARD:REHAB	CAU	164	36	08DEC14:09:16	
10401	2014M01	ICU	2N	IN:ACUTE:WARD:REHAB	CLAB	164	28	08DEC14:09:16	Y

□ If **noEvents** =

- **Y** : then the facility identified **0 events** and checked “no events” box
 - **N** : then the facility reported ≥ 1 event
 - **Blank** : then the facility did not report an event AND they have not checked “Report No Events”; facility has NOT cleared the alert and the month/location would be excluded from rates and SIRs.
- This line list can also include helpful variables such as “modifyDate”

Alert for an Unusual Susceptibility Profile

- ❑ New alert - began in July 2014
- ❑ Highlights reporting of an epidemiological significant pathogen, prompts infection control interventions and assists with data cleaning
- ❑ User will be notified when unusual susceptibility profiles are entered into NHSN for in-plan events
- ❑ Will be notified immediately after saving the event

Pathogens [HELP](#)

Pathogen 1: *Klebsiella pneumoniae* - KP 21 drugs required

* AMK <input type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input checked="" type="radio"/> N	* AMP <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N	* CEFOX <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N	CTET <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* CIPRO <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	LEVO <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N	MOXI <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N
* COL <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> N	PB <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> N	* DORI <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N	MERO <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* DOXY <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	MINO <input type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input checked="" type="radio"/> N	TETRA <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N
* AMPSUL <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	AMXCLV <input type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input checked="" type="radio"/> N	* CEFOT <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	CEFTRX <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* AZI <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* CEFAZ <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N	* CEFEP <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I/S-DD <input type="radio"/> N
* CEFTAZ <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N	* CEFUR <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* ERTA <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* GENT <input type="radio"/> S <input type="radio"/> R <input checked="" type="radio"/> I <input type="radio"/> N	* IMI <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* PIPTAZ <input checked="" type="radio"/> S <input type="radio"/> R <input type="radio"/> I <input type="radio"/> N	* TIG <input type="radio"/> S <input checked="" type="radio"/> R <input type="radio"/> I <input type="radio"/> N

Unusual Susceptibility Profiles

Carbapenem resistant Enterobacteriaceae

Carbapenem intermediate or resistant *Acinetobacter baumannii*,
Pseudomonas aeruginosa

Highly Drug Resistant * Enterobacteriaceae, *Pseudomonas aeruginosa*,
Acinetobacter baumannii

Colistin/Polymyxin B resistant *Acinetobacter baumannii*, *Pseudomonas aeruginosa*

Daptomycin non-susceptible and Linezolid resistant *Enterococcus* spp.

Vancomycin resistant *Staphylococcus aureus* (VRSA)

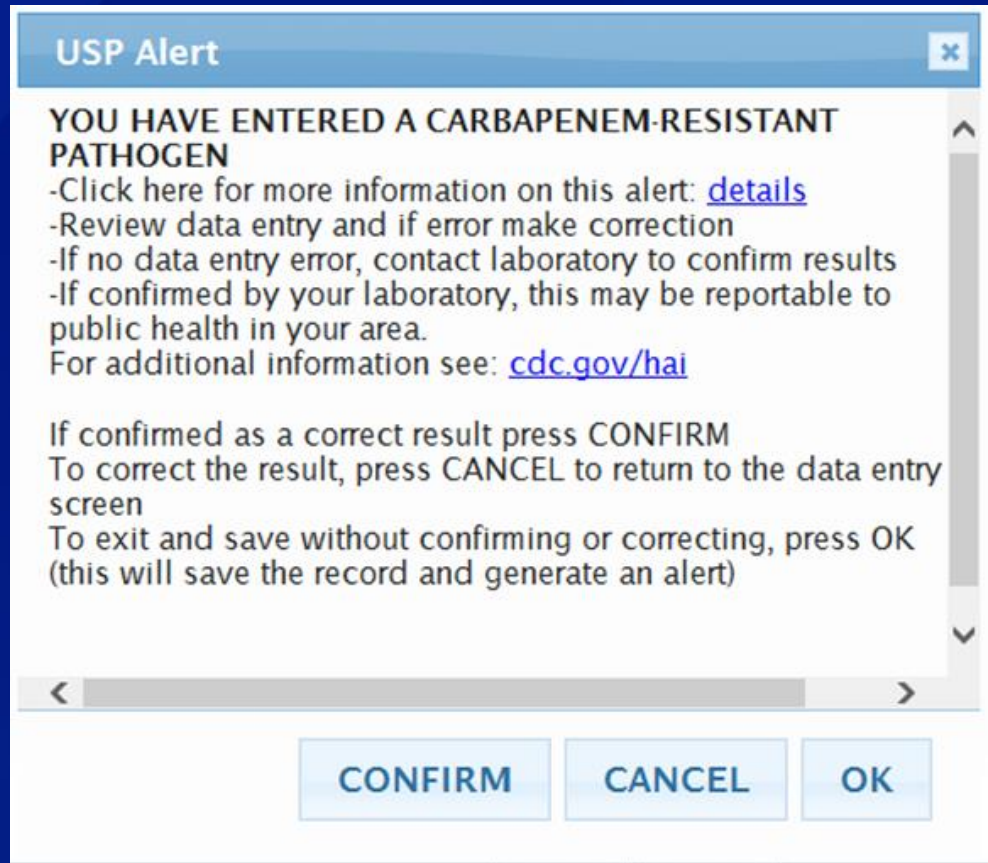
Daptomycin non-susceptible and Linezolid resistant and Vancomycin intermediate *Staphylococcus aureus*

Vancomycin resistant *Staphylococcus*, coagulase negative (VRSE)

*all defined drug classes have at least one drug within the class reported as either Intermediate (I) or Resistant (R)

Unusual Susceptibility Profile Alert

- ❑ Upon saving an event, a pop-up window will identify the profile
- ❑ Click [details](#) to view the more information about this specific alert
- ❑ The user can confirm the data entry and susceptibility reporting are accurate (**confirm**) or update data entry (**cancel**)
- ❑ Click **OK** to acknowledge the alert and save the record without immediately confirming the result



Unusual Susceptibility Profile Alert

- ❑ Clicking **OK** will generate an alert on the Home Screen
- ❑ Alert will appear until the profile is confirmed or amended such that the definition is no longer met

Incomplete/Missing List

Incomplete Events	Missing Events	Incomplete Summary Data	Missing Summary Data	Incomplete Procedures	Missing Procedures	Missing Procedure-associated Events	Unusual Susceptibility Profile
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What are Unusual Susceptibility Profiles?

Events with unusual pathogen susceptibility results

First | Previous | Next | Last

<u>Patient ID</u>	<u>Event #</u>	<u>Event Type</u>	<u>Date Admitted to Facility</u>	<u>Pathogen</u>	<u>Result Causing Alert</u>	<u>Alert Message Type</u>	<u>Unusual Susceptibility Profile Code</u>
CG06181401	44133	VAE		ACBA		OTHER	PR_ACBA
CG071805	44137	BSI		STAWA		OTHER	VR_CNS

Analysis of Unusual Susceptibility Profiles

- ❑ Analysis options are available that track all unusual susceptibility alerts in a facility that have been confirmed or are pending confirmation

Expand All Collapse All

- Device-Associated (DA) Module
- Procedure-Associated (PA) Module
- HAI Antimicrobial Resistance (DA+PA Modules)
- Unusual Susceptibility Profile Alerts**
- CDC Defined Output
 - Line Listing- Unusual Susceptibility Profiles Run Modify
 - Frequency Table- Unusual Susceptibility Profiles Run Modify
 - Bar Chart- Unusual Susceptibility Profiles Run Modify
 - Pie Chart - Unusual Susceptibility Profiles Run Modify

- ❑ Applies to 2014 data and forward
- ❑ Groups can also run these reports

More Guidance on Unusual Susceptibility Alerts

- <http://www.cdc.gov/nhsn/PDFs/USP-Alert-current.pdf>

Unusual Susceptibility Profiles	Definition of Unusual Susceptibility Profiles
Carbapenem-resistant Enterobacteriaceae	Carbapenem (imipenem, meropenem, doripenem, ertapenem) is Resistant
Highly Drug-Resistant Enterobacteriaceae	Defined as highly drug-resistant if all five drug classes have at least one drug class reported as either Intermediate(I) or Resistant(R): <ul style="list-style-type: none">• Extended spectrum cephalosporin (cefepime, cefotaxime, ceftriaxone)• Fluoroquinolones (ciprofloxacin, levofloxacin, moxifloxacin)• Aminoglycosides (amikacin, gentamicin, tobramycin)• Carbapenems (imipenem, meropenem, doripenem, ertapenem)• Piperacillin/tazobactam

SURGICAL SITE INFECTION SIR

Evaluating your SSI SIR

❑ Surgical Site Infections

- Ensure procedure and infection counts are accurate
- Certain procedures are excluded from the SIR calculations (missing variables or outlier values)
- SSI is excluded from the SIR if the corresponding procedure is excluded

National Healthcare Safety Network

SIR for In-plan All SSI data by Procedure - By OrgID/ProcCode

As of: January 16, 2014 at 12:27 PM

Date Range: SIR_ALLSSIPROC summaryYQ 2013Q1 to 2013Q1

if (((ssiPlan = "Y")))

Org ID=10018

Org ID	Procedure Code	Summary Yr/Qtr	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	COLO	2013Q1	114	6	7.217	0.831	0.4179	0.305, 1.810
10018	CSEC	2013Q1	73	2	1.075	1.860	0.2918	0.225, 6.721
10018	HYST	2013Q1	95	1	1.370	0.730	0.6022	0.018, 4.067

Excluded Procedures

- ❑ If you notice a discrepancy in procedure count, scroll to the bottom of the SSI SIR output
- ❑ Table included in the output shows number of excluded procedures and any associated SSIs
 - Note: This table will only include procedures that were excluded due to the exclusion criteria listed in 2010 NHSN Newsletter*
 - Related to potential data quality issues

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Incomplete and Custom Procedures not Included in SIR

As of: January 30, 2015 at 3:17 PM

Date Range: All SIR_ALLSSIPROC

Summary Year/Month	Facility Org ID	Procedure Code	Outpatient?	Procedure Count	All SSI Model Infection Count
2014M08	10401	CBGB	N	1	0
2014M08	10401	CBGB	N	5	0
2014M08	10401	HPRO	N	1	1

Why Were Procedures Excluded from the SIR?

□ Possible data quality reasons for exclusion include:

- Patient age > 109
- Procedure duration < 5 minutes or > IQR5 (i.e. extremely long duration defined as greater than 5 times the IQR above the 75th percentile)
- Missing one or more of the required risk factors
- Additional criteria that apply to procedures prior to 2014

□ Should be rare, therefore list of excluded procedures should be short

□ Complete list of exclusion criteria, including cut-offs for extremely long procedure duration, can be found here (see Appendix C):

http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010_SE_final.pdf

Run a Line List of Excluded Procedures

- ❑ NHSN provides a line listing of all procedures that have been excluded from the SIRs for the reasons listed on the previous slide
- ❑ Limit the line list to the procedure code(s) and time period of interest
- ❑ Add important variables based on the procedure category

The screenshot displays the 'Procedure-Associated Module' menu in the NHSN software. The menu is organized as follows:

- Procedure-Associated Module (highlighted with a red circle)
 - All Procedure-Associated Events
 - SSI
 - CDC Defined Output
 - Line Listing - All SSI Events (Run, Modify)
 - Frequency Table - All SSI Events (Run, Modify)
 - Bar Chart - All SSI Events (Run, Modify)
 - Pie Chart - All SSI Events (Run, Modify)
 - SIR - Complex AR SSI Data by Procedure (Run, Modify)
 - SIR - Complex AR SSI Data by Surgeon (Run, Modify)
 - SIR - In-plan Complex AR SSI data by Procedure (Run, Modify)
 - SIR - In-plan Complex AR SSI data by Surgeon (Run, Modify)
 - SIR - All SSI Data by Procedure (Run, Modify)
 - SIR - All SSI Data by Surgeon (Run, Modify)
 - SIR - In-plan All SSI Data by Procedure (Run, Modify)
 - SIR - In-plan All SSI data by Surgeon (Run, Modify)
 - Line Listing - Procedures Excluded from SSI SIR (Run, Modify) (highlighted with a red arrow)

Example of Line List of Excluded Procedures

National Healthcare Safety Network

Line Listing for Procedures Excluded from SSI SIR

As of: January 30, 2015 at 2:16 PM

Date Range: PROCEDURES procDateYr After and Including 2009

434 minutes

patID	procDate	procCode	procDurationHr	procDurationMin	anesthesia	asa	ageAtProc	emergency	scope	swClass	trauma	numBeds
8845	08/21/2014	HPRO	7	14	Y	1	24	Y	N	CO	Y	350

- ❑ In our example, 1 HPRO procedure was excluded from the 2014 SIR
- ❑ Line list shows procedure duration was extreme outlier
 - HPRO cut-off procedure duration = 380 minutes
- ❑ If this is a data entry error:
 - Edit the procedure record and click Save
 - Generate datasets prior to running any analysis reports
- ❑ If not a data entry error, procedure will still be excluded from the SIR
 - Note: procedures that are excluded from the SIR should still be reported to NHSN

Additional Procedure Exclusions

- Starting in 2014, procedures that were reported with a closure technique of “other than primary” will be excluded from all SSI SIRs
- Run a procedure line list (Advanced > Procedure-level Data) to review procedure-specific details

National Healthcare Safety Network Line Listing for All Procedures

As of: January 23, 2015 at 2:57 PM

Date Range: PROCEDURES procDateYr After and Including 2014

orgID	patID	dob	gender	procID	procDate	procCode	closure	closureDesc
10401	998877	01/15/1950	M	42193	01/10/2014	HPRO	PRI	PRI - Primary
10401	45605	01/15/1950	F	42506	01/15/2014	HPRO	PRI	PRI - Primary
10401	8942	10/12/1992	M	45539	10/10/2014	HPRO	PRI	PRI - Primary
10401	8456	08/05/1981	M	45587	02/05/2014	HPRO	PRI	PRI - Primary
10401	8845	08/21/1990	M	45589	08/21/2014	HPRO	PRI	PRI - Primary
10401	6612	06/12/1941	M	45590	03/12/2014	HPRO	OTH	OTH - Other than primary

Other Excluded Procedures from the SSI SIR

- ❑ Which SSI SIR output are you using?
- ❑ Different models will include different procedures and SSIs

<u>SSI Model</u>	<u>SSIs and Procedures Included</u>
All SSI SIR Model	<ul style="list-style-type: none"> • Superficial, Deep & Organ/Space SSIs • Superficial & Deep incisional SSIs limited to primary only • SSIs identified on admission, readmission & via post-discharge surveillance
Complex A/R SSI Model	<ul style="list-style-type: none"> • Only Deep incisional primary & Organ/Space SSIs • Only SSIs identified on Admission/Readmission to facility where procedure was performed • Only inpatient procedures
Complex 30-day SSI model (used for CMS IPPS)	<ul style="list-style-type: none"> • Only Deep incisional primary & Organ/Space SSIs that occurred within 30 days of the procedure • Only in-plan, inpatient COLO & HYST procedures in adult patients (i.e., ≥ 18 years of age) • Uses age and ASA to determine risk

Excluded Events from the SIR

- ❑ **All SSI SIRs will exclude superficial incisional secondary (SIS) and deep incisional secondary (DIS) SSIs**
- ❑ **If SSI event count is less than you're expecting, keep in mind which model you are using**
 - ❑ **Example: Complex A/R and Complex 30-day models will NOT include superficial incisional primary infections (i.e., specific Event = "SIP")**
- ❑ **Run an SSI event line list to determine reason for any excluded events**
- ❑ **If a procedure is excluded from the SIR, any associated SSI will also be excluded**

Other Ways to Troubleshoot SSI SIR

- ❑ **Make sure you have generated datasets after any data entry or import**
- ❑ **If applicable, review monthly reporting plans**
 - Ensure procedure categories are listed
- ❑ **Resolve all outstanding “Alerts” on your home screen**
 - Example: If you had no SSI events for procedures performed during a month, you must check the No Events box for that procedure and month
- ❑ **Review footnotes beneath the SIR output**

CLABSI and CAUTI SIRs

CLABSI SIR for Acute Care Hospitals

- ❑ Look at all variables in the SIR output carefully
- ❑ If central line days or infection count is lower than you expect, look at the location-specific SIR table
- ❑ SIR may not include all of your locations!

National Healthcare Safety Network

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

As of: February 5, 2014 at 5:45 PM

Date Range: CLAB_RATESALL summaryYQ 2013Q4 to 2013Q4

orgid	loccdc	summaryYQ	infCount	numExp	numCLDays	SIR	SIR_pval	SIR95CI
10401	IN:ACUTE:CC:M	2013Q4	1	1.292	680	0.774	0.9044	0.039, 3.817
10401	IN:ACUTE:CC:NURS	2013Q4	2	0.498	201	.	.	
10401	IN:ACUTE:WARD:M	2013Q4	0	0.308	205	.	.	
10401	IN:ACUTE:WARD:ONC_HONC	2013Q4	1	1.004	512	0.996	1.0000	0.050, 4.914

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 February 5, 2014 at 5:42 PM.

Excluded Locations from the CLABSI/CAUTI SIR

- ❑ **Current SIRs for acute care hospitals can only be generated for locations that had enough data to be included in the CLABSI and CAUTI baseline analyses***
 - CLABSI: 2006-2008
 - CAUTI: 2009
- ❑ **Certain locations will always be excluded from the SIRs, under current baselines, including:**
 - Telemetry wards, mixed acuity locations, acute stroke ward, burn ward, certain oncology wards, etc.
 - Review Rate Tables for these locations to track HAI incidence
- ❑ **We expect to include more locations when we re-baseline the SIRs (using 2015 data)**

- Separate tables in the CLABSI and CAUTI SIR output will show the data from excluded locations, as well as any months with 0 or missing device days
 - Months with missing denominator data are excluded from the SIR

National Healthcare Safety Network

CLABSI Data - Months with Missing or 0 Device Days

As of: February 5, 2014 at 5:45 PM

Date Range: CLAB_RATE\$ALL summaryYQ 2013Q4 to 2013Q4

orgID	location	locationType	birthwtcode	summaryYM	numCLDays
10401	NICU	NICU	A		
10401	NICU	NICU	B		
10401	NICU	NICU	C		
10401	NICU	NICU	D		
10401	NICU	NICU	E		

National Healthcare Safety Network

CLABSI Data Not Included in SIR

As of: February 25, 2014 at 3:27 PM

Date Range: CLAB_RATE\$ALL summaryYQ 2013Q4 to 2013Q4

orgID=10401 CCN=N/A

orgID	locationType	loccdc	location	infcount	numCLDays
10401	WARD_ONC	IN:ACUTE:WARD:ONC_LEUK	LEUK	0	117
10401	WARD_ONC	IN:ACUTE:WARD:ONC_LEUK	LEUK	1	32
10401	WARD	IN:ACUTE:WARD:TEL	TELE	0	147
10401	WARD	IN:ACUTE:WARD:TEL	TELE	2	296
10401	WARD	IN:ACUTE:WARD:TEL	TELE	1	103

MRSA Bacteremia and CDI LabID Event SIR

LabID Event SIR

□ Look at all variables in the SIR output

- 3 months of data for each quarter
- Review number of events and number of patient days for accuracy
- Review footnotes beneath the SIR table

National Healthcare Safety Network SIR - CDI FacwideIN LabID Data

As of: January 28, 2015 at 2:33 PM

Date Range: LABID_RATE\$CDIF summaryYQ 2014Q1 to 2014Q1

Facility Org ID	Location	Summary Yr/Qtr	Months	CDIF Facility Incident HO LabID Event Count	CDIF Facility Incident HO LabID Number Expected	Patient Days	SIR	SIR p-value	95% Confidence Interval
10401	FACWIDEIN	2014Q1	3	0	3.501	4285	0.000	0.0302	, 0.856

Includes only inpatient facility-wide (FACWIDEIN) data relevant to CDI LabID reporting.

The number expected and SIRs are not calculated when Group By = summaryYM.

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

If a quarter's prevalence rate is >1.78, the number expected will not be calculated for that quarter.

SIR excludes those months where CDIF patient days and/or admissions are missing, required survey-level data are missing, or

LabID Event SIR may not be Calculated

Outlier Prevalence Rate

- ❑ **Number of predicted infections and the SIR (and statistics) cannot be calculated if community-onset prevalence rate* is above pre-determined threshold**
 - MRSA Bacteremia: 0.88
 - *C.difficile*: 1.78
- ❑ **If all other reporting requirements are met per CMS guidelines, these data are still considered “complete” and will be sent to CMS**

* Community-onset prevalence rate = (# community-onset LabID events / number admissions) * 100

Outlier Prevalence Rate

National Healthcare Safety Network SIR - MRSA Blood FacwideIN LabID Data

As of: January 28, 2015 at 2:53 PM

Date Range: LABID_RATESMRSA summaryYQ 2014Q3 to 2014Q3

orgID	location	summaryYQ	months	MRSA_bldIncCount	numExpMRSA	numpatdays	SIR	SIR_pval	sir95ci
10401	FACWIDEIN	2014Q3	3	-	-	-	-	-	-

Includes only inpatient facility-wide (FACWIDEIN) data relevant to MRSA Blood LabID reporting.

The number expected and SIRs are not calculated when Group By = summaryYM.


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

National Healthcare Safety Network MRSA Blood - Quarters with Outlier Prevalence Rate

As of: January 28, 2015 at 2:53 PM

Date Range: LABID_RATESMRSA summaryYQ 2014Q3 to 2014Q3

orgID	location	summaryYQ	mrsa_admprevbldcount	numAdms	MRSA_BSIAdmPrevRate
10401	FACWIDEIN	2014Q3	3	290	1.034



If a quarter's prevalence rate is >0.88, the number expected will not be calculated for that quarter.

- ❑ Check accuracy of # admissions and # community-onset events

***C. difficile* SIR may not be Calculated**

Missing CDI Test Type

- ❑ **Last month of each quarter, enter *C.difficile* laboratory test type on summary data entry screen**
 - March, June, September, December
- ❑ **Until test type is entered, the CDI SIR cannot be calculated for that quarter**

Mandatory fields marked with *

Facility ID*: 10401 (DHQP Memorial Annex)

Location Code*: FACWIDEIN - Facility-wide Inpatient (FacWIDEIn)

Month*: March

Year*: 2014

General


Setting: Inpatient Total Patient Days*: 1765 Total Admissions*: 485

Setting: Outpatient Total Encounters:

If monitoring *C. difficile* in a FACWIDE location, then subtract all counts from patient care units with unique CCN

CDI Patient Days*: 1601 CDI Admissions*: 420 CDI Encounters:

For this quarter, what is the primary testing method for *C. difficile* used most often by your facility's laboratory

NAAT - Nucleic acid amplification test (NAAT) 

Example of Missing CDI Test Type: 2014 Q4

- ❑ Facility has entered summary data for October and November 2014 and has not yet completed data entry for December
- ❑ CDI test type is asked on the 3rd month of each quarter (e.g., December)
- ❑ No data will appear in the CDI SIR table for Q4

National Healthcare Safety Network

SIR - CDI FacwideIN LabID Data

As of: January 28, 2015 at 11:44 AM

Date Range: LABID_RATESCDIF summaryYQ 2014Q1 to 2014Q4

orgID	location	summaryYQ	months	CDIF_facInCHOCcount	numExpCDI	numpatdays	SIR	SIR_pval	sir95ci
10401	FACWIDEIN	2014Q1	3	0	3.501	4285	0.000	0.0302	, 0.856
10401	FACWIDEIN	2014Q2	3	0	2.178	3336	0.000	0.1133	, 1.376
10401	FACWIDEIN	2014Q3	2	1	2.944	3604	0.340	0.2602	0.017, 1.675

CDI SIR Output

National Healthcare Safety Network SIR - CDI FacwideIN LabID Data

As of: January 28, 2015 at 11:44 AM

Date Range: LABID_RATESCDIF summaryYQ 2014Q1 to 2014Q4

orgID	location	summaryYQ	months	CDIF_facIncHOCCount	numExpCDI	numpatdays	SIR	SIR_pval	sir95ci
10401	FACWIDEIN	2014Q1	3	0	3.501	4285	0.000	0.0302	, 0.856
10401	FACWIDEIN	2014Q2	3	0	2.178	3336	0.000	0.1133	, 1.376
10401	FACWIDEIN	2014Q3	2	1	2.944	3604	0.340	0.2602	0.017, 1.675

National Healthcare Safety Network CDI Data - Incomplete Months Excluded for SIR

As of: January 28, 2015 at 11:44 AM

Date Range: LABID_RATESCDIF summaryYM 2014M10 to 2014M11

orgID	location	summaryYM	CDIF_labidCount	numPatDays	numAdms	cdiTestType	numBeds	medAff
10401	FACWIDEIN	2014M10	0	1405	380		350	Y
10401	FACWIDEIN	2014M11	2	1677	227		350	Y

Example of Missing CDI Test Type: 2014 Q4

- ❑ October and November are listed in the “Incomplete Months” data table

National Healthcare Safety Network

CDI Data - Incomplete Months Excluded for SIR

As of: January 28, 2015 at 11:44 AM

Date Range: LABID_RATE\$CDIF summaryYQ 2014Q1 to 2014Q4

orgID	location	summaryYM	CDIF_labidCount	numPatDays	numAdms	cdiTestType	numBeds	medAff
10401	FACWIDEIN	2014M10	0	1405	380		350	Y
10401	FACWIDEIN	2014M11	2	1677	227		350	Y

SIR excludes those months where CDIF patient days and/or admissions are missing, required survey-level data are missing, or verification of 'report no events' has not been completed when 0 events have been reported.

For 2015 and forward, FACWIDEIN excludes LabID events reported for rehabilitation wards and behavioral health/psych wards

Data contained in this report were last generated on January 28, 2015 at 11:28 AM.

- ❑ Once December summary data are entered, and the CDI test type has been selected for this quarter, an SIR will be calculated for Q4

Reminder: Which Events are Counted in the FacWideIN LabID SIR Numerator (i.e., # observed)

- ❑ **MRSA Bacteremia**: Only hospital-onset (HO) events from blood specimens are included in the numerator of the SIR
- ❑ **C.difficile**: Only hospital-onset (HO) *incident* events are included in the numerator of the SIR
- ❑ If a patient has a second LabID event from the same organism within 14 days of the first, the second event is not counted in the SIR
- ❑ Starting in 2015, LabID event SIRs will exclude data from IRFs and IPFs with separate CCNs
- ❑ Run a line list to determine which events are counted in the SIRs

LabID Event Line List: New “Indicator Variables”

- Starting in January 2015, new variables are included in the MRSA and CDI line lists that identify cases counted in the SIR

MRSA Bacteremia:

FWMRSA_bldIncCount

C. difficile:

FWCDIF_facIncHOCCount

- Variable will display as 1 or 0 for each event
 - 1: event is counted in the SIR
 - 0: event is NOT counted in the SIR
- These new variables included in the line list output by default

Example: *C.difficile* Line List

- ❑ Important: modify the line list to only include inpatients

Select a time period or Leave Blank for Cumulative Time Period: [?HELP](#)


Date Variable	Beginning	Ending	
specDateYM ▼	06/2013	06/2013	Clear Time Period

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

Specify Other Selection Criteria: [?HELP](#)

[Show Criteria](#) [Column +](#) [Row +](#) [Clear Criteria](#)

cdif ▼	outpatient ▼
= Y	= N




Indicator Variables

- ❑ By default, you will see 2 indicator variables
 - Facility-wide incidence (SIR)
 - Admission prevalence rate (used in risk adjustment)

National Healthcare Safety Network Line Listing - All CDIF LabID Events

As of: January 28, 2015 at 3:30 PM

Date Range: LABID_EVENTS specDateYM 2013M06 to 2013M06



patID	eventID	spcOrgType	location	outpatient	onset	cdiAssay	specimenDate	FWCDIF_facIncHOCCount	FWCDIF_admPrevCOCCount
0012	43009	CDIF	2N	N	CO	Incident	06/12/2013	0	0
1035	43008	CDIF	MED	N	CO	Incident	06/09/2013	0	1
3212	39232	CDIF	ICU	N	HO	Incident	06/29/2013	1	0
6545	39230	CDIF	ICU	N	HO	Incident	06/01/2013	1	0
6545	39231	CDIF	ICU	N	HO	Recurrent	06/16/2013	0	0

TIPS FOR INVESTIGATING HOSPITAL COMPARE DATA



Reasons for Discrepancies between NHSN and Hospital Compare

- ❑ Any changes made to your data in NHSN after a quarterly deadline will not be reflected on Hospital Compare (or preview reports)
- ❑ Preview reports will reflect the data that were entered *by the deadline*
- ❑ NHSN analysis options will always reflect the data that are currently entered (including the CMS Reports within NHSN analysis options)

Reasons for Discrepancies Between NHSN and Hospital Compare

1. **Changes, additions, modifications made to the following:**
 - Monthly reporting plans
 - Denominator data
 - Events (changes made to variables such as event date, patient age, location, etc. could result in changes to your CMS-related data)
 - Alerts
 2. **Survey changes for risk adjustment variables**
 - Bed size, teaching status
 - CDI test type (2013 data and prior)
- ❑ **Bottom line: keep a record of changes made to data after each quarter's deadline and keep a hard copy of NHSN output from deadline**

How to Investigate Discrepancies



How can I tell when my data were last modified?

1. Run a line list for reporting plans, events, summary data, and/or procedures for the data of interest
2. Add “modifyDate” variable to these line lists

Advanced

[Create New custom Option](#)

- Event-level Data
- Procedure-level Data
- Summary-level Data
- Plan Data
 - CDC Defined Output
 - Line Listing - Patient Safety Plans [Run] [Modify]
- Pathogen-level Data
- Facility-level Data
 - CDC Defined Output
 - Line Listing - Facility Enrollment Data [Run] [Modify]
 - Line Listing - Conferred Rights [Run] [Modify]
 - Line Listing - Hospital Survey (CDC 57.103, Rev.2) [Run] [Modify]
 - Line Listing - Hospital Survey (CDC 57.103, Rev.3) [Run] [Modify]
 - Line Listing - LTAC Facility Survey [Run] [Modify]

Line List Variables

- ❑ Remove unnecessary variables
- ❑ Make sure “modifyDate” is a selected variable

Select Variables to include in Line Listing:

Available Variables	Selected Variables
acine_gg acine_hh acine_infSurv acine_labID acine_labIDBld bsiPlan cdif_gg cdif_hh cdif_infSurv cephRKleb_gg cephRKleb_hh	orgID CCN planYM location mrsa_labID cdif_labID createDate createUserID modifyDate modifyUserID

>> << All >> All << Up Down

Other Options: [HELP](#)

Modify Variables To Display By Clicking: [Modify List](#)

Specify Sort Variables By Clicking: [Modify List](#)

Select Page by variable:

Run

Example of 2014 Reporting Plan Line List

- ❑ Hospital has 2014 monthly reporting plans for FacWideIN surveillance in January, February, and March
- ❑ Plans were initially completed on January 21st but later modified on August 16th
- ❑ Line lists cannot tell you what specifically was modified

National Healthcare Safety Network

Line Listing - Plan

As of: January 29, 2015 at 11:30 AM

Date Range: PLAN planYM 2014M01 to 2014M03

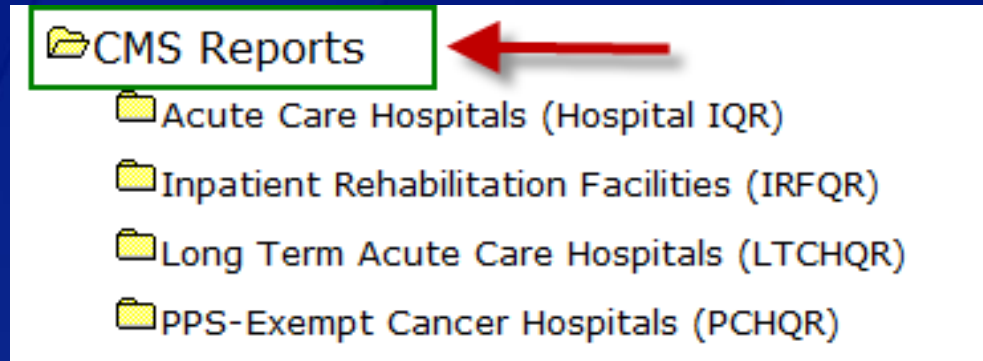
orgID	CCN	planYM	location	mrsa_labID	cdif_labID	createDate	createUserID	modifyDate	modifyUserID
10401	009999	2014M01	FACWIDEIN		Y	21JAN14:12:13	1432	16AUG14:16:1	5929
10401	009999	2014M02	FACWIDEIN	Y	Y	21JAN14:12:30	1432	16AUG14:16:1	5929
10401	009999	2014M03	FACWIDEIN	Y	Y	21JAN14:12:30	1432	16AUG14:16:1	5929

Sorted by orgID planYM location

Data contained in this report were last generated on January 29, 2015 at 9:55 AM.

Helpful Hints for CMS Quality Reporting

- ❑ Run CMS Reports in NHSN Analysis before each quarterly deadline to view data that will be sent to CMS
 - Save/print these reports for future reference!!!



- ❑ Give yourself enough time to enter and review data before quarterly deadlines
- ❑ When performing data quality checks, be sure to review your annual survey for accuracy
- ❑ Keep track of changes made to your data

Use NHSN Resources to Prepare for CMS Deadlines

- ❑ **Resources available for all facility types include:**
 - Operational Guidance
 - Helpful Tips (checklists)
 - How to read and interpret CMS analysis reports in NHSN
 - How to set up your facility, report no events, etc.

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

CMS Requirements

CMS Resources for NHSN Users

Operational Guidance for Acute Care Hospitals

- Operational Guidance for Acute Care Hospitals to Report Central Line-Associated Bloodstream Infection (CLABSI) Data to CDC's NHSN for the Purpose of Fulfilling CMS's Hospital Inpatient Quality Reporting (IQR) Requirements
 [PDF - 108 KB] November 2014
- Operational Guidance for Acute Care Hospitals to Report Catheter-Associated Urinary Tract Infection (CAUTI) Data to CDC's NHSN for the Purpose of Fulfilling CMS's Hospital Inpatient Quality Reporting (IQR) Requirements
 [PDF - 108 KB] November 2014
- Operational Guidance for Reporting Surgical Site Infection Data to CDC's NHSN for the Purpose of Fulfilling CMS's Hospital Inpatient Quality Reporting (IQR) Program Requirements
 [PDF - 132 KB] November 2014
- Operational Guidance for Acute Care Hospitals to Report Healthcare Personnel (HCP) Influenza Vaccination Data to CDC's National Healthcare Safety Network (NHSN) for the Purpose of Fulfilling CMS's Hospital Inpatient Quality Reporting (IQR) Program Requirements and CMS's Hospital Outpatient Quality Reporting (OQR) Program Requirements
 [PDF - 154 KB] October 2014
- Operational Guidance for Acute Care Hospitals to Report

On this Page

- Operational Guidance for Acute Care Hospitals
- Operational Guidance for PPS-Exempt Cancer Hospitals
- Operational Guidance for Long Term Acute Care Hospitals
- Operational Guidance for Inpatient Rehabilitation Facilities
- Outpatient Dialysis Facilities
- CMS Reporting - CLABSI
- CMS Reporting - CAUTI
- CMS Reporting - SSI
- CMS Reporting - MRSA/CDI
- Healthcare Personnel Influenza Vaccination
- FAQs

**Guidance by
Facility Type**

**Helpful Tips
by Event
Type**

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

More Help with Analysis

❑ Analysis Resource Page:

- <http://www.cdc.gov/nhsn/PS-Analysis-resources/index.html>

❑ Quick Reference Guides on each analysis output:

- <http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html>

❑ SIR Troubleshooting Guides

- Provides guidance on common problems you may experience with your DA, SSI, and LabID Event SIRs
 - Missing numerator counts
 - Missing denominator counts
 - Missing locations
 - SIR not calculated

Thank you!

nhsn@cdc.gov

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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

