

Determining which SSIs are Included in the SSI SIRs

Description

Under the new 2015 baseline, there are five surgical site infections (SSI) models, each having its own set of inclusion criteria for the numerator and denominator of the standardized infection ratio (SIR). One of the challenges users experienced previously, under the 2006-2008 baseline, is how to determine which SSI events are included in the different SSI SIR models. With the 2015 baseline, SSI events will have indicator variables that assign them to the corresponding SSI SIR model. The indicator variables take into account both the procedure details as well as the SSI details for determining if the SSI should be counted in the SIR numerator. There are five SSI event indicators, each one preceded by the prefix, **bs2**. The BS2 prefix indicates that the indicator variables apply to 2015 baseline only for 2015 data and forward. The SSI events indicator variables and their corresponding descriptions are listed in Table 1. The purpose of this quick reference guide (QRG) is to describe how to run line list report and interpret the SSI event indicator variables for the 2015 baseline SIRs.

Table 1. SSI Event Indicators

If the value of the following variables = 1, then the SSI is included in the corresponding SIR numerator count.

SSI Event Indicator	Description*
Bs2_SSIAll	The indicator for All SSI SIR model for adult patients
Bs2_SSIPedAll	The indicator for All SSI SIR model for pediatric patients
Bs2_SSIComplex	The indicator for Complex A/R SSI SIR model for adult patients
Bs2_SSIPedComplex	The indicator for Complex A/R SSI SIR model for pediatric patients
Bs2_SSIComplex30d	The indicator for Complex 30-day SSI SIR model for adult patients

*Adult patients are patients 18 years and older at time of surgery. Pediatric patients are patients under 18 years at time of surgery

Table 2. Background Information: Features of the SSI Models

Included in model: Under 2015 Baseline	All SSI Model-Adult	Complex A/R SSI Model- Adult	All SSI Model- Pediatric	Complex A/R SSI Model- Pediatric	Complex 30-Day
All NHSN procedure categories	✓	✓	✓	✓	COLO HYST
Procedures in patients <18 years			✓	✓	
Procedures in patients >=18 years	✓	✓			✓
Inpatient procedures <u>only</u>	✓	✓	✓	✓	✓
Outpatient procedures	EXCLUDED FROM ALL PATIENT SAFETY SSI SIR MODELS				
Superficial incisional primary (SIP) SSIs	✓		✓		
Deep incisional primary (DIP) SSIs	✓	✓	✓	✓	✓

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Included in model: Under 2015 Baseline	All SSI Model-Adult	Complex A/R SSI Model- Adult	All SSI Model- Pediatric	Complex A/R SSI Model- Pediatric	Complex 30-Day
Organ/space (O/S) SSIs	✓	✓	✓	✓	✓
DIP and O/S SSIs identified > 30 days after procedure (per protocol)	✓	✓	✓	✓	
SSIs detected on current admission (A)	✓	✓	✓	✓	✓
SSIs detected on follow-up admission to the same facility (RF)	✓	✓	✓	✓	✓
SSI detected on follow-up admission to different facility (RO)	✓		✓		✓
SSIs detected through post- discharge surveillance efforts (P)	✓		✓		✓

How to run the SSI Event Line List

Step 1: Select the Line Listing – All SSI Events

Once selected, click “Modify Report” on the pop-up menu.

The screenshot shows the NHSN Analysis Reports interface. On the left is a navigation menu with options like Alerts, Reporting Plan, Patient, Event, Procedure, Summary Data, Import/Export, Surveys, Analysis, Users, Facility, Group, Tools, and Logout. The main area displays a tree view of report categories: Device-Associated (DA) Module, Procedure-Associated (PA) Module, All Procedure-Associated Events, and SSI. The 'SSI' folder is expanded, and a context menu is open over 'Line Listing - All SSI Events'. A red arrow points to this menu item. The context menu includes options: Run Report, Modify Report (highlighted with a black box), and Export Data Set. Below the menu, several report titles are listed, such as 'SIR - Pediatric Complex AR SSI Data by Procedure' and 'SIR - Adult All SSI Data by Surgeon'.

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Step 2: Modify the report by defining the appropriate criteria

- The title and format of the report can be modified, as needed for your analysis. *This step is optional.*
- Define the time period. For this example, the time period is set to the third quarter of 2016, based on the procedure date (i.e., procdatYQ = 2016Q3).
- Filters can be included to this report to limit the amount of data to display in the report output. For example, the report can be limited by defining specific procedure code(s), such as “proccode IN COLO and CARD”. *This step is also optional.*
- On the Display Variable tab, you will find the list of indicator variables included in the Selected Variable list by default as shown in the screen shot below.

The screenshot shows the 'Modify Line Listing - All SSI Events' interface. The 'Display Variables' tab is active, showing a list of available variables on the left and selected variables on the right. A red callout box highlights the selected variables: procCode, dob, ageAtProc, gender, procDurationHr, procDurationMin, outpatient, closure, whenDetected, bs2_cmpx30dExcl, bs2_SSIAll, bs2_SSIpedAll, bs2_SSIComplex, bs2_SSIpedComplex, and bs2_SSIComplex30d. A red callout box points to these variables with the text: 'SSI Event indicator variables are included in the Selected Variable list by default'.

Once you are satisfied with the selected modifications, click run (or export) to obtain the results.

Step 3: Report Output and Interpretation

Below are the results from the Line Listing All SSI Events report. As mentioned above, the indicator variables, highlighted in yellow in the table below, will appear in the report output by default.

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National Healthcare Safety Network

Line Listing for All Surgical Site Infection Events

As of: December 16, 2016 at 9:17 AM
Date Range: SSI_EVENTS procDateYQ2016Q3 to 2016Q3

orgID	patID	eventType	spcEvent	procDate	procCode	dob	ageAtProc	gender	procDurationHr	procDurationMin	outpatient	closure	whenDetected	bs2_cmpx30dExcl	bs2_SSIAll	bs2_SSIpedAll	bs2_SSIComplex	bs2_SSIpedComplex	bs2_SSIComplex30d	
10018	007	SSI	IAB	09/11/2016	COLO	02/02/1990	26	M	3	20	N	PRI	P	0	1	0	0	0	0	1
10018	123456	SSI	BONE	08/10/2016	CARD	09/24/1932	83	M	12	59	N	PRI	A	1	0	0	0	0	0	0
10018	TEST	SSI	SIP	09/09/2016	COLO	02/02/1950	66	F	2	10	N	PRI	P	1	0	0	0	0	0	0
10018	123456	SSI	GIT	08/16/2016	COLO	09/24/1932	83	M	2	0	N	PRI	RF	0	1	0	0	0	0	0

1. Please review the Quick Reference Guide related to the new SSI Indicator Variables (URL) for more information on determining which SSIs are included in the SIRs.

Data contained in this report were last generated on December 11, 2016 at 10:25 AM.

The SSI event indicator variables show whether an event is included in the SIR calculation. They also indicate in which SSI model(s), the events are included. If any of the SSI event indicator variables is equal to 1, then the SSI event is included in the corresponding SSI model. In the above example, COLO event with patient ID 007 is included in both the All SSI SIR model (bs2_SSIAll=1) and the Complex 30-day SSI SIR model (bs2_SSIComplex30d=1). This event is included in both models because the event meets the inclusion criteria for each of those models, as outlined in table 2.

This COLO is excluded from the All SSI SIR for pediatric patients (bs2_SSIpedAll=0) and the Complex A/R SSI SIR for pediatric patients (bs2_SSIpedComplex=0) because the patient ID 007, is over 18 years. This COLO is also excluded from the Complex A/R SSI SIR for adults patients (bs2_SSIComplex=0) because the event was detected via post-discharge surveillance (whenDetected = P). And as shown in the table 2, events detected via post-discharge surveillance are excluded from the Complex A/R SSI SIR for both adults and pediatric patients.

REMEMBER: If the associated procedure is excluded from the SIR, the SSI will also be excluded.

Additional Resources:

THE NHSN STANDARDIZED INFECTION RATIO (SIR): A Guide to the SIR: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

Troubleshooting your surgical site infections (SSI) SIR: https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/ssi-sir_tips.pdf