



# **Outpatient Procedure Component: Knee Prosthesis (KPRO) Surgical Site Infection (SSI) Criteria Overview & Analysis Options**

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July 10, 2025

# Objectives: KPRO

By the end of this presentation, you will be able to:

- Define an Ambulatory Surgery Center (ASC)
- Identify KPRO Surgical Site Infection (SSI) Criteria
- Enter Denominator Data
- Enter a Surgical Site Infection Event

# Objectives: Analysis

By the end of this presentation, the user will be able to:

- Generate new analysis datasets
- Describe each of the 5 report types
- Modify and customize analysis reports
- Export NHSN analysis data sets out of the application

# How does NHCN define an Ambulatory Surgery Center (ASC)?

An ASC is a distinct entity that operates exclusively for the purpose of providing surgical services to patients not requiring hospitalization and in which the expected duration of services would not exceed 24 hours following an admission. An ASC must be certified by the Centers for Medicare & Medicaid Services (CMS), licensed by a state agency or both.


# Background: NHSN Outpatient Procedure Component - KPRO SSI Criteria

- In 2018, Centers for Medicare and Medicaid Services removed Total Knee Arthroplasty (TKA) from the in-patient-only procedure list which allows TKA procedures to be performed on an inpatient or outpatient basis
- We worked with ASC community partners to develop measure to more effectively monitor these procedures
- KPRO SSI criteria added to OPC in 2025

# OPC KPRO SSI Criteria

# Outpatient Procedure Component - includes 3 SSI Criteria

- **General SSI Criteria**
  - Applies to all operative procedure categories except Breast (BRST) & Knee Prosthesis (KPRO) surgeries performed in Ambulatory Surgery Centers
- **Breast Surgery (BRST) SSI Criteria**
  - Applies to surgical site infections (SSIs) during the 30-day (superficial SSI) and 90-day (deep and organ/space SSI) postoperative periods following BRST Breast Surgery performed in Ambulatory Surgery Centers
- **Knee Prosthesis (KPRO) SSI Criteria**
  - Applies to surgical site infections (SSIs) during the 30-day (superficial SSI) and 90-day (deep and organ/space SSI) surveillance periods following knee prosthesis performed in Ambulatory Surgery Centers



January 2025

## Outpatient Procedure Component Surgical Site Infection (OPC-SSI) Surveillance

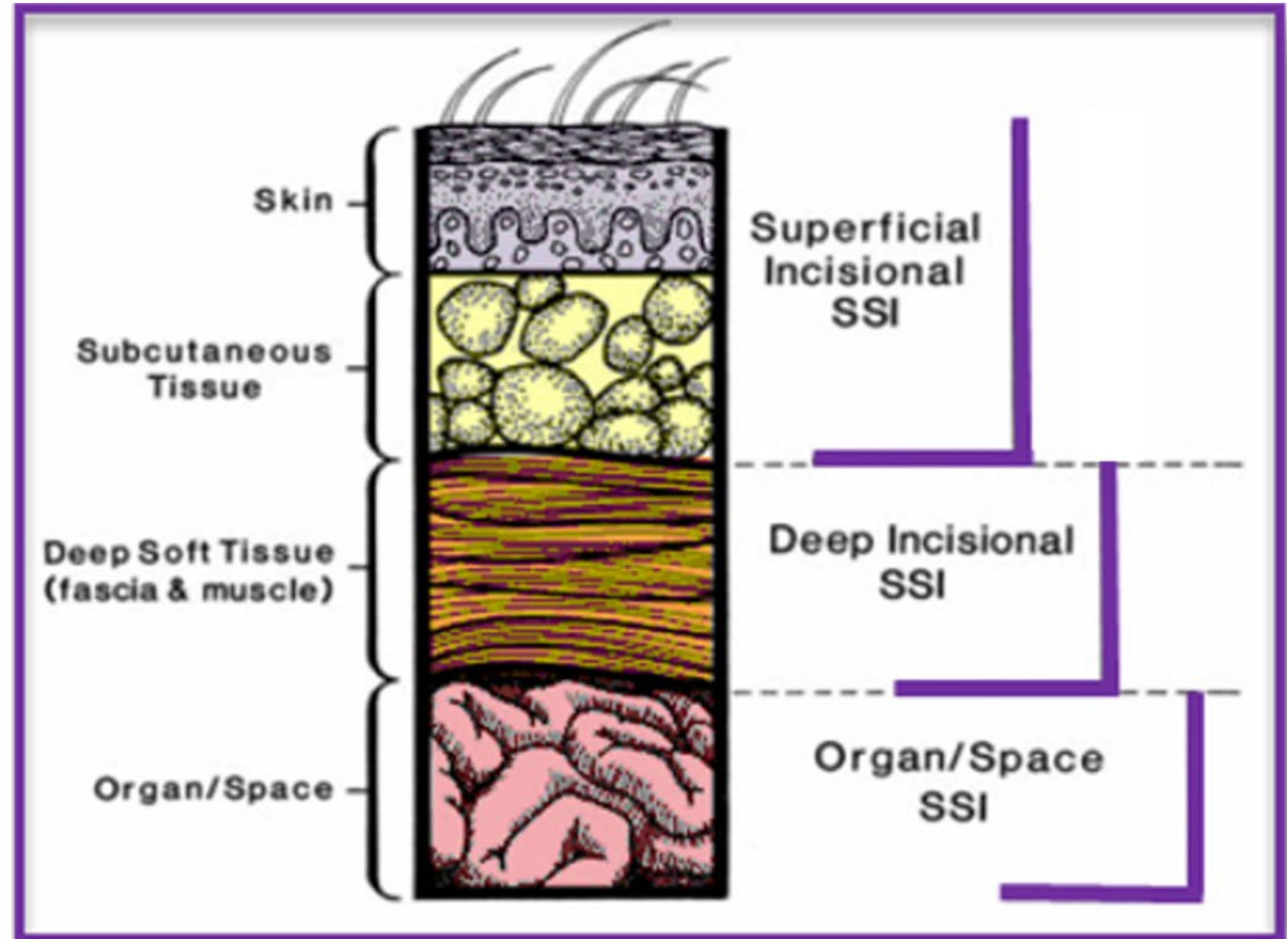
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# Tissue Levels for SSI Identification

SSIs are identified as:

- Superficial Incisional SSI
- Deep Incisional SSI
- Organ/Space SSI



# Superficial and Deep Incisional SSI Criteria

The superficial and deep incision SSI criteria for the old and new KPRO criteria are essentially the same.

The OPC Surgical Site Infection Protocol is available on the OPC Surgical Site Infections webpage [Surgical Site Infections \(SSI\) | OPC | NHSN | CDC](#)

# OPC Organ/Space SSI Criteria

## New KPRO Criteria

## Old KPRO Criteria

### OPC General - Organ/Space SSI

Must meet the following criteria:

Date of event for infection occurs within 30 or 90 days following the NHSN operative procedure (where day 1 = the procedure date) according to the list in [Table 2](#)

**AND**

infection involves the organ/space tissues (deeper than the fascia/muscle).

**AND**

patient has at least one of the following:

- purulent drainage from a drain placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, and CT guided drainage).
- organisms are identified from an aseptically-obtained fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing [ASC/AST]).
- an abscess or other evidence of infection involving the organ/space detected on:
  - gross anatomical
  - histopathologic exam
  - imaging test consistent with infection.

#### NOTE:

Meeting additional infection criteria found in the Patient Safety Component [Chapter 17, CDC/NHSN Surveillance Definitions for Specific Types of Infections](#) is **NOT** a part of the OPC General - Organ/Space SSIs reporting criteria.

### OPC KPRO - Organ/Space SSI

Must meet the following criteria:

Date of event for infection occurs within 90 days following a KPRO; where day 1 = the procedure date **AND**

involves the organ/space tissues (deeper than the fascia/muscle)

**AND**

patient has at least one of the following:

- Two positive periprosthetic (joint) specimens (tissue or fluid) with at least one matching organism, identified by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis and treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).
- Patient has organisms identified from bone by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis and treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).
- A sinus tract\* communicating with the joint identified on gross anatomic exam, abscess, or other gross anatomic evidence of infection at the level of the joint.
- Patient has evidence of osteomyelitis\* on gross anatomic or histopathologic exam.
- Having three of the following minor criteria:
  - elevated serum C-reactive protein (CRP; >100 mg/L (1 dL = 10 L) >10 mg/dL -check what standard reporting units for CRP) and erythrocyte sedimentation rate (ESR; >30 mm/hr.)
  - elevated synovial fluid white blood cell (WBC; >10,000 cells/ $\mu$ L) count OR “++” (or greater) change on leukocyte esterase test strip of synovial fluid.
  - elevated synovial fluid polymorphonuclear neutrophil percentage (PMN% >90%) positive histological analysis of periprosthetic tissue (>5 neutrophils (PMNs) per high power field).
  - organism(s) identified from a single positive joint specimen (tissue or fluid) by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis and treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).

\* A sinus tract is defined as a narrow opening or passageway that can extend in any direction through soft tissue and results in dead space with potential for abscess formation.

\*Osteomyelitis must be seen and documented during an invasive procedure.

# Knowledge Check



Mrs. Ortho Knee had a KPRO procedure performed at the ambulatory surgery center. How long should the IP conduct post-discharge surveillance for superficial incisional SSI?

- 30 days
- 60 days
- 90 days
- Determined by the KPRO procedure type

# Knowledge Check – Answer and Rationale



Mrs. Ortho Knee had a KPRO procedure performed at the ambulatory surgery center. How long will you perform post-discharge surveillance for superficial incisional SSI?

- ☒ 30 days
- ☐ 60 days
- ☐ 90 days
- ☐ Determined by the KPRO procedure type

**Rationale:** The surveillance period for superficial incisional SSIs is 30-days regardless of the operative procedure code category.

# Scenario

You are the infection preventionist at the Good Health ASC where knee prosthesis (KPRO) surgeries have been performed for many years and these are the facility's highest volume procedure. Although your state does not mandate SSI reporting, the facility chooses to monitor KPROs using OPC.

# Updated OPC User Interface

The screenshot displays the NHSN (National Healthcare Safety Network) Outpatient Procedure (OPC) User Interface. The interface features a blue header with the NHSN logo and navigation icons. A left sidebar contains a list of menu items: Dashboard, Alerts (highlighted), Reporting Plan, Patients, Event, Procedure, Summary Data, Surveys, Users, Locations, Surgeons, Customize Forms, Facility Info, Groups, Analysis, and Logout. The main content area is titled 'Action Items' and 'Complete These Items'. Below this, there is a section for 'Alerts' which is currently empty. A prominent blue box at the bottom of the Alerts section contains an 'Assurance of Confidentiality' notice, stating that voluntarily provided information is collected with a guarantee of strict confidentiality and will be used only for the purposes stated, in accordance with Sections 304, 306, and 308(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d)).

**NHSN**  
NATIONAL HEALTHCARE  
SAFETY NETWORK

Outpatient Procedure

Dashboard

**Alerts**

Reporting Plan

Patients

Event

Procedure

Summary Data

Surveys

Users

Locations

Surgeons

Customize Forms

Facility Info

Groups

Analysis

Logout

**Action Items**

**Complete These Items**

**Alerts**

**Assurance of Confidentiality:** The voluntarily provided information obtained in this surveillance system that would permit identification of any individual or institution is collected with a guarantee that it will be held in strict confidence, will be used only for the purposes stated, and will not otherwise be disclosed or released without the consent of the individual, or the institution in accordance with Sections 304, 306 and 308(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d)).

# Adding OPC Procedure Denominator Data

# Manual Data Entry: Procedure Denominator

In the left navigation bar

1. Click **Procedure**
2. Click **Add**

**Procedures**

Import Export Delete Add

Procedure #	Procedure C...	CPT Code	Procedure ...	Last Name	First Name	Patient ID	Completion Status	Linked Events
<input type="text"/>	<input type="text"/>	<input type="text"/>	Select ...	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

# Manual Data Entry: Procedure Denominator, cont.

Enter data for all fields indicated by a red asterisk \* and red >

**Tip:** Click the Lookup Patient button to auto-populate the Patients list

3. Check the box next to the row with the patient
4. Click **Select**

**Add Procedure**

Back Save

Mandatory Fields required with \*  
Plan marked with >

**Patient**

Lookup Patient

**Patient Information**

Facility ID\*  
Yomi AMB-SURG Center (ID 13940)

Patient ID\*  
Date of Birth\*  
month/day/year

Last Name  
Sex\*

More Details

**Patients**

	Patient ID	Last Name	First Name	Social Security #	Sex	Date of Birth	Secondary ID
<input checked="" type="checkbox"/>	APPY111						
<input type="checkbox"/>	FT4567						
<input type="checkbox"/>	JD14932						

Select Cancel

# Manual Entry: Procedure Denominator Details, cont.

Enter data for all fields indicated by a red asterisk \* and red >

5. Select **KPRO – Knee Prosthesis** from the drop-down box and the appropriate CPT Code
6. Click **Save**

The screenshot shows the 'Add Procedure' form with the following fields and annotations:

- Procedure Details** (Section Header)
- Procedure Information** (Section Header)
- NHSN Procedure Code:** A drop-down menu with 'KPRO - Knee prosthesis' selected. An orange arrow labeled '5' points to this field.
- CPT Code:** A drop-down menu with a list of codes (27438, 27440, 27441, 27442, 27443, 27445) visible. An orange arrow labeled '5' points to this field.
- Procedure Date:** A text field with a calendar icon and a red asterisk.
- Procedure Details** (Section Header)
- Duration (Hrs):** A text field with a red asterisk.
- Duration (Mins):** A text field with a red asterisk.
- Scope:** A drop-down menu with a red asterisk.
- Diabetes Mellitus:** A drop-down menu with a red asterisk.
- Surgeon Code:** A text field with a red asterisk.
- Weight (lb):** A text field with a red asterisk.
- Weight (kg):** A text field with a red asterisk.
- BMI:** A text field with a red asterisk.
- Wound Class:** A drop-down menu with a red asterisk.
- Height (Meters):** A text field with a red asterisk.
- Height (Inches):** A text field with a red asterisk.
- Back** and **Save** buttons (An orange arrow labeled '6' points to the 'Save' button).

# .CSV Upload: Procedure Denominator

Please see test file below for OPC CSV Import File

patID	sex	dob	medicareI	procCode	procCPTC	procDate	procDurat	procDurat	swClass	asa	scope	surgeonC	anesthesi	htFeet	htInches	htMetric	wtEnglish	wtMetric	diabetes	comment
OP-2000	F	6/14/1941	123456789	APPY	44900	1/1/2020	1	10	CC	2	Y		Y	5	6		167		N	New surgeon
OP-2001	F	6/14/1941	234567891	BRST	11970	1/2/2020	2	20	C	2	N		Y	5	6		167		N	New surgeon
OP-3000	M	9/18/1946	345678912	COLO	44025	1/3/2020	3	30	CO	3	N		Y	5	8		234		Y	New surgeon
OP-4000	F	4/16/1997		GAST	43117	1/4/2020	4	40	D	1	N		Y			1.8		89.2	Y	New surgeon
OP-5000	M	6/6/1966		PRST	55705	1/5/2020	5	50	C	1	Y		Y			1.8		89.2	N	New surgeon
OP-6000	F	6/7/1967		HYST	58150	1/6/2020	6	59	CC	1	N		Y			1.8		89.2	N	

Go to the [Surgical Site Infections \(SSI\) | OPC | NHSN | CDC](#) webpage and under the Supporting Materials section, navigate to the Outpatient Procedure CSV Guide and Import File

- Import guide - <https://www.cdc.gov/nhsn/pdfs/opc/importing-opc-procedure-data-508.pdf>
- Import file template - <https://www.cdc.gov/nhsn/xls/opc/opc-csv-import-test-anyorder.csv>

\*CSV - Comma-Separated Values file also known as .csv files

# .CSV Upload: Procedure Denominator cont.

From the left navigation bar:

1. Click **Procedure**

2. Click **Import**

The screenshot shows the 'Outpatient Procedure' interface. On the left, the navigation bar includes 'Dashboard', 'Alerts', 'Reporting Plan', 'Patients', 'Event', 'Procedure' (highlighted with a red circle and the number 1), 'Summary Data', and 'Surveys'. The main area is titled 'Procedures' and contains a table with columns: Procedure #, Procedure Code, CPT Code, Procedure Date, Last Name, First Name, Patient ID, Completion Status, and Linked Events. The table lists five procedures. Above the table, there are buttons for 'Import' (highlighted with a red circle and the number 2), 'Export', 'Delete', and 'Add'. There are also search and filter icons.

Procedure #	Procedure Code	CPT Code	Procedure Date	Last Name	First Name	Patient ID	Completion Status	Linked Events
<input type="checkbox"/> 132342	BRST	19101	01/16/2025			QQ12896		
<input type="checkbox"/> 132331	KPRO	27447	05/02/2024			JD14932		
<input type="checkbox"/> 132330	KPRO	27447	05/02/2024			TT57913		
<input type="checkbox"/> 132329	KPRO	27447	05/02/2024			UD62874		
<input type="checkbox"/> 132328	KPRO	27447	01/03/2020			PP45796		

DISCLAIMER: All data presented in this presentation are fictitious for training purposes and do not represent any facility's data

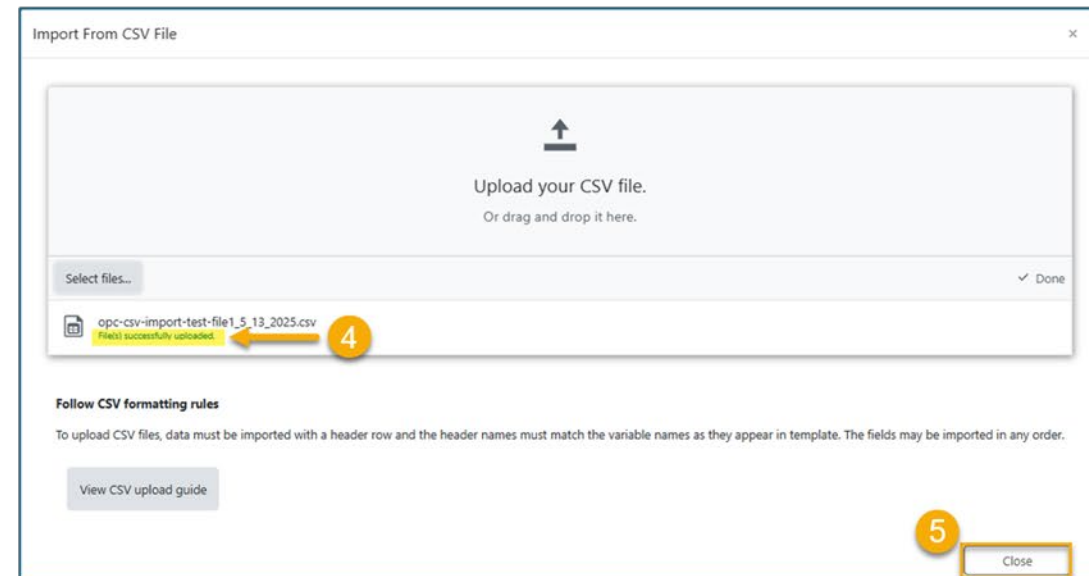
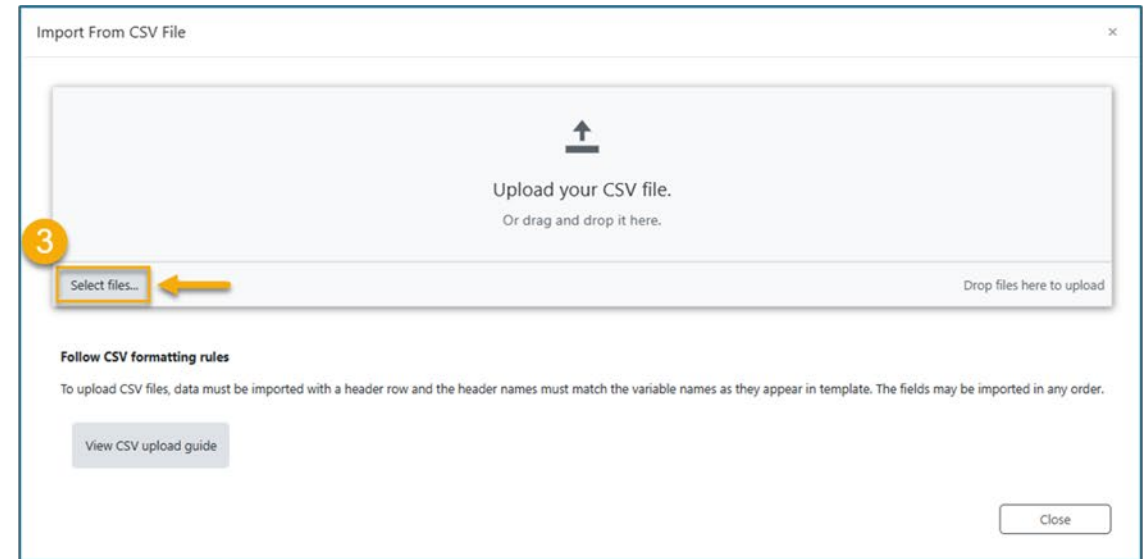
# .CSV Upload: Procedure Denominator, cont.

3. Click the **Select files** button

**\*\*Select your .CSV file for upload**

4. **'File successfully uploaded'** message will display

5. Click **Close**



# Procedures List

- All entered procedures will display

Procedures									Import	Export	Delete	Add
Procedure #	Procedure Code	CPT Code	Procedure Date	Last Name	First Name	Patient ID	Completion Status	Linked Events				
<input type="checkbox"/> 132284	KPRO											
<input type="checkbox"/> 131606	KPRO											
<input type="checkbox"/> 131605	KPRO											
<input type="checkbox"/> 131604	KPRO											
<input type="checkbox"/> 130982	BRST											
<input type="checkbox"/> 130819	LAM											
<input type="checkbox"/> 130818	HPRO											
<input type="checkbox"/> 129589	AMP											
<input type="checkbox"/> 99364	TSA											
<input type="checkbox"/> 91325	KPRO											
Page 1 of 2 10 items per page									1 - 10 of 11 items			

# Adding OPC SSI Event

# Adding an SSI Event

In the left navigation bar

1. Click **Event**
2. Click **Add**

The screenshot displays the 'Outpatient Procedure' interface. On the left, a navigation bar contains links for Dashboard, Alerts, Reporting Plan, Patients, Event, Procedure, Summary Data, and Surveys. The 'Event' link is highlighted with a purple box and a purple circle with the number '1'. The main area is titled 'Event List' and contains a table with columns: Event #, Event Type, Event Date, Last Name, First Name, Patient ID, Location, Complete Status, and Linked Procedures. The table has a header row and one data row with input fields. In the top right corner of the table area, there are 'Delete' and 'Add' buttons. The 'Add' button is highlighted with a purple box and a purple circle with the number '2'.

Event #	Event Type	Event Date	Last Name	First Name	Patient ID	Location	Complete Status	Linked Procedures
<input type="text"/>	<input type="text"/>	Select to op...	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

# Adding an SSI Event Cont.

- **Tip:** Click the **Lookup Patient** button to auto-populate the **Patients** list
3. Check the box next to the row with the patient
  4. Click **Select**
  5. Select Event Type: **OPSSI-Surgical Site Infection**

Enter data for all mandatory fields indicated by a red asterisk \* and red >

**Add Event**

Mandatory fields marked with \*  
Fields required for record completion marked with \*\*  
Fields required when in Plan marked with \*\*\*

**Patient**

Patient Information

Facility ID\* North AMB SURG Center (ID 13940)

Patient ID\*

Date of Birth\* month/day/year

Last Name

Sex

Lookup Patient

More Details \*

**Event**

Event Information

Event Number

Date of Event\* month/day/year

Event Type\*

OPSSI - Surgical Site Infection

OPSDOM - Same Day Outcome Measures

**Patients**

Patient ID	Last Name	First Name	Social Security #	Sex	Date of Birth	Secondary ID
APPY111						
FT4567						
JD14932						

Page 1 of 2 10 items per page

Select Cancel

# Adding an SSI Event Cont'd

6. Enter **Event Information** data
7. Enter **Procedure Information** data
8. Click the **Link Procedure** button

Enter data for all mandatory fields indicated by a red asterisk \* and red >

The screenshot shows the 'Add Event' form with the following fields and annotations:

- Event Information (Step 6):** Includes 'Event Number', 'Date of Event\*' (with a red asterisk and red >), 'Location', and 'Event Type\*' (with a red asterisk and red >). The 'Event Type' dropdown is currently set to 'OPSSI - Surgical Site'.
- Procedure Information (Step 7):** Includes 'NHSN Procedure Code:\*' (with a red asterisk and red >), 'CPT Code:\*' (with a red asterisk and red >), and 'Procedure Date:\*' (with a red asterisk and red >). The 'NHSN Procedure Code' dropdown is currently set to 'KPRO - Knee prosthesis'.
- Link Procedure (Step 8):** A button labeled 'Link Procedure' is highlighted with a purple box and an arrow pointing to it from the number 8.
- SSI Details:** Includes 'SSI Level>' (with a red >) and 'SSI Event Detected\*' (with a red asterisk and red >).
- Additional Details:** Includes 'Died\*\*' and 'Contributed to Death'.
- Pathogens:** Includes 'Pathogens Identified>' (with a red >).

Annotations include a yellow box at the top right with the text 'Enter data for all mandatory fields indicated by a red asterisk \* and red >', a purple circle around the 'Event Type\*' dropdown, and a purple box around the 'Link Procedure' button with an arrow pointing to it from the number 8.

# Link SSI Event to a Procedure in the Denominator

9. Check the box next to the row of the NHSN Procedure

10. Click the **Link** button

**Tip:** Only one procedure can be linked to an SSI event

11. The OPC KPRO SSI event is now linked to the KPRO procedure as indicated by the green **Procedure Linked**

12. Click **Save**

The screenshot shows the 'Add Event' form with a 'Link Event' dialog box open. The dialog box contains a table with the following data:

<input type="checkbox"/>	Procedure Number	NHSN Procedure Code	CPT Code	Procedure Date	Linked Events
<input type="checkbox"/>		FX		2024-12-03	
<input checked="" type="checkbox"/>		KPRO		2025-01-03	

A purple circle with the number 9 is next to the first row's checkbox, and a purple circle with the number 10 is next to the 'Link' button in the dialog box.

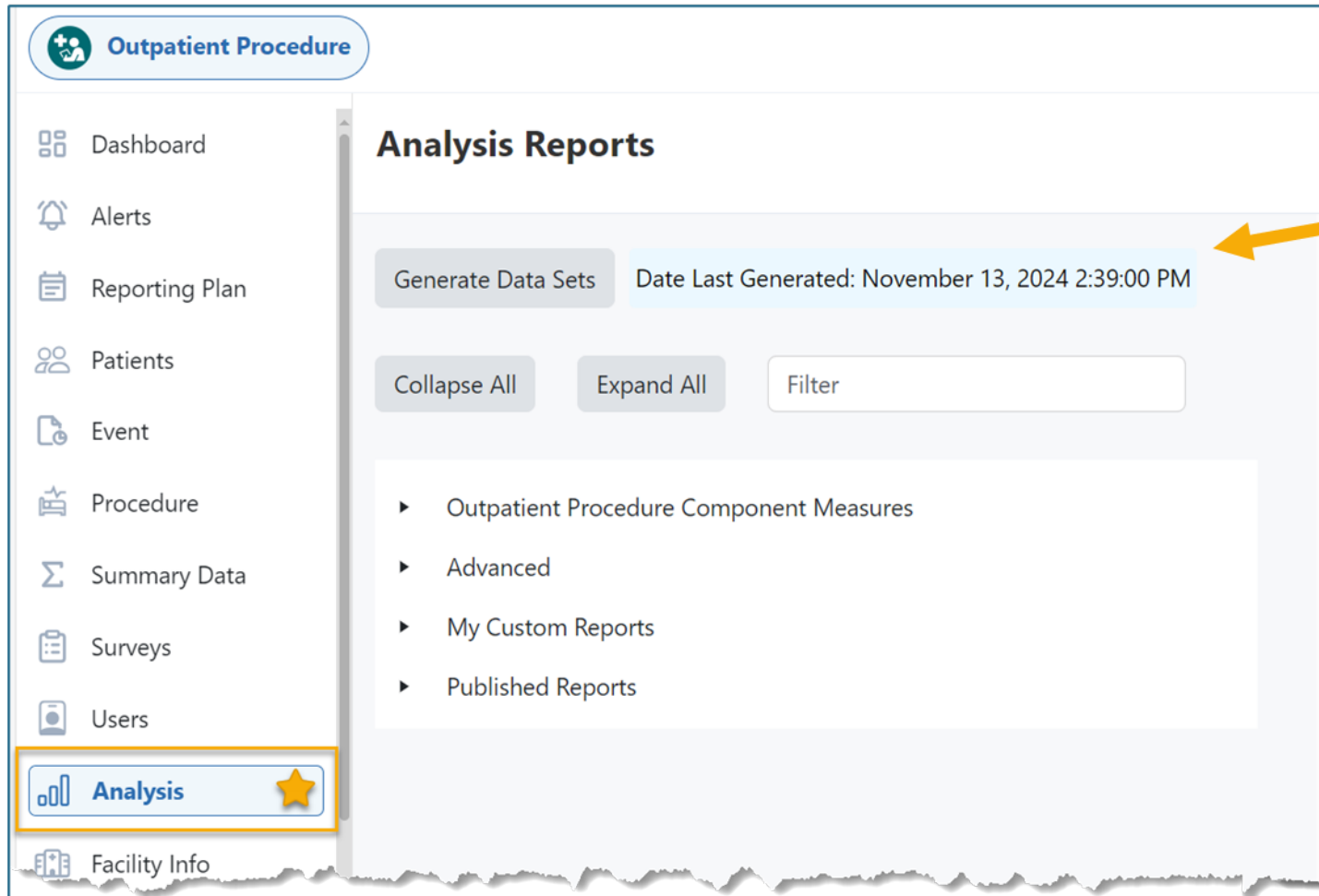
The screenshot shows the 'Add Event' form with the 'Procedure Linked' status. The 'Procedure Information' section shows the NHSN Procedure Code as 'KPRO - Knee prosthesis' and the Procedure Date as '01/03/2025'. A green button labeled 'Procedure Linked' is highlighted with a purple circle and the number 11. A purple circle with the number 12 is next to the 'Save' button in the top right corner.

# Analysis

The Analysis section of the NHSN application provides tools for reviewing and validating data, monitoring trends, and comparing surgical site infection (SSI) Standardized Infection Ratios (SIR). It enables users to generate customized reports, track performance over time, and identify areas for quality improvement.

# Generating Analysis Data Sets

# Accessing the Analysis Reports



- Data Set Generation (DSG) pulls recently-entered data into analysis data sets
- DSG should be performed **each time** before starting any analytic work

# Data Set Generation

## Analysis Reports

Generate Data Sets

Date Last Generated: December 2, 2024 9:33:00 AM

The Generate Data Sets button appears in the Analysis Reports page with the date and time of the last data set generation

The “Reporting Data Sets” window will appear on the same page and a time period can be specified to apply to all analysis data sets in MM/YYYY format. The “Generate Reporting Data Sets” button will start the data set generation process.

## Reporting Data Sets

Include data for the following time period:



Beginning

month/year

Ending

month/year

Clear Time Period

Last Generated: 2024-12-03T14:33:00.000+00:00

Clicking the 'Generate Reporting Data Sets' button will schedule your data set generation.

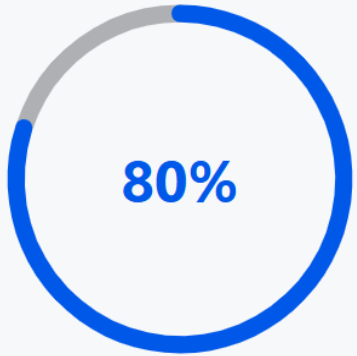
You may log out or continue to work in other areas of NHSN.

When you return to this screen you will see a progress bar if still processing, otherwise, you will see a time completed.

Generate Reporting Data Sets

Cancel

# Data Set Generation



Processing OP\_Events

Your data set generation has been scheduled. You may log out or continue to work in other areas of NHSN. When you return to this screen you will see a progress bar if still processing, otherwise, you will see a time completed.

[Clear data sets and processing](#)

Click here if you need to clear your analysis data sets or cancel your in-progress data set generation

When the process starts, you will see a new processing image appear on the Analysis page. When data sets have generated, the date and time of last generation will be updated to indicate that the data sets generated successfully.

## Analysis Reports

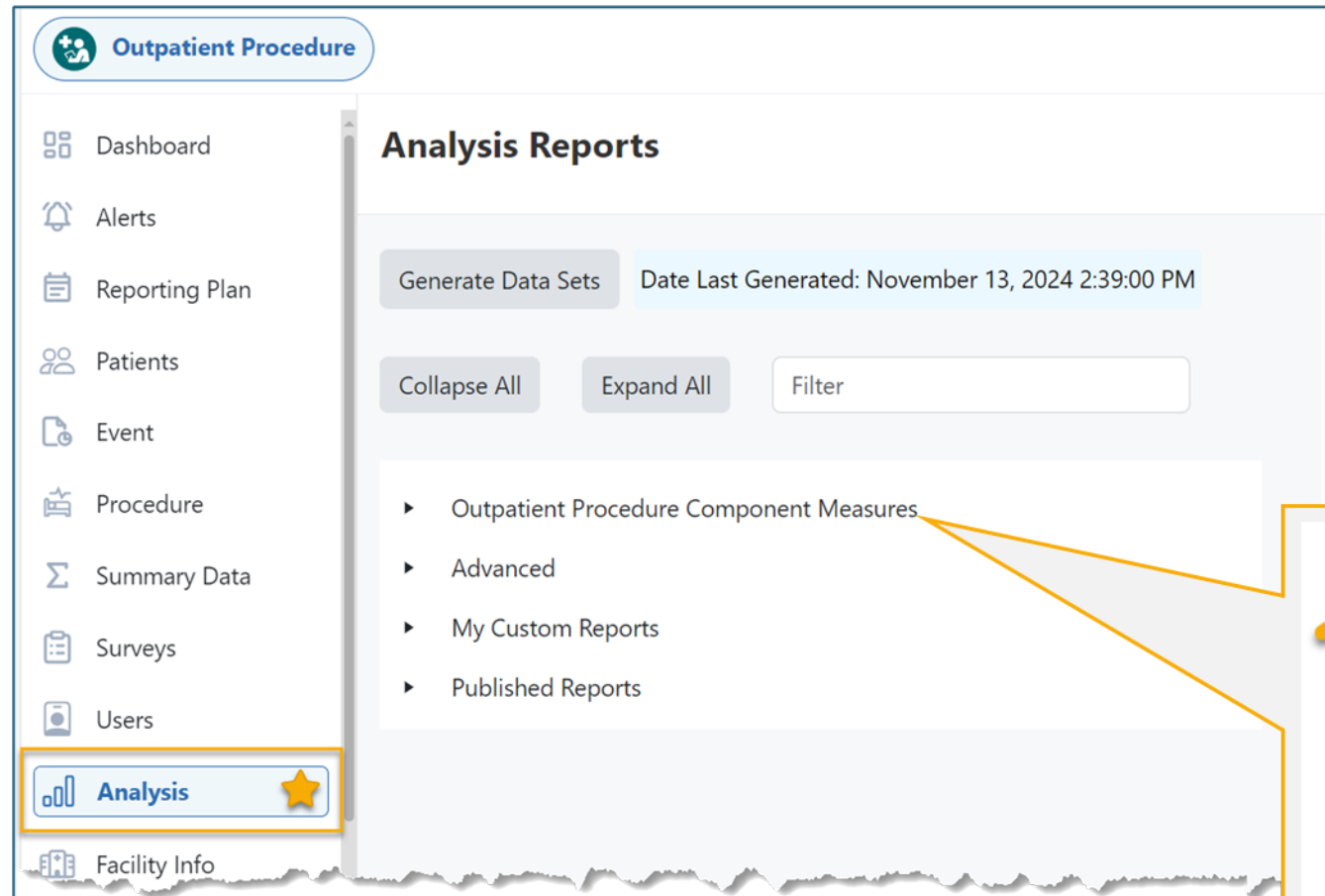
Generate Data Sets

Date Last Generated: 05/12/2025, 04:03:00 PM (UTC)

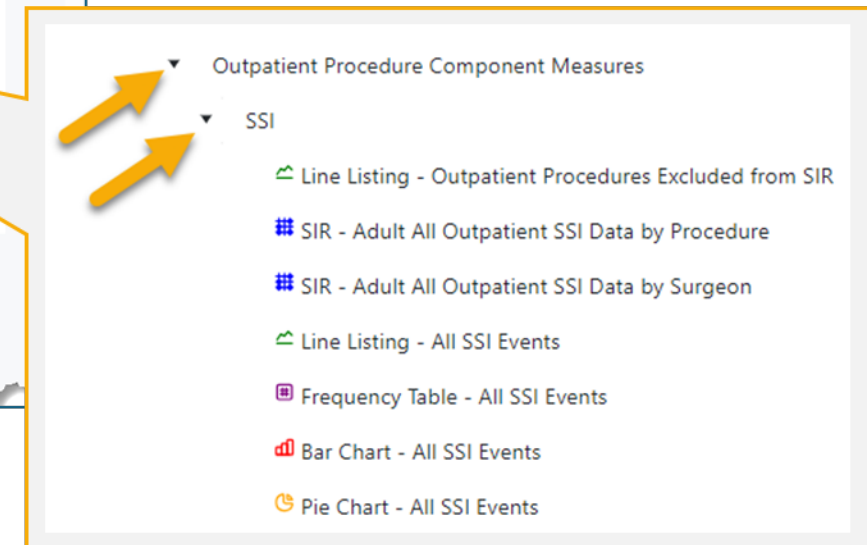
[Clear data sets and processing](#)

# Opening the Analysis Reports

# Accessing the Analysis Report



- All report options marked with an arrow can be selected to reveal additional reports.



# Selecting an Analysis Report

The screenshot shows a web interface for selecting an analysis report. On the left is a sidebar with a tree view. The main panel on the right displays the details for the selected report, 'Line Listing - All SSI Events'.

**Generate Data Sets** Date Last Generated: November 13, 2024 2:39:00 PM

**Collapse All** **Expand All**

**Outpatient Procedure Component Measures**

- SSI**
  - Line Listing - Outpatient Procedures Excluded from SIR
  - SIR - Adult All Outpatient SSI Data by Procedure
  - SIR - Adult All Outpatient SSI Data by Surgeon
  - Line Listing - All SSI Events** (highlighted with an orange arrow)
  - Frequency Table - All SSI Events
  - Bar Chart - All SSI Events
  - Pie Chart - All SSI Events
- Same Day Outcome Measures
- Advanced
- My Custom Reports
- Published Reports

**REPORT DETAILS**

**Title**  
Line Listing - All SSI Events

**Analysis Data Set**  
OP\_SSI\_Events

**Last Generated**  
November 13, 2024

**Type**  
linelist

**Format**  
html

**Time Period**

**Filters**

**Display Variables**

- orgID
- patID
- opeventType
- opspcEvent
- procDate
- procCode
- dob
- ageAtProc
- gender
- sexAtBirth
- genderIdentity
- procDurationHr

**More** (highlighted with an orange arrow)

**Sort Variables**

- procCode

**Run** **Modify** **Export**

- **5 Report Formats**
  - Line Listing
  - Frequency Table
  - Bar Chart
  - Pie Chart
  - SIR Report

Simply select the 'Modify' button to adjust the report filters

# Selecting an Analysis Report - Line Listing

- Detailed list of each record in NHSN
- Example: Line Listing of all SSI Events

## National Healthcare Safety Network Line Listing - All SSI Events

As of: May 12, 2025 at 4:28 PM UTC

Date Range: All OP\_SSI\_EVENTS

if ( (((patID ~= "1" ) ) ) AND ( orgid = 14913 ) )

orgID	patID	opeventType	opspcEvent	procDate	procCode	dob	ageAtProc	sex	procDurationHr	procDurationMin
14913	2323	OPSSI	BRST-DIP	03/15/2018	BRST	08/12/1890	127		.	
14913	OPC1396	OPSSI	DIS-BRST	06/02/2018	BRST	08/15/1968	49	F	6	25
14913	OPC1022	OPSSI	SIS	06/11/2018	HER	09/21/1956	61	M	2	29
14913	OPC1177	OPSSI	SIS	06/30/2018	LAM	04/20/1981	37	F	2	
14913	OPC1200	OPSSI	SIS	07/05/2018	KPRO	10/20/1974	43	F	3	3
14913	OPC1202	OPSSI	SIS	07/05/2018	KPRO	12/21/1975	42		1	54
14913	OPC1029	OPSSI	OS-BRST	07/06/2018	BRST	10/09/1972	45		0	4
14913	OPC1189	OPSSI	OS	07/09/2018	LAM	03/18/1984	34	F	0	
14913	OPC1205	OPSSI	DIP	07/10/2018	KPRO	06/10/1974	44	M	7	7

# Selecting an Analysis Report - Frequency Table

- **Counts and percentages, organized by chosen row and column variables**
- **Example: OP Event Type by procedure code**

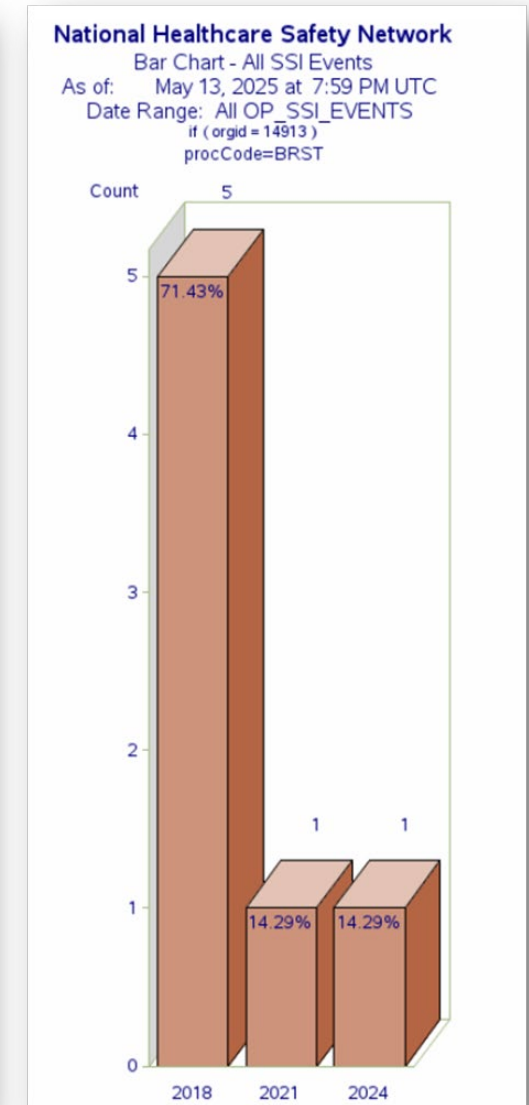
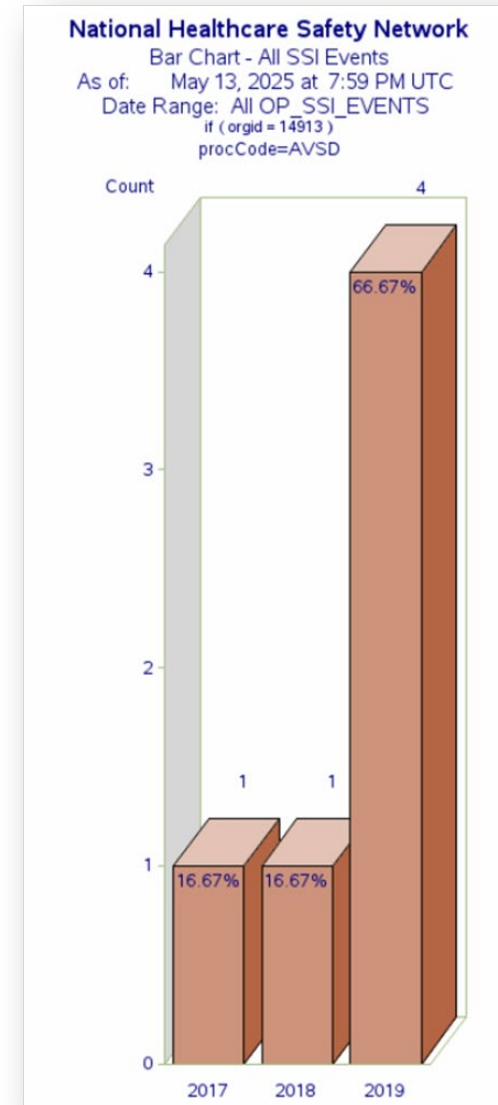
**National Healthcare Safety Network**  
**Frequency Table of All Surgical Site Infection Events**  
 As of: May 13, 2025 at 7:51 PM UTC  
 Date Range: All OP\_SSI\_EVENTS  
 if ( orgid = 14913 )

Frequency Percent Row Pct Col Pct	Table of procCode by opspcEvent									
	procCode	opspcEvent								Total
		BRST-DIP	DIP	DIS	DIS-BRST	OS	OS-BRST	SIP	SIP-BRST	
AMP		0	2	0	0	0	0	0	0	2
		0.00	4.88	0.00	0.00	0.00	0.00	0.00	0.00	4.88
		0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
		0.00	18.18	0.00	0.00	0.00	0.00	0.00	0.00	
APPY		0	0	0	0	0	0	3	0	3
		0.00	0.00	0.00	0.00	0.00	0.00	7.32	0.00	7.32
		0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	
		0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.00	
AVSD		0	3	2	0	1	0	0	0	6
		0.00	7.32	4.88	0.00	2.44	0.00	0.00	0.00	14.63
		0.00	50.00	33.33	0.00	16.67	0.00	0.00	0.00	
		0.00	27.27	66.67	0.00	16.67	0.00	0.00	0.00	
BRST		1	0	0	2	0	1	1	1	6
		2.44	0.00	0.00	4.88	0.00	2.44	2.44	2.44	14.63
		16.67	0.00	0.00	33.33	0.00	16.67	16.67	16.67	
		100.00	0.00	0.00	100.00	0.00	100.00	8.33	100.00	
OS		0	0	1	0	0	0	0	0	1
		0.00	0.00	4.88	0.00	0.00	0.00	0.00	0.00	4.88
		0.00	0.00	33.33	0.00	0.00	0.00	0.00	0.00	
		0.00	0.00	66.67	0.00	0.00	0.00	0.00	0.00	

# Selecting an Analysis Report

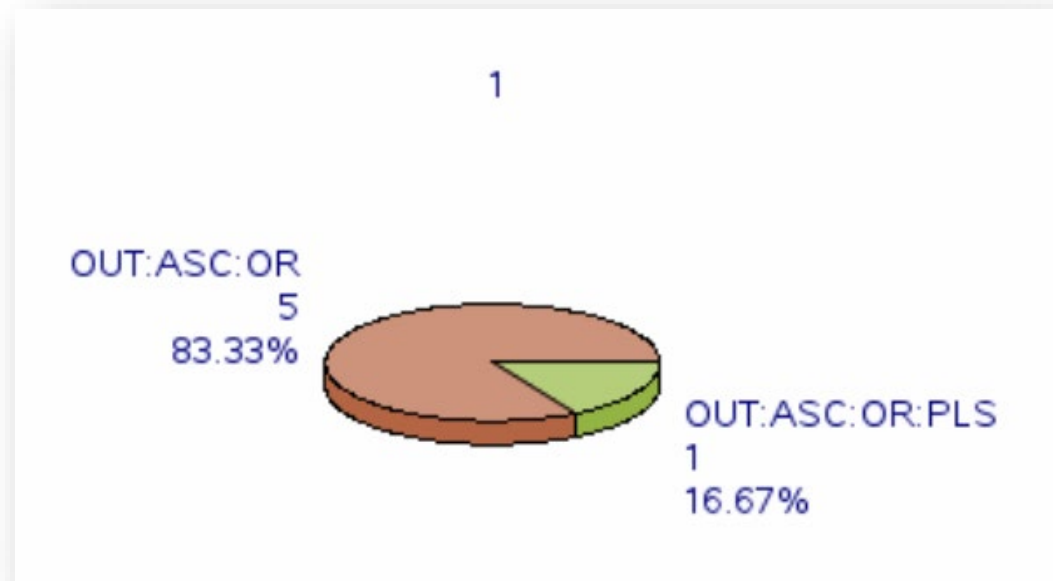
## – Bar Chart

- Bars for side-by-side comparison
- **Example:** SSI Event Count by procedure type and year



# Selecting an Analysis Report – Pie Chart

- **Circular visualization useful for showing proportions**
- **Example:** Count of SSI events by facility location, where ASA score = 1



# Selecting an Analysis Report – SIR Report

## Background:

- The Standardized Infection Ratio (SIR) is a key NHSN metric to track HAIs over time
- Adjusted for facility and patient-level factors
- Compares number of HAIs reported to number of HAIs predicted by statistical modeling
- Full SIR guide available on [NHSN website](#)

$$SIR = \frac{\text{Observed (O) HAIs}}{\text{Predicted (P) HAIs}}$$

# Selecting an Analysis Report – SIR Report

- A summary metric used to monitor actual incidence compared to predicted incidence
- **Example:** facility-wide SIR report (top) and SIRs broken down by procedure code (bottom)

## National Healthcare Safety Network

### SIR for Adult All Outpatient SSI Data by Procedure (2015 Baseline) - By OrgID

As of: May 14, 2025 at 10:13 AM UTC

Date Range: All OP\_SIR\_ADULTALLSSIPROC

if ( orgid = 14913 )

orgid=14913

orgid	CCN	procCount	infCountAdultAll	numPredAdultAll	SIRAll	SIRAll_pval	SIRAll95CI
14913	65C32	3619	14	13.007	1.076	0.7532	0.613, 1.763

## National Healthcare Safety Network

### SIR for Adult All Outpatient SSI Data by Procedure (2015 Baseline) - By OrgID/ProcCode

As of: May 14, 2025 at 10:13 AM UTC

Date Range: All OP\_SIR\_ADULTALLSSIPROC

if ( orgid = 14913 )

orgid=14913

orgid	CCN	proccode	months	procCount	infCountAdultAll	numPredAdultAll	SIRAll	SIRAll_pval	SIRAll95CI
14913	65C32	BRST	9	1040	4	4.23	0.946	0.9740	0.300, 2.281
14913	65C32	HER	4	818	0	5.265	0	0.0052	, 0.569
14913	65C32	KPRO	7	899	8	0.519	.	.	
14913	65C32	LAM	4	862	2	2.993	0.668	0.6250	0.112, 2.208

# Knowledge Check

**When doing data analysis in the NHSN application, how often should you generate data sets?**

- A. At the start of every week**
- B. At the start of every month**
- C. Each time you start analytic work**
- D. When the application reminds you**

# Knowledge Check

When doing data analysis in the NHSN application, how often should you generate data sets?

- A. At the start of every week
- B. At the start of every month
- C. Each time you start analytic work
- D. When the NHSN application prompts you

**Why?** Generating data sets ensures that the all of your latest data are being included in your analysis reports

# Modifying Analysis Reports

# Modifying Analysis Reports

The screenshot displays the NHSN analysis report interface. At the top, there's a 'Generate Data Sets' button and a status bar indicating 'Date Last Generated: November 13, 2024 2:39:00 PM'. Below this are 'Collapse All', 'Expand All', and a 'Filter' input field. The left sidebar shows a tree view of report categories: 'Outpatient Procedure Component Measures' (expanded), 'SSI' (expanded), and 'Line Listing - All SSI Events' (selected, highlighted with a yellow box and an orange arrow). Other reports listed include 'Line Listing - Outpatient Procedures Excluded from SIR', 'SIR - Adult All Outpatient SSI Data by Procedure', 'SIR - Adult All Outpatient SSI Data by Surgeon', 'Frequency Table - All SSI Events', 'Bar Chart - All SSI Events', 'Pie Chart - All SSI Events', 'Same Day Outcome Measures', 'Advanced', 'My Custom Reports', and 'Published Reports'. The main panel shows the 'REPORT DETAILS' for 'Line Listing - All SSI Events'. It includes fields for 'Analysis Data Set' (OP\_SSI\_Events), 'Last Generated' (November 13, 2024), 'Type' (linelist), 'Format' (html), and 'Time Period'. A 'More' button is visible. Below these fields are 'Display Variables' (orgID, patID, opeventType, opspcEvent, procDate, procCode, dob, ageAtProc, gender, sexAtBirth, genderIdentity, procDurationHr) and 'Sort Variables' (procCode). At the bottom, there are 'Run', 'Modify' (highlighted with a yellow box and an orange arrow), and 'Export' buttons.

- Each analysis report in NHSN is highly customizable
  - Modifications can be saved to create custom reports
- Simply select the 'Modify' button to adjust the report filters

# Modifying Analysis Reports – Title and Time Period

## Modify Report

Back ✕Export ▾Run ▶Save 📄

<b>Analysis Data Set</b> OP_SSI_Events	<b>Last Generated</b> 05/12/2025, 04:03:12 PM (UTC)	<input type="checkbox"/> Show descriptive variable names <a href="#">Print List</a>
---	--	--

**Title/Format**

Title

Format

HTML ▾

Custom Report Name

**Time Period**

Date Variable

evntDateYr ▾

Beginning

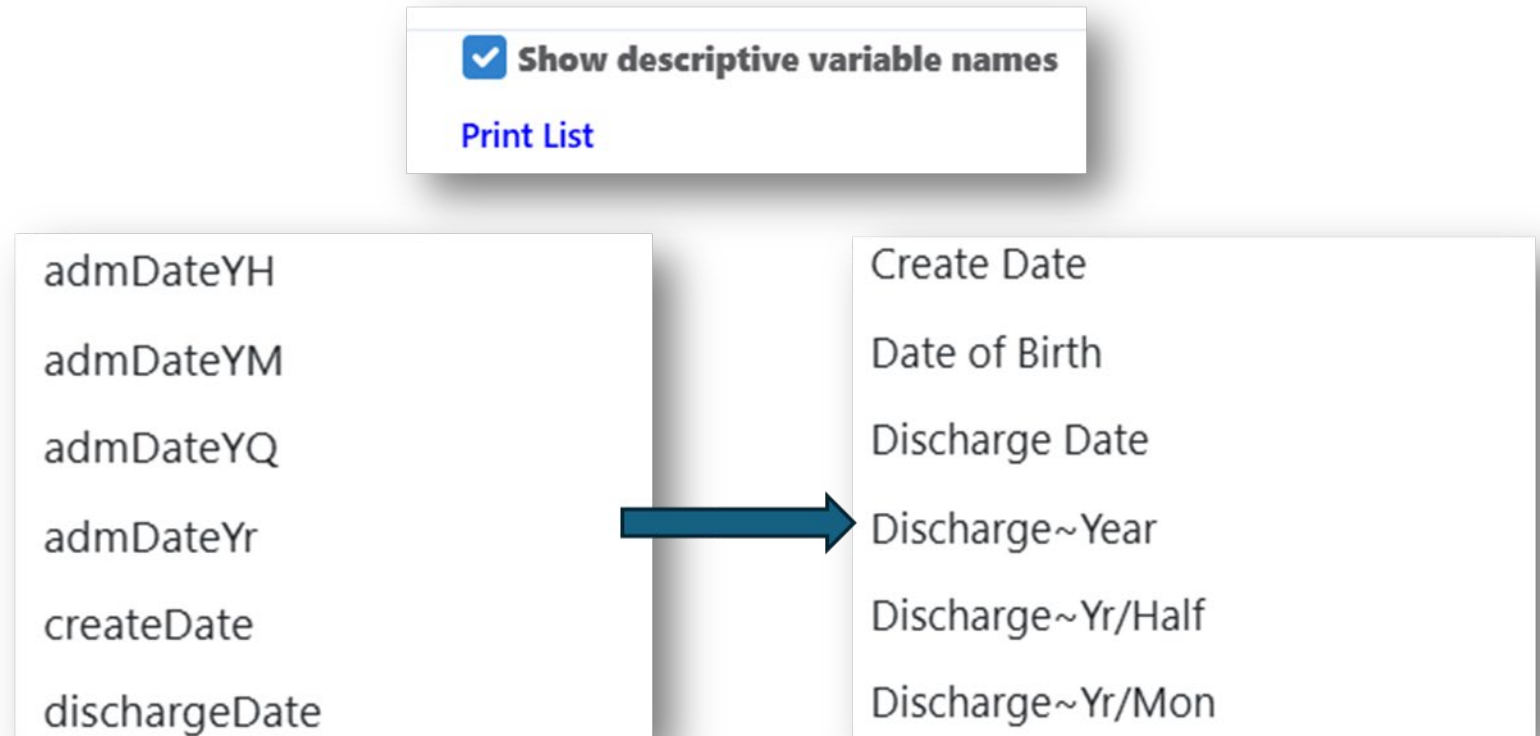
Ending

Clear Time Period

Custom Report Time Period

# Modifying Analysis Reports – Descriptive Variables

- Clicking the "Show descriptive variable names" button spells out every variable on the page



# Modifying Analysis Reports – Filters

## Filters

RULE SET 1

Delete Filter

Include records that match all ▼ of the following rules:

Attribute	Condition	Value	
Procedure Code ▼	equal ▼	KPRO - Knee prosthesis ▼	X

+ Add Rule

+ Add New Filter

Starts a New  
Set of Rules

Only Includes  
Records where  
Procedure Code  
= KPRO

# Modifying Analysis Reports – Display Variables

- Arrows are used to include, exclude, and reorder variables
- BMI has been added to the report in this example

The screenshot shows a software interface titled "Display Variables" with a hamburger menu icon on the left. It is divided into two main sections: "Available Variables" on the left and "Selected Variables" on the right. A vertical column of control buttons is positioned between the two sections. The "Available Variables" list includes: Abscess?, ageAtEvent, ASA Class, ASA Class Description, Birth Wt, Birth Wt Code, birthWtCodeDesc, Caregiver contacts facility to report, CDC Location, CDC Location Description, CMS Certification Number, and Comment. The "Selected Variables" list includes: Facility Org ID, BMI (highlighted in blue), Patient ID, OP Event Type, OP Specific Event, Procedure Date, Procedure Code, Date of Birth, Age on Proc Date, sex, Duration of~Procedure - hr, and Duration of~Procedure - min. The control buttons between the sections include an up arrow, a down arrow, a right arrow, a left arrow, a double right arrow, a double left arrow, and an 'X' button. A yellow rectangular box highlights this column of control buttons.

# Modifying Analysis Reports – Sort Variables

- Arrows are used to change how the records are sorted
- Event Date has been added as a sort variables in this example

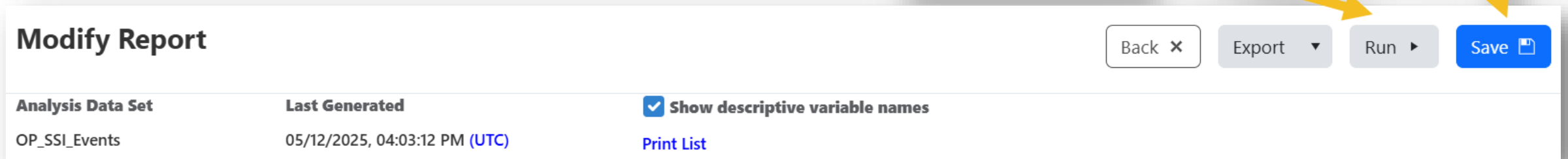
The screenshot displays the 'Sort Variables' interface, which is used to configure how data records are sorted in analysis reports. The interface is divided into two main sections: 'Available Variables' on the left and 'Selected Variables' on the right. A vertical column of control buttons is positioned between these two sections, highlighted by a yellow rectangular box. These buttons include an up arrow, a down arrow, a right arrow, a left arrow, a double right arrow, a double left arrow, and a close (X) button. In the 'Available Variables' list, 'Event Date' is the first item. In the 'Selected Variables' list, 'Event Date' is the first item and is highlighted with a blue background, while 'Procedure Code' is the second item.

## ↓<sup>A</sup>/<sub>Z</sub> Sort Variables

Available Variables		Selected Variables
Ethnicity	▲	Procedure Code
Ethnicity Description	▼	Event Date
Event ID	▶	
Event~Year	▶	
Event~Yr/Half	▶	
Event~Yr/Mon	▶	
Event~Yr/Qtr	▶	
Fac Admission~Year	▶	
Fac Admission~Yr/Half	▶	
Fac Admission~Yr/Mon	▶	
Fac Admission~Yr/Qtr	▶	
Facility Org ID	▶	

# Modifying Analysis Reports – Running and Saving Modified Reports

- To save some time with future analyses, modified reports can be saved in the custom reports folder



The screenshot shows the 'Modify Report' interface. At the top right, there are four buttons: 'Back' with a close icon, 'Export' with a dropdown arrow, 'Run' with a right arrow, and 'Save' with a document icon. Two yellow callout boxes with arrows point to these buttons. The first callout, 'Runs the Report with Your Modifications', points to the 'Run' button. The second callout, 'Saves Report with all Current Modifications as a Custom Report', points to the 'Save' button.

**Modify Report**

Back ×   Export ▾   Run ►   Save 📄

Analysis Data Set	Last Generated	<input checked="" type="checkbox"/> Show descriptive variable names
OP_SSI_Events	05/12/2025, 04:03:12 PM (UTC)	<a href="#">Print List</a>

# Exporting Analysis Reports

The exporting feature enables facilities to quickly export their analysis reports out of NHSN into a variety of formats

# Exporting Analysis Reports

The screenshot shows a web interface for managing analysis reports. On the left, a sidebar lists various report categories: 'Outpatient Procedure Component Measures' (expanded), 'SSI' (expanded), 'Line Listing - All SSI Events' (selected), 'Frequency Table - All SSI Events', 'Bar Chart - All SSI Events', 'Pie Chart - All SSI Events', 'SIR - Adult All Outpatient SSI Data by Procedure', 'SIR - Adult All Outpatient SSI Data by Surgeon', 'Line Listing - Outpatient Procedures Excluded from SIR', 'Same Day Outcome Measures', 'Advanced', and 'My Custom Reports'. The main panel displays the 'REPORT DETAILS' for 'Line Listing - All SSI Events'. It includes fields for 'Analysis Data Set' (OP\_SSI\_Events), 'Filters', 'Last Generated' (May 12, 2025), 'Type' (linelist), 'Format' (html), and 'Time Period'. A 'More' button is next to the 'Time Period' field. At the bottom, there are three buttons: 'Run', 'Modify', and 'Export' (highlighted with a yellow box).

- All analysis reports can be exported to a variety of formats
- Reports with modifications will include those modifications when exported

The screenshot shows a dropdown menu for the 'Export' button. The menu lists several export formats: 'delimited file (comma-separated values) (\*.csv)', 'delimited file (tab-delimited values) (\*.txt)', 'Excel spreadsheet (\*.xlsx)', 'SAS for Windows V7/8/9 (\*.sas7bdat)', and 'JavaScript Object Notation (\*.json)'. A yellow arrow points from the 'Export' button in the main interface to this dropdown menu. Another yellow arrow points to the 'SAS for Windows V7/8/9 (\*.sas7bdat)' option.

# Exporting Analysis Reports

orgID	patID	opeventType	opspcEvent	procDate	procCode	dob	ageAtProc	sex	proc
14913	1	OPSSI	SIP			10/09/1990	27	M	
14913	1	OPSSI	SIP			10/09/1990	32	M	
14913	OPC1015	OPSSI	DIP	01/01/2019	AMP	09/27/1941	76	F	
14913	140044	OPSSI	DIP	01/17/2024	AMP	12/11/1961	62	M	
14913	1	OPSSI	SIP	01/05/2023	APPY	10/09/1990	32	M	
14913	1	OPSSI	SIP	01/05/2023	APPY	10/09/1990	32	M	
14913	1	OPSSI	SIP	01/05/2023	APPY	10/09/1990	32	M	
14913	1	OPSSI	OS	09/05/2017	AVSD	10/09/1990	29	M	
14913	1	OPSSI	DIP	06/15/2018	AVSD	10/09/1990	29		
14913	1	OPSSI	DIP	01/01/2019	AVSD	10/09/1990	29		
14913	1	OPSSI	DIS	01/01/2019	AVSD	10/09/1990	29		
14913	CM0410-APPY-A	OPSSI	DIS	04/10/2019	AVSD	05/05/1955	63		
14913	3	OPSSI	DIP	04/01/2019	AVSD	01/09/1960	59		
14913	2323	OPSSI	BRST-DIP	03/15/2018	BRST	08/12/1890	127		
14913	OPC1396	OPSSI	DIS-BRST	06/02/2018	BRST	08/15/1968	49	F	
14913	OPC1029	OPSSI	OS-BRST	07/06/2018	BRST	10/09/1972	45		
14913	OPC1162	OPSSI	SIP-BRST	08/08/2018	BRST	05/05/1950	68	M	
14913	OPC1156	OPSSI	DIS-BRST	09/20/2018	BRST	07/15/1942	76	F	
14913	OP21111	OPSSI		01/25/2021	BRST	12/02/1990	30	F	
14913	OPD-89	OPSSI	SIP	02/04/2024	BRST	01/13/2002	22	M	

NHSN Application

orgID	patID	opeventType	opspcEvent	procDate	procCode	dob	ageAtProc	sex	proc
14913	1	OPSSI	SIP			10/9/1990	27	M	
14913	1	OPSSI	SIP			10/9/1990	32	M	
14913	OPC10	OPSSI	DIP	1/1/2019	AMP	9/27/1941	76	F	
14913	140044	OPSSI	DIP	1/17/2024	AMP	12/11/1961	62	M	
14913	1	OPSSI	SIP	1/5/2023	APPY	10/9/1990	32	M	
14913	1	OPSSI	SIP	1/5/2023	APPY	10/9/1990	32	M	
14913	1	OPSSI	SIP	1/5/2023	APPY	10/9/1990	32	M	
14913	1	OPSSI	OS	9/5/2017	AVSD	10/9/1990	29	M	
14913	1	OPSSI	DIP	6/15/2018	AVSD	10/9/1990	29	M	
14913	1	OPSSI	DIP	1/1/2019	AVSD	10/9/1990	29	M	
14913	1	OPSSI	DIS	1/1/2019	AVSD	10/9/1990	29	M	
14913	CM041	OPSSI	DIS	4/10/2019	AVSD	5/5/1955	63	F	
14913	3	OPSSI	DIP	4/1/2019	AVSD	1/9/1960	59	F	
14913	2323	OPSSI	BRST-DIP	3/15/2018	BRST	8/12/1890	127		
14913	OPC13	OPSSI	DIS-BRST	6/2/2018	BRST	8/15/1968	49	F	
14913	OPC10	OPSSI	OS-BRST	7/6/2018	BRST	10/9/1972	45		
14913	OPC11	OPSSI	SIP-BRST	8/8/2018	BRST	5/5/1950	68	M	
14913	OPC11	OPSSI	SIP-BRST	8/8/2018	BRST	5/5/1950	68	M	

Microsoft Excel

# Resources

- **For OPC KPRO resources guides, visit the Annual Training Community**
- **You will find the following resource guides:**
  - Adding Same Day Outcome Measures and Completing Denominators for the Same Day Outcome Measure
  - Adding Monthly Reporting Plans in the NHSN Application
  - Adding and Editing Surgical Site Infection (SSI) Events and Procedures in the NHSN Application
  - How to Export Facility-Specific Data from NHSN
  - How to Generate Data Sets in NHSN
  - How to Modify Procedures Line List

# For NHSN questions or concerns related to the Annual Training

## Post questions in the Annual Training Community

After June 10<sup>th</sup>, please submit questions to the NHSN Help Desk.

- Access new portal at <https://servicedesk.cdc.gov/nhsncsp> .
- If you do not have a SAMS login, or are unable to access ServiceNow, you can still email the NHSN Help Desk at [nhsn@cdc.gov](mailto:nhsn@cdc.gov).

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

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.

