



# Outpatient Procedure Component

## How to Add and Analyze Custom Procedure and Events

**Scott Decker MPH CHES**

**Irene Khan MPH**

NHSN Acute Care Analytics Team

Division of Healthcare Quality Promotion, CDC

2022 NHSN Annual Training

# Objectives

- This training will provide an overview of NHSN Custom Reporting
- After the completion of this training, the OPC user will be able to:
  - Identify what a Custom Procedure is and how is it created
  - Identify what a Custom Event is and how is it created
  - Identify the reports available for data analysis and interpretation
  - Perform analysis of SSI data and review the analysis output
  - Save custom analysis reports

# Training Notes

- All data in this presentation has been **created in a test environment** and is for training purposes only. Information seen on images during this presentation **do not represent any actual data** submitted to NHSN by participating facilities

# NHSN Defined Procedures and Events

Table 1. NHSN OPC Operative Procedure Categories

Procedure Category	Operative Procedure
<u>AMP</u>	<u>Limb amputation</u>
<u>APPY</u>	<u>Appendix surgery</u>
<u>AVSD</u>	<u>AV shunt for dialysis</u>
<u>CEA</u>	<u>Carotid endarterectomy</u>
<u>CHOL</u>	<u>Gallbladder surgery</u>
<u>COLO</u>	<u>Colon surgery</u>
	<u>Spinal fusion</u>

## Surgical Site Infection (SSI) Criteria

### Table 4A: General OPC-SSI Criteria

APPLY TO ALL OPERATIVE PROCEDURE CATEGORIES EXCEPT BREAST SURGERY (BRST). *USE BREAST SURGERY (BRST) - SURGICAL SITE INFECTION CRITERIA FOR SSIs ATTRIBUTABLE TO BRST.*

#### OPC General – Superficial Incisional SSI

Must meet the following criteria:

Date of event for infection occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date)

**AND**  
involves only skin and subcutaneous tissue of the incision

**AND**

patient has at least **one** of the following:

- purulent drainage from the superficial incision.
- organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue 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]).
- superficial incision that is deliberately opened by a surgeon, physician or physician designee and culture or non-culture based testing of the superficial incision or subcutaneous tissue is not performed.

**and**

patient has at least one of the following signs or symptoms: localized pain or tenderness; localized swelling; erythema; or heat.

**NHSN Defined Procedures Category**

**NHSN Defined Events**

# NHSN Defined Procedures and Events

FAQ: What if your facility wants to report and analyze data for procedures that are not an NHSN Defined Procedure?

Answer: Create a custom procedure that fits your reporting needs in NHSN!



# Custom Procedure, Events and Fields

- NHSN custom data tools are surveillance resources that allow a facility to tailor its data collection needs. Use of these tools is optional and must be defined by the facility
- Facility should define their own criteria prior to creating custom options

<b>Custom procedure</b>	<ul style="list-style-type: none"><li>• Not an NHSN procedure</li><li>• Not included in the MRP</li><li>• Off-plan plan reporting</li></ul>
<b>Custom event</b>	<ul style="list-style-type: none"><li>• No NHSN event criteria</li></ul>
<b>Custom field</b>	<ul style="list-style-type: none"><li>• Not an NHSN variable</li><li>• May be added to an NHSN defined procedure</li></ul>

There is not benchmarking available for custom created procedures. SIRs cannot be calculated.

# Creating a New Procedure– Cataract Surgery

- Currently, OPC does not include a CDC-Defined measure for Cataract procedures
- Cataract lens surgery is one of the most common procedures completed in ASC's
  - 9.3% of all ambulatory surgeries were cataract surgeries in 2012<sup>1</sup>
    - 99.8 of them all conducted in an outpatient setting<sup>1</sup>
- While rare, incidence of endophthalmitis from this procedure can have serious complications for patients that are life long<sup>2</sup>



1. <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb188-Surgeries-Hospital-Outpatient-Facilities-2012.pdf>

2. <https://www.cehjournal.org/article/endophthalmitis-controlling-infection-before-and-after-cataract-surgery>

# Custom Options Function

- Accessed from the NHSN facility page under “Facility”
- Page provides instructions and available options for new variables, procedures, and events to add

The screenshot shows the 'Custom Options' web application interface. At the top, there is a header with the NHSN logo and the title 'Custom Options'. Below the header, there are three sections of instructions:

- Instructions:**
  - To **Add** a record, fill in the form with the required fields and any desired optional values. Then click on the **Add** button.
  - To **Find** a record, click on the **Find** button. One or more fields can be filled in to restrict the search to those values.
  - To **Edit** a record, perform a **Find** on the desired record. Click on the desired record to fill in its values into the form and edit the values. To save the changes, click on the **Save** button.
  - To **Delete** one or more records, perform a **Find** on the desired record(s). Check the corresponding box(es), then click on the **Delete** button.
  - Press the **Clear** button to start over with a new form.
- Custom Form:**
  - To create a custom form, select one of the Custom choices from the Form Type drop down list.
  - Enter a code and description for the custom form type into the Form and Description fields, respectively.
  - Enter labels for any custom fields you wish to have displayed on the screen.
- Custom Field Labels:**
  - To label custom fields for any existing form, select the Form Type and Form from the drop down lists.
  - If one of the Summary Data forms is selected, it may be customized by location by selecting a value from the Your Location Code drop down list.
  - Enter labels for any custom fields you wish to have displayed on the screen. To reorder labels on the screen, click on a row in the Mandatory fields to "Add" or "Edit" a record marked with \*

Below the instructions, there is a form with the following fields:

- Form Type \*: [Dropdown menu]
- Form \*: [Dropdown menu]
- Description \*: [Text input field]
- Status \*: Active [Dropdown menu]

At the bottom of the form, there is a section titled 'Define Custom Fields' with an 'Add Row' button. To the right of the form, there is a navigation menu with the following items:

- Tools [Right arrow]
- Dynamic Forms [Right arrow]
- Logout

On the far right, there is a vertical list of options: Add/Edit Component, Locations, and Surgeons.



# Selecting the Appropriate Form

## 1. Selecting Form Type

- a) CDC-Defined options are for adding new variables to existing CDC events and Procedures (example: BRST procedure, SSI event)
- b) Custom indicates that you want to create a new procedure category or event type that does not exist in the OPC
- c) We want to add a “Custom-OP-Procedure” and “CDC-Defined-OP-Event” for this presentation

The screenshot shows a form configuration interface. The 'Form Type' dropdown menu is open, displaying the following options:

- CDC-Defined - Patient
- CDC-Defined - OP - Event
- CDC-Defined - OP - Procedure
- CDC-Defined - OP - Summary Data
- Custom - OP - Event
- Custom - OP - Procedure

The 'Form Type' field is currently set to 'Custom - OP - Procedure'. Below the dropdown menu, there are buttons for 'Define Custom', 'Add Row', and 'Delete'. At the bottom of the interface, there are buttons for 'Find', 'Add', and 'Clear'.

Label	Type	Status
-------	------	--------

# Creating a New Procedure

2. Enter a Form: User defined code to assign your procedure
3. Enter a description: Detailed name of the procedure you are creating
4. Keep status “Active” for procedures you want to enter

Form Type \*: Custom - OP - Procedure ▾  
Form \*: EYE  
Description \*:   
Status \*: Active ▾

Form Type \*: Custom - OP - Procedure ▾  
Form \*: EYE  
Description \*: CATARACT SURGERY (LENS REPLACEMENT SURGERY  
Status \*: Active ▾

Form Type \*: Custom - OP - Procedure ▾  
Form \*: EYE  
Description \*: CATARACT SURGERY (LENS REPLACEMENT SURGERY  
Status \*: Active ▾

# Creating a New Procedure (cont.)

5. Enter a label. Can be the same as the Form variable

Form Type \*: Custom - OP - Procedure  
Form \*: EYE  
Description \*: CATARACT SURGERY (LENS REPLACEMENT SURGERY)  
Status \*: Active

Define Custom Fields			
	Label	Type	Status
<input type="checkbox"/>	EYE	Alphanumeric	Active
<input type="checkbox"/>			

6. Select the Type of variable

Define Custom Fields			
	Label	Type	Status
<input type="checkbox"/>	EYE	Alphanumeric	Active
<input type="checkbox"/>			

Alphanumeric  
Alphanumeric  
Numeric  
Date

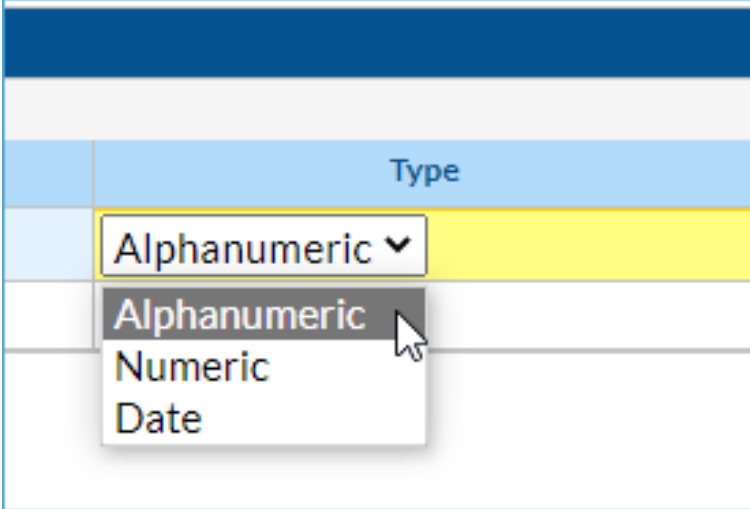
7. Select "Save" to finish

Define Custom Fields			
	Label	Type	Status
<input type="checkbox"/>	EYE	Alphanumeric	Active
<input type="checkbox"/>			

Find Save Clear

# Custom Options Select Type

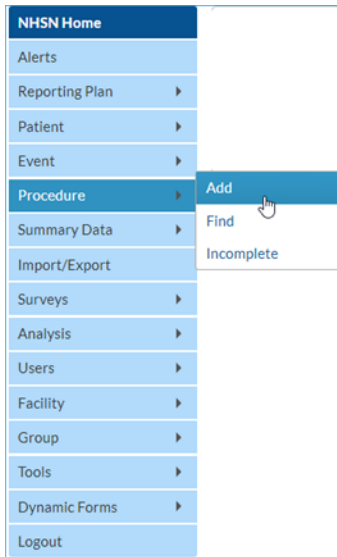
- Three (3) options for Type
  1. Alphanumeric— good for Yes/No Fields, Names, etc.
  2. Numeric— good for number of sutures, # of previous surgeries, etc.
  3. Date—good for days when symptoms begin, etc.



The image shows a screenshot of a data entry form. A dropdown menu is open for the 'Type' field, which is highlighted in yellow. The dropdown menu lists three options: 'Alphanumeric', 'Numeric', and 'Date'. A mouse cursor is pointing at the 'Alphanumeric' option in the dropdown. The form has a blue header bar and a light blue background for the input fields.

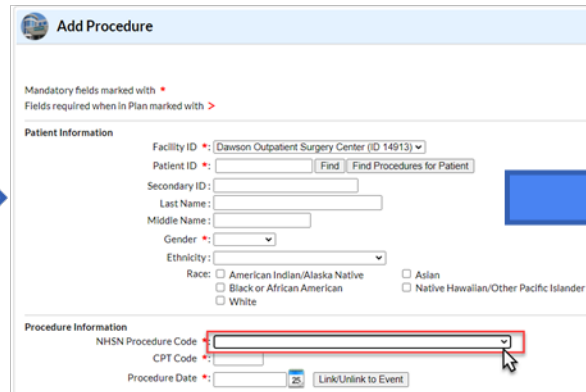
# Creating a New Procedure (cont.)

- Quickly check to see if your new procedure category can be used



NHSN Home

- Alerts
- Reporting Plan
- Patient
- Event
- Procedure**
  - Add
  - Find
  - Incomplete
- Summary Data
- Import/Export
- Surveys
- Analysis
- Users
- Facility
- Group
- Tools
- Dynamic Forms
- Logout



### Add Procedure

Mandatory fields marked with \*

Fields required when in Plan marked with >

**Patient Information**

Facility ID \*: Dawson Outpatient Surgery Center (ID 14913) ▾

Patient ID \*:  Find Find Procedures for Patient

Secondary ID:

Last Name:

Middle Name:

Gender \*:

Ethnicity:

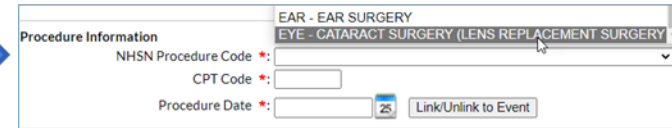
Race:  American Indian/Alaska Native  Asian  
 Black or African American  Native Hawaiian/Other Pacific Islander  
 White

**Procedure Information**

NHSN Procedure Code:  ▾

CPT Code \*:

Procedure Date \*:  25 Link/Unlink to Event



**Procedure Information**

NHSN Procedure Code \*:  ▾

CPT Code \*:

Procedure Date \*:  25 Link/Unlink to Event

EAR - EAR SURGERY  
EYE - CATARACT SURGERY (LENS REPLACEMENT SURGERY) ▾

**\*Follow the same steps to manually add individual procedure records**

# Creating New SSI Event

- Similar process as creating a new procedure
  - For events we add additional details to an already existing event form (SSI event)
- For this presentation, a new field to indicate if the event has a diagnosis for Endophthalmitis that we can link to our newly created procedure category will be created



# Creating New SSI Event (cont.)

1. Return to the Customize Forms page
2. Select the form type for this new field—CDC-Defined-Event
3. Assign the existing form for the new field to appear on
4. Enter a description that clearly describes field

**Custom Options**

**Instructions**

- To **Add** a record, fill in the form with the required fields and any desired optional values. Then click on the **Add** button.
- To **Find** a record, click on the **Find** button. One of more fields can be filled in to restrict the search to those values.
- To **Edit** a record, perform a **Find** on the desired record. Click on the desired record to fill in its values into the form and edit the values. To save the changes, click on the **Save** button.
- To **Delete** one or more records, perform a **Find** on the desired record(s). Check the corresponding boxes, then click on the **Delete** button.
- Press the **Clear** button to start over with a new form.

**Custom Form**

1. To create a custom form, select one of the Custom choices from the Form Type drop-down list.
2. Enter a code and description for the custom form type into the Form and Description fields, respectively.
3. Enter labels for any custom fields you wish to have displayed on the screen.

**Custom Field Labels**

1. To label custom fields for any existing form, select the Form Type and Form from the drop-down lists.
2. If one of the Summary Data forms is selected, it may be customized by location by selecting a value from the Your Location Code drop-down list.
3. Enter labels for any custom fields you wish to have displayed on the screen. To reorder labels on the screen, click on a row in the Mandatory fields to "Add" or "Edit" a record marked with \*

Form Type \*:

Form \*:

Description \*:

Status \*: Active

**Defining Custom Fields**

Add New

ADD ROW
---------

Form Type \*: CDC-Defined - OP - Event

Form \*:

Description \*:

Status \*: OPSSI - Surgical Site Infection  
OPSDOM - Same Day Outcome Measures

Form Type \*: CDC-Defined - OP - Event

Form \*: OPSSI - Surgical Site Infection

Description \*: OPSSI - SURGICAL SITE INFECTION - ENDOPTHALMITIS

Status \*: Active

## Creating New SSI Event (cont.)

5. Add a label to your field to appear on the form.
6. Select the Type of field for your variable.
7. Save the field.

The screenshot shows the 'Define Custom Fields' interface. It features a table with columns for 'Label', 'Type', and 'Status'. A single row is present with the label 'ENDOPHTHALMITIS' and a status of 'Active'. There are 'Add Row' and 'Delete' buttons above the table.

	Label	Type	Status
<input type="checkbox"/>	ENDOPHTHALMITIS		Active

This screenshot shows the 'Define Custom Fields' interface with a dropdown menu open for the 'Type' column of the 'ENDOPHTHALMITIS' row. The dropdown options are 'Alphanumeric', 'Alphanumeric', 'Numeric', and 'Date'. The 'Save' button is highlighted with a red box.

	Label	Type	Status
<input type="checkbox"/>	ENDOPHTHALMITIS	Alphanumeric	Active

Buttons: Find, Save, Clear

**Multiple fields can be added to new custom variables created**



# Creating New SSI Event (cont.)

- Quickly check to see if your new field is added to the event form

The screenshot displays the NHSN 'Add Event' form. On the left is a navigation menu with 'Event' selected and 'Add' highlighted. A blue arrow points from the 'Add' button to the 'Add Event' form. The form is divided into several sections:

- Patient Information:** Includes fields for Facility ID (Dawson Outpatient Surgery Center), Patient ID, Secondary ID, Last Name, Middle Name, Gender, and Ethnicity. Race options include American Indian/Alaska Native, Black or African American, White, Asian, and Native Hawaiian/Other.
- Event Information:** Includes Event Type (OPSSI - Surgical Site Infection), NHSN Procedure Code, CPT Code, Procedure Date, Location, Date of Encounter, SSI Level, SSI Event Detected (Active/Passive surveillance), Died, and Pathogens Identified (N - No).
- Custom Fields:** A dropdown menu is open, showing 'OPSSI - Surgical Site Infection', 'OPSDOM - Same Day Outcome Measures', and '111 - CUSTOM EVENT FOR OP'. The 'ENDOPHTHALMITIS' field is circled in red.

**\*Follow the same steps to manually add individual event records**

# Import Custom Procedure File



- Option to add multiple procedure records at one time
- Data must be imported with a header row and the header names must match the variable names as they appear in the template file

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
patID	gender	dob	medicareID	procCode	procCPTC	procDate	procDurat	procDurat	swClass	asa	scope	surgeonCranesthesi	htFeet	htInches	htMetric	wtEnglish	wtMetric	diabetes	comment	custom	
OP-2000	F	6/14/1941	123456789M	EYE		1/1/2020	1	10	CC		2 Y		5	6		167		N	New surgeon		
OP-2001	F	6/14/1941	123456789M	EYE		1/1/2020	1	10	CC		2 Y		5	6		167		N	New surgeon		

- Must be uploaded via .csv file
- Required fields must all be complete in order to upload successfully
  - CPT Code not required for custom procedures, but it is encouraged to include

# Resources for Importing Custom

- Found on the OPC SSI webpage
- Instructions on how to import custom

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
patID	gender	dob	medicareID	procCode	procCPTc	procDate	procDurat	procDurat	swClass	asa	scope	surgeonC	anesthesi	htFeet	htInches	htMetric	wtEnglish	wtMetric	diabetes	comment	custom
OP-2000	F	6/14/1941	123456789M	EYE		1/1/2020	1	10	CC	2	Y		Y	5	6		167		N	New surgeon	
OP-2001	F	6/14/1941	234567891M	EYE		1/2/2020	2	20	C	2	N		Y	5	6		167		N	New surgeon	
OP-3000	M	9/18/1946	345678912M	EYE		1/3/2020	3	30	CO	3	N		Y	5	8		234		Y	New surgeon	
OP-4000	O	4/16/1997		EYE		1/4/2020	4	40	D	1	N		Y			1.8		89.2	Y	New surgeon	
OP-5000	M	6/6/1966		EYE		1/5/2020	5	50	C	1	Y		Y			1.8		89.2	N	New surgeon	
OP-6000	F	6/7/1967		EYE	58150	1/6/2020	6	59	CC	1	N		Y			1.8		89.2	N		

OPC Training

Educational Roadmap

Supporting Materials

- Import template file to add your procedures to
  - Provides example of how data is entered onto a .csv file

[OPC SSI Post-discharge Toolkit](#)

[\[PDF - 1 MB\]](#)

[Customizable Version](#)

[\[DOC - 150 KB\]](#)

This toolkit may be used to implement a post-discharge surgical site infection surveillance process. Toolkit contains the following samples: surgeon letter, post-discharge SSI worksheet, and procedure line list by surgeon.

[How to Import Outpatient](#)

[Procedure Data, May 2020](#)

[\[PDF - 350 KB\]](#)

[Outpatient Procedure Import File](#)

[\[CSV - 1 KB\]](#)

# Demonstration of Adding Custom Procedures



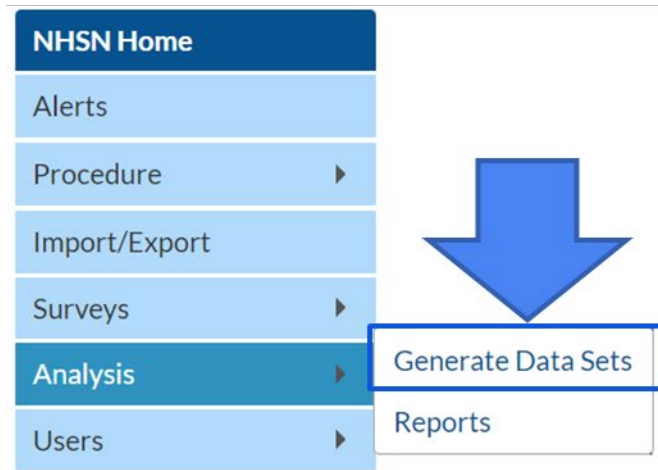
# Create and Add Custom Procedure Wrap-Up

- ✓ Custom procedure and events are great tools to use for facilities that perform procedures outside of the NHSN defined procedure categories.
- ✓ Custom procedures are not NHSN defined procedure categories and cannot be part of in-plan reporting.
- ✓ Multiple fields can be added to existing forms (SSI Events, Procedure Form, etc.)
- ✓ Custom procedures can be added individually or imported via a .csv file
- ✓ Records for custom procedures and events can be analyzed in NHSN Analysis Reports

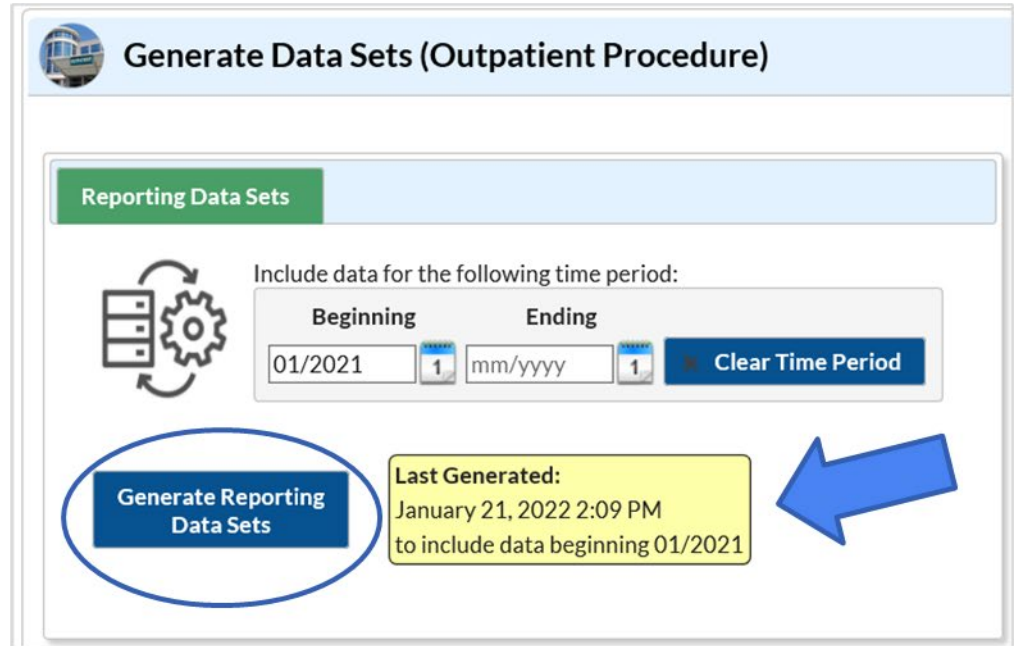
# How to Access and Run Analysis Reports in OPC

# Running Analysis Reports in OPC

- Before running analysis reports for any NHSN Component, it is important to generate a new data set.
- Guide for generating datasets: [How to Generate Data Sets \(cdc.gov\)](https://www.cdc.gov/nhsn/data-generation)



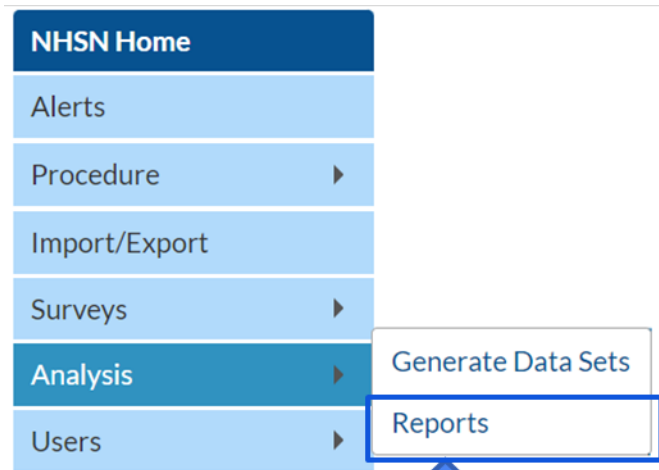
The screenshot shows the NHSN Home navigation menu. The menu items are: NHSN Home, Alerts, Procedure, Import/Export, Surveys, Analysis, and Users. The 'Analysis' item is expanded, showing 'Generate Data Sets' and 'Reports'. A blue arrow points from the 'Generate Data Sets' option to the right, towards the main interface.



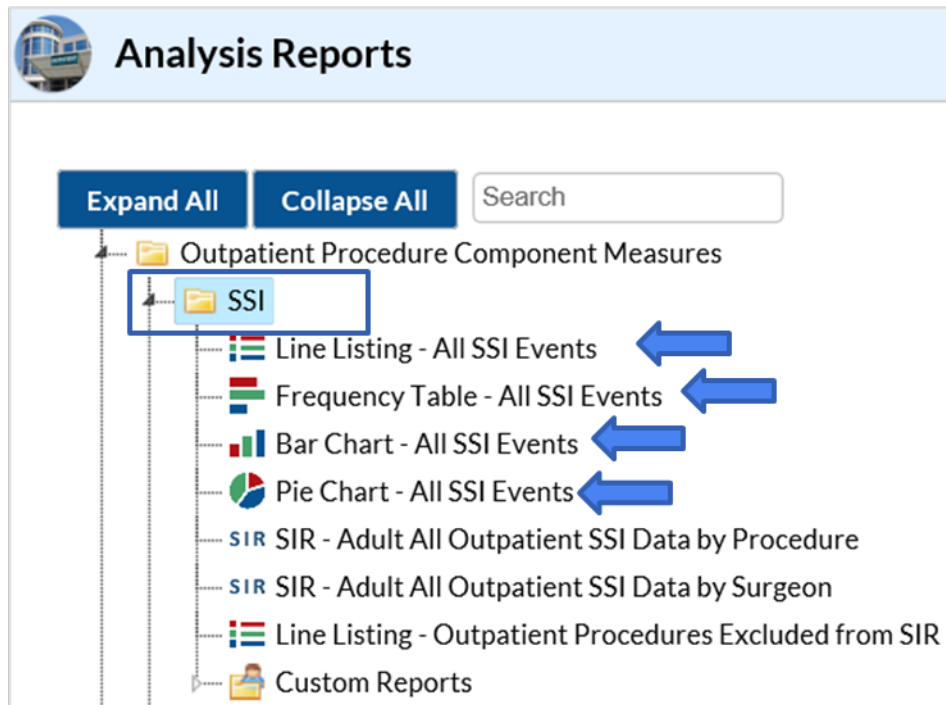
The screenshot shows the 'Generate Data Sets (Outpatient Procedure)' interface. The page title is 'Generate Data Sets (Outpatient Procedure)'. Below the title is a 'Reporting Data Sets' section. On the left, there is an icon of a server rack and a gear. To the right of the icon, the text reads 'Include data for the following time period:'. Below this text are two date pickers: 'Beginning' and 'Ending'. The 'Beginning' date is set to '01/2021' and the 'Ending' date is set to 'mm/yyyy'. A 'Clear Time Period' button is located to the right of the date pickers. Below the date pickers is a blue button labeled 'Generate Reporting Data Sets'. To the right of this button is a yellow box containing the text: 'Last Generated: January 21, 2022 2:09 PM to include data beginning 01/2021'. A blue arrow points from the 'Generate Reporting Data Sets' button to the 'Last Generated' box.

# Accessing OPC Analysis reports in NHSN

- Each “Report” will have drop down menu for selection of specific reports



The screenshot shows the NHSN Home navigation menu. The menu items are: NHSN Home, Alerts, Procedure, Import/Export, Surveys, Analysis, and Users. The 'Analysis' item is highlighted in a darker blue, and a sub-menu is open showing 'Generate Data Sets' and 'Reports'. A blue arrow points up to the 'Reports' item.

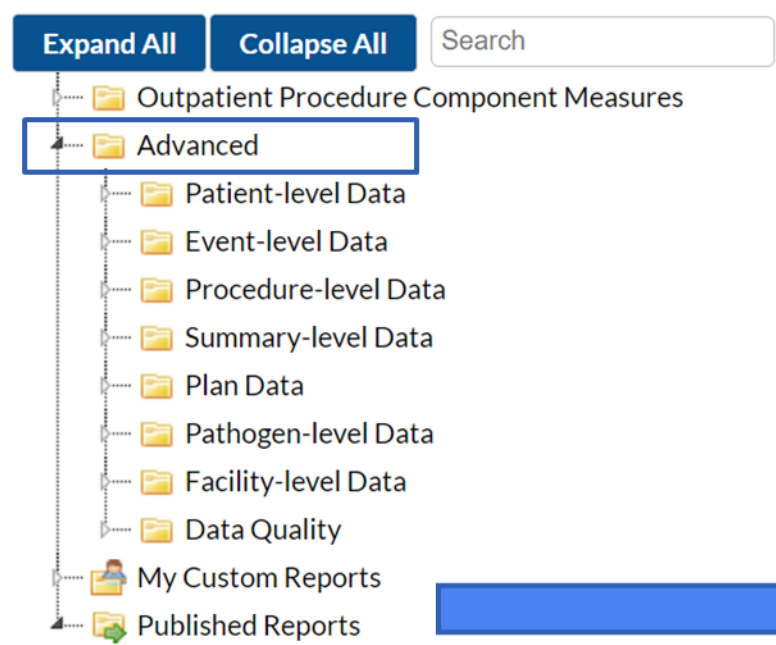


The screenshot shows the NHSN Analysis Reports interface. The title is 'Analysis Reports'. There are buttons for 'Expand All' and 'Collapse All', and a search box. The main content area shows a tree view of reports. The 'Outpatient Procedure Component Measures' folder is expanded, and the 'SSI' folder is selected and highlighted with a blue box. Below the 'SSI' folder, there are several reports listed with icons and blue arrows pointing to them:

- Line Listing - All SSI Events
- Frequency Table - All SSI Events
- Bar Chart - All SSI Events
- Pie Chart - All SSI Events
- SIR SIR - Adult All Outpatient SSI Data by Procedure
- SIR SIR - Adult All Outpatient SSI Data by Surgeon
- Line Listing - Outpatient Procedures Excluded from SIR
- Custom Reports



# Additional Analysis Reports



Additional reports can allow you to create line listings, frequency tables, and graphs based on report type.

You can also create custom reports to save as a template for future use

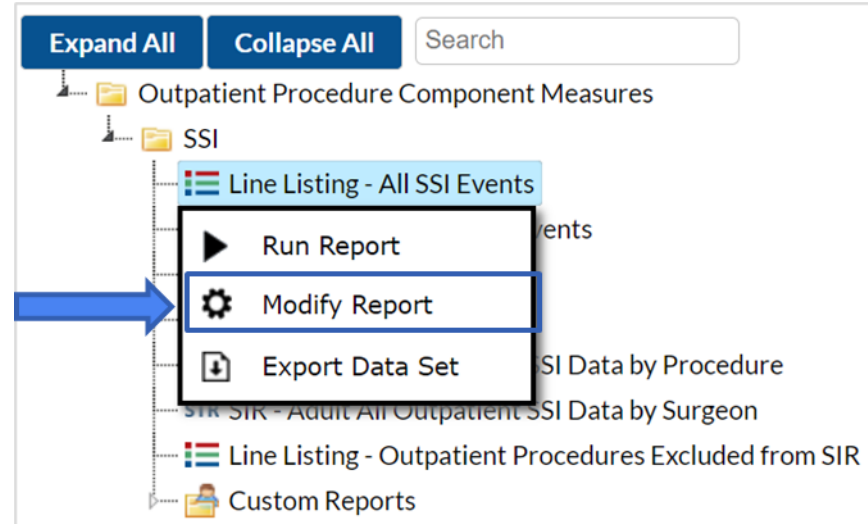
**Examples**

# Example

- The NHSN Outpatient Surgery Center had a record number of outpatient cataract procedures performed in 2021 Q1 (Jan-Mar). There were a total of 149 procedures performed. We want to see a line listing of all events that were identified for that time period.
- How would we do this?
  - Line Listing –All SSI Events

How to Modify a Report:

<https://www.cdc.gov/nhsn/pdfs/opc/opc-modify-report-508.pdf>



The screenshot displays a software interface for report management. At the top, there are buttons for 'Expand All' and 'Collapse All', and a search input field. Below these, a tree view shows the following structure:

- Outpatient Procedure Component Measures
  - SSI
    - Line Listing - All SSI Events** (highlighted in blue)
    - Line Listing - Outpatient Procedures Excluded from SIR
    - Custom Reports

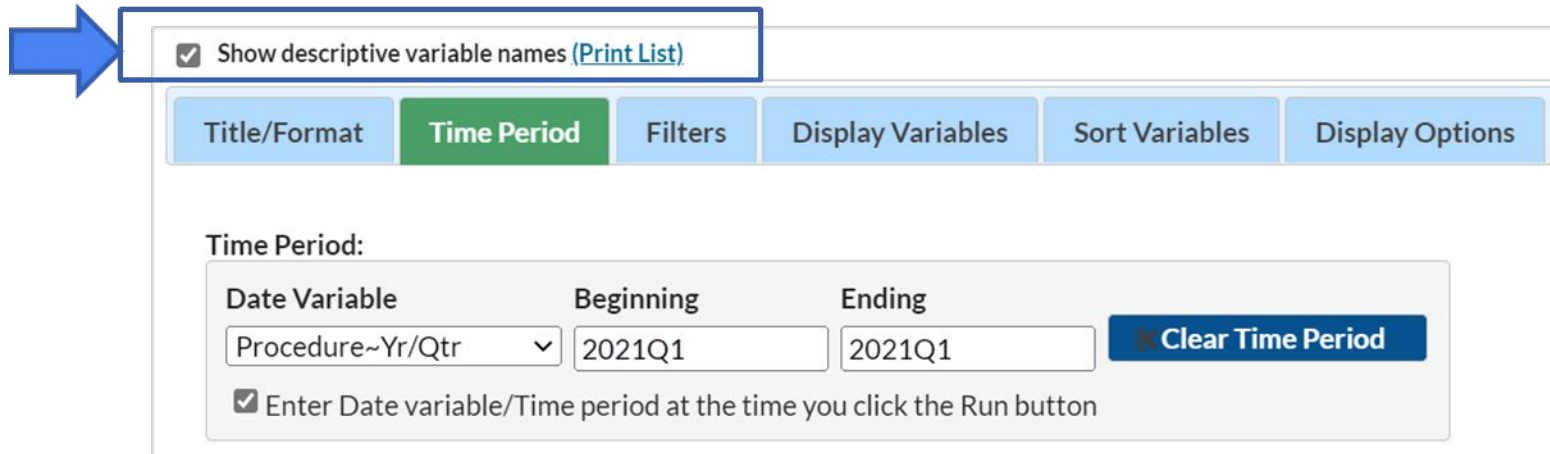
A context menu is open over the 'Line Listing - All SSI Events' item, containing the following options:

- Run Report
- Modify Report** (highlighted with a blue border and a blue arrow pointing to it from the left)
- Export Data Set

Other visible items in the tree view include 'Line Listing - Outpatient Procedures Excluded from SIR' and 'Custom Reports'.

# Modification of SSI Event Line Listing

- Time Period: January through March 2021 (2021Q1)



The screenshot shows a web interface for SSI Event Line Listing. A blue arrow points to a checkbox labeled "Show descriptive variable names (Print List)" which is checked. Below this is a navigation bar with tabs: "Title/Format", "Time Period" (selected), "Filters", "Display Variables", "Sort Variables", and "Display Options". Under the "Time Period" tab, there is a section titled "Time Period:" containing a form with three input fields: "Date Variable" (a dropdown menu showing "Procedure~Yr/Qtr"), "Beginning" (a text box with "2021Q1"), and "Ending" (a text box with "2021Q1"). To the right of these fields is a blue button labeled "Clear Time Period". Below the input fields is a checked checkbox with the text "Enter Date variable/Time period at the time you click the Run button".

- Show descriptive variable names = variable labels on the report
  - procDateYQ = procedure date year quarter
- Date Variable: search by procedure date because procedure carries the risk of infection

# Line Listing Report Output

## National Healthcare Safety Network

### Line Listing of All Events

As of: March 4, 2022 at 12:21 AM

Date Range: OP\_EVENTS procDateYQ 2021Q1 to 2021Q1



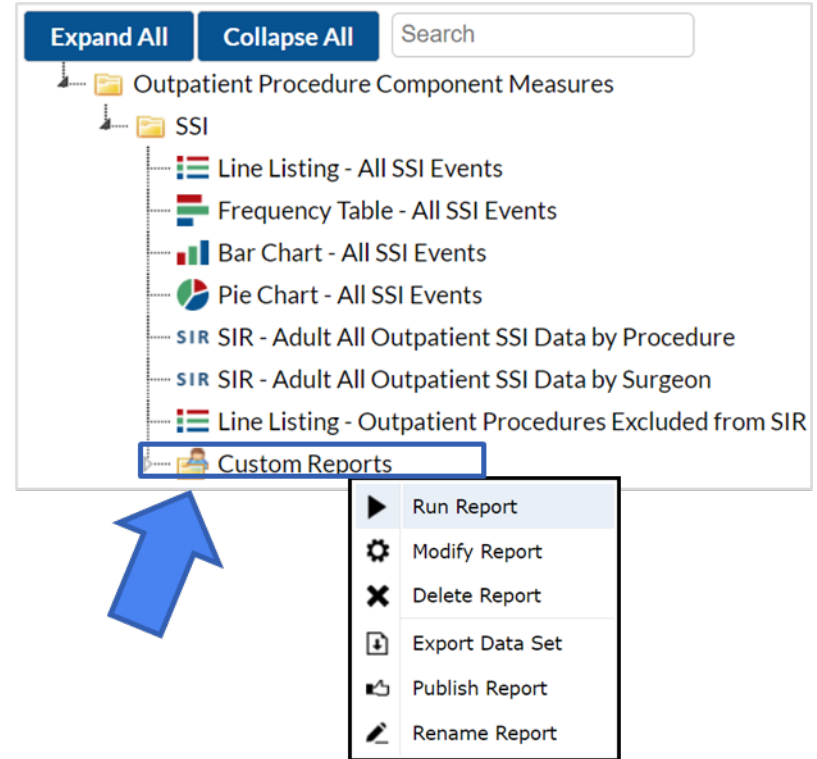
Facility Org ID	Patient ID	OP Event Type	Procedure Date	Procedure Code	Date of Birth	Gender	Age on Proc Date	Duration of Procedure - hr	Duration of Procedure - min	SSI Event Detected
14913	OP2238	OPSSI	03/12/2021	EYE	09/11/1975	M	45	0	16	ACTIVE
14913	OP2126	OPSSI	01/11/2021	EYE	07/31/1948	F	72	0	17	PASSIVE
14913	OP2235	OPSSI	03/09/2021	EYE	04/25/1978	F	42	0	20	PASSIVE
14913	OP2145	OPSSI	01/28/2021	EYE	08/04/1950	F	70	0	29	PASSIVE
14913	OP21111	OPSSI	01/25/2021	EYE	12/02/1990	F	30	0	20	ACTIVE

*\*Fictitious data for illustrative purposes only*

- Interpretation: There were 5 SSI events resulting from eye procedures performed in 2021Q1
- More than half the SSI events for cataract procedures were identified via passive surveillance

# Saving a Custom Report

- Every report can be customized and saved for future use
- You can run the custom report option as is, make additional modifications, delete the report, export data set, publish report, or rename report by clicking on the “modify report”



The screenshot displays a software interface for managing reports. At the top, there are buttons for 'Expand All' and 'Collapse All', and a search bar. Below this, a tree view shows a folder structure: 'Outpatient Procedure Component Measures' > 'SSi'. Under the 'SSi' folder, several reports are listed with their respective icons: 'Line Listing - All SSI Events', 'Frequency Table - All SSI Events', 'Bar Chart - All SSI Events', 'Pie Chart - All SSI Events', 'SIR SIR - Adult All Outpatient SSI Data by Procedure', 'SIR SIR - Adult All Outpatient SSI Data by Surgeon', and 'Line Listing - Outpatient Procedures Excluded from SIR'. At the bottom of this list, a report icon with a person symbol is highlighted, and a blue arrow points to it. A context menu is open over this report, listing the following actions: 'Run Report', 'Modify Report', 'Delete Report', 'Export Data Set', 'Publish Report', and 'Rename Report'.

# Saving a Custom Report

**Title/Format** | Time Period | Filters | Display Variables | Sort Variables | Display Options

**Title:**  
Line Listing of All Surgical Site Infection Events

**Format:**

html |  pdf |  xls |  rtf



**Specify a name for your Analysis Report:**

**Analysis Report Name**

Overwrite existing Custom Analysis Report (Save)  
 Create a new Custom Analysis Report based on this one (Save as)

# Custom Report

The screenshot shows a navigation menu with the following items:

- Expand All** (button)
- Collapse All** (button)
- 
- Outpatient Procedure Component Measures
  - SSI
    - Line Listing - All SSI Events
    - Frequency Table - All SSI Events
    - Bar Chart - All SSI Events
    - Pie Chart - All SSI Events
    - SIR SIR - Adult All Outpatient SSI Data by Procedure
    - SIR SIR - Adult All Outpatient SSI Data by Surgeon
    - Line Listing - Outpatient Procedures Excluded from SIR
    - Custom Reports
      - USER - Line Listing - All SSI Events FY** (highlighted with a blue arrow)



# Example -Additional Analysis Reports

- There are other methods to display your report outputs:
  - Frequency Table
  - Bar Charts
  - Pie Charts

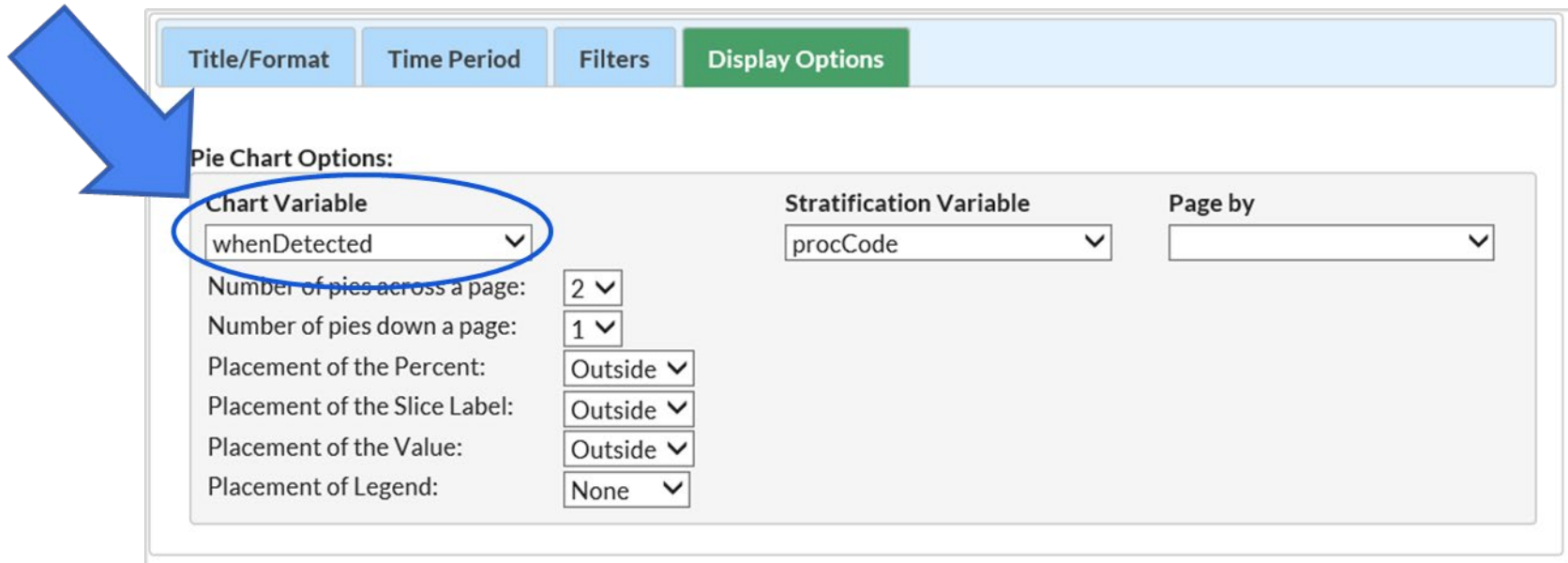
The screenshot displays a navigation menu for 'Outpatient Procedure Component Measures'. At the top, there are buttons for 'Expand All', 'Collapse All', and a 'Search' input field. The menu is organized into a tree structure. The 'SSI' folder is expanded, revealing several report options. Three blue arrows point to the 'Frequency Table - All SSI Events', 'Bar Chart - All SSI Events', and 'Pie Chart - All SSI Events' items, which are highlighted in a yellow box. Below these are 'SIR SIR - Adult All Outpatient SSI Data by Procedure', 'SIR SIR - Adult All Outpatient SSI Data by Surgeon', 'Line Listing - Outpatient Procedures Excluded from SIR', and 'Custom Reports'.

Expand All Collapse All Search

- Outpatient Procedure Component Measures
  - SSI
    - Line Listing - All SSI Events
    - Frequency Table - All SSI Events
    - Bar Chart - All SSI Events
    - Pie Chart - All SSI Events
    - SIR SIR - Adult All Outpatient SSI Data by Procedure
    - SIR SIR - Adult All Outpatient SSI Data by Surgeon
    - Line Listing - Outpatient Procedures Excluded from SIR
    - Custom Reports

# Modifications for Pie Chart

- Identify the detection method for SSI surveillance by selecting the “whenDetected” variable from the Chart Variable drop down menu

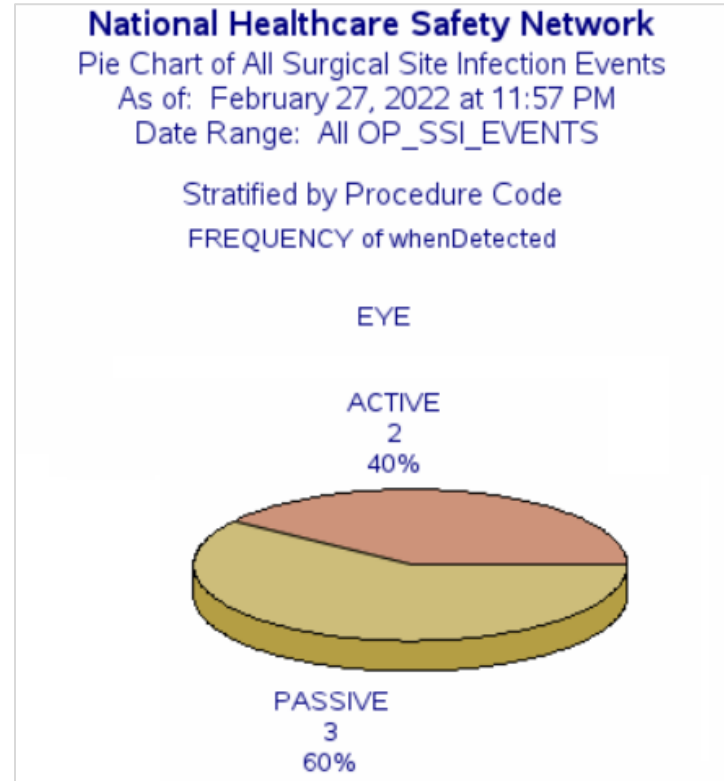


The screenshot shows the 'Display Options' tab of a software interface. The 'Pie Chart Options' section is visible, with the 'Chart Variable' dropdown menu highlighted by a blue arrow and a blue oval. The 'Chart Variable' is set to 'whenDetected'. Other options include 'Stratification Variable' set to 'procCode', 'Page by' (empty), 'Number of pies across a page' set to 2, 'Number of pies down a page' set to 1, and 'Placement of the Percent', 'Placement of the Slice Label', 'Placement of the Value', and 'Placement of Legend' all set to 'Outside' or 'None'.

Option	Value
Chart Variable	whenDetected
Stratification Variable	procCode
Page by	
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
Placement of Legend:	None

# Pie Chart Report Output

- The pie chart is showing you that more SSI events were identified by Passive Surveillance
- Allows further investigation into the record level details to the type of surveillance detection methods



# Modifications for Bar Chart

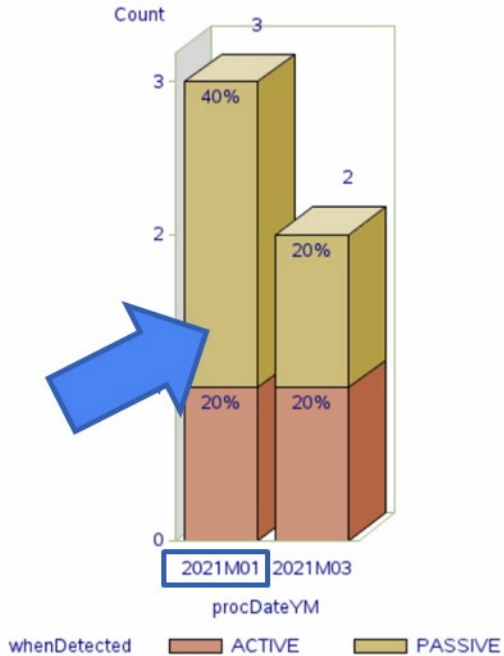
The screenshot shows a configuration panel for a bar chart. At the top, there are four tabs: 'Title/Format', 'Time Period', 'Filters', and 'Display Options' (which is highlighted in green). Below the tabs, the 'Bar Chart Options' section contains several settings:

- Chart Variable:** A dropdown menu set to 'procDateYM'. A blue arrow points to this dropdown, and it is circled in blue.
- Stratification Variable:** A dropdown menu set to 'whenDetected'. A blue arrow points to this dropdown, and it is circled in blue.
- Page by:** A dropdown menu set to 'procCode'.
- Orientation of Bars:** A dropdown menu set to '3D Vertical'.
- Placement of the Percent:** A dropdown menu set to 'Inside'.
- Placement of the Value:** A dropdown menu set to 'Outside'.

- View the distribution of SSI detection type by month

# Bar Chart Report Output

**National Healthcare Safety Network**  
Bar Chart of All Surgical Site Infection Events  
As of: February 28, 2022 at 12:19 AM  
Date Range: All OP\_SSI\_EVENTS  
if ((procCode = "EYE"))  
procCode=EYE



Data contained in this report were last generated on February 17, 2022 at 12:49 AM to include data beginning January 2021.

*\*Fictitious data for illustrative purposes only*

- This graph is showing the overall distribution of SSI event detection methods by month
- More SSI Events in January 2021 were identified via passive surveillance than active surveillance
- Facilities can use this to identify which detection method is better at capturing SSI events

# Modifications for Frequency Table

**Title/Format** **Time Period** **Filters** **Display Options**

**Frequency Table Options:**

**Selected Variables to include in report:**

**Row**  
procCode

**Column**  
whenDetected

**Page by**  
[Empty dropdown]

**Frequency Table Options:**

- Table percent - Display cell frequency divided by table total
- Missing - Include observations with missing values
- Print the table in list form

**Two-Way Table Options:**

- Row Percent - Display cell frequency divided by row total
- Column Percent - Display cell frequency divided by column total
- Expected - Expected cell frequencies
- Chi-square - Test for independence

- View the frequency or count of the types of when SSI detected for EYE procedures in a table format

# Frequency Table Report Output

## National Healthcare Safety Network Frequency Table of All Surgical Site Infection Events

As of: February 28, 2022 at 12:29 AM

Date Range: All OP\_SSI\_EVENTS

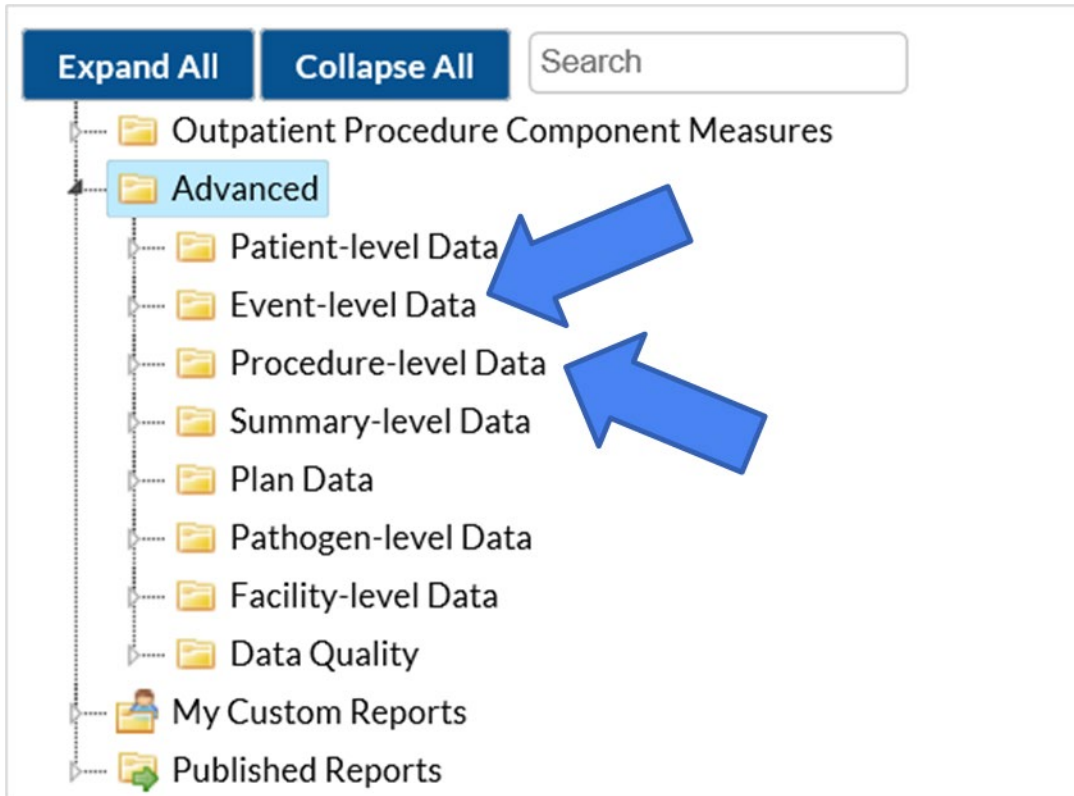
Frequency Percent Row Pct Col Pct	Table of procCode by whenDetected		
	procCode	whenDetected	
	ACTIVE	PASSIVE	Total
	2	3	5
	40.00	60.00	100.00
	40.00	60.00	
	100.00	100.00	
<b>Total</b>	2	3	5
	40.00	60.00	100.00

- 60% of the SSI events that were reported for EYE procedures in 2021Q1 were identified through passive surveillance methods

Data contained in this report were last generated on  
February 17, 2022 at 12:49 AM to include data beginning  
January 2021.

*\*Fictitious data for illustrative purposes only*

# Analyzing Numerator and Denominator Data



- Numerator: Event-level Data
- Denominator: Procedure-level Data
- All reports can be modified, and different reports can be run such as line listing, frequency tables, pie charts and bar charts



# Example: Procedure Line Listing

The screenshot displays a software interface with a navigation tree on the left and a context menu on the right. At the top left, there are two buttons: "Expand All" and "Collapse All", followed by a search input field. The navigation tree includes folders for "Outpatient Procedure Component Measures", "Advanced", "Patient-level Data", "Event-level Data", and "Procedure-level Data". Under "Procedure-level Data", there are four options: "Line Listing - All Procedures", "Frequency Table - All Procedures", "Bar Chart - All Procedures", and "Pie Chart - All Procedures". A blue arrow points to the "Line Listing - All Procedures" option. A context menu is open over this option, containing three items: "Run Report" (with a play button icon), "Modify Report" (with a gear icon), and "Export Data Set" (with a download icon). A blue arrow points to the "Modify Report" option.

Expand All Collapse All Search

- Outpatient Procedure Component Measures
- Advanced
  - Patient-level Data
  - Event-level Data
  - Procedure-level Data
    - Line Listing - All Procedures
    - Frequency Table - All Procedures
    - Bar Chart - All Procedures
    - Pie Chart - All Procedures

- Run Report
- Modify Report
- Export Data Set

- Modify the line listing to select variables for the report

# Modifications for Procedure-level Data

**Title/Format**   **Time Period**   **Filters**   **Display Variables**   **Sort Variables**   **Display Options**

**Display Variables:**

Available Variables:		Selected Variables:	
allAdultExcl	<b>All</b>	orgID	<b>Up</b>
asa	<b>Selected</b>	patID	<b>Down</b>
asa_cat	<b>Selected</b>	dob	<b>Undo</b>
asaDesc	<b>All</b>	gender	
bedsize		procID	
bmi_val		procDate	
CCN		procCode	
comment		swClass	
completedFlag		procDurationHr	
component		procDurationMin	
createDate		diabetes	
createUserID		anesthesia	
custom1		ageAtProc	
custom10			
custom11			

The screenshot shows a software interface for managing variables. At the top, there are six tabs: 'Title/Format', 'Time Period', 'Filters', 'Display Variables' (which is highlighted in green), 'Sort Variables', and 'Display Options'. Below the tabs, the 'Display Variables' section is titled 'Display Variables:'. It contains two main panels: 'Available Variables:' on the left and 'Selected Variables:' on the right. The 'Available Variables:' panel lists 17 variables: allAdultExcl, asa, asa\_cat, asaDesc, bedsize, bmi\_val, CCN, comment, completedFlag, component, createDate, createUserID, custom1, custom10, and custom11. A blue arrow points from the 'asa\_cat' variable in this list to the 'Selected' button between the two panels. The 'Selected Variables:' panel lists 11 variables: orgID, patID, dob, gender, procID, procDate, procCode, swClass, procDurationHr, procDurationMin, diabetes, anesthesia, and ageAtProc. A blue arrow points from the right side of the interface towards the 'Selected Variables:' panel. Between the two panels, there are four buttons: 'All', 'Selected', 'Selected', and 'All'. On the right side of the 'Selected Variables:' panel, there are three buttons: 'Up', 'Down', and 'Undo'. The entire interface is enclosed in a light blue border.

# Procedure Level Report Output

## National Healthcare Safety Network Line Listing of All Procedures

As of: February 28, 2022 at 12:49 PM

Date Range: OP\_PROCEDURES procDateYQ 2021Q1 to 2021Q1

if (((procCode = "EYE" ) ) )

Additional variables added to report



orgID	patID	dob	gender	procID	procDate	procCode	swClass	procDurationHr	procDurationMin	diabetes	anesthesia	ageAtProc
14913	OP2189	10/16/1945	M	104498	02/15/2021	EYE	CC	0	24	Y	N	75
14913	OP2141	07/26/1947	O	104450	01/22/2021	EYE	C	0	24	N	N	73
14913	OP2205	06/26/1946	F	104514	03/07/2021	EYE	C	0	25	N	N	74
14913	OP2173	09/10/1950	F	104482	02/01/2021	EYE	CC	0	29	Y	N	70
14913	OP2133	08/11/1944	M	104442	01/11/2021	EYE	CC	0	29	Y	N	76
14913	OP2181	11/24/1942	M	104490	02/21/2021	EYE	C	0	17	Y	N	78
14913	OP2115	03/11/1981	F	104426	01/24/2021	EYE	CC	0	59	Y	N	39
14913	OP2197	10/07/1936	F	104506	02/28/2021	EYE	C	0	29	Y	N	84
14913	OP2149	08/02/1941	F	104458	02/03/2021	EYE	C	0	20	Y	N	79
14913	OP2213	06/18/1936	M	104522	03/13/2021	EYE	CC	0	19	N	N	84
14913	OP2237	02/27/1974	M	104546	03/11/2021	EYE	CC	0	17	N	N	47
14913	OP2165	08/10/1939	M	104474	02/20/2021	EYE	C	0	17	N	N	81
14913	OP2169	09/13/1947	F	104478	02/24/2021	EYE	C	0	22	Y	N	72

# Summary of OPC Analysis Reports

## In Summary

- Reports, such as line listings, frequency tables and graphical charts can be used to analyze patterns in the data
- Additional analysis reports are available for analyzing numerator and denominator data
- Analysis reports to provide insight into trends for prevention initiatives

# Resources

- Importing Data for OPC using CSV File: <https://www.cdc.gov/nhsn/pdfs/opc/importing-opc-procedure-data-508.pdf>
- OPC Import Test File Template: <https://www.cdc.gov/nhsn/xls/opc/opc-csv-import-test-anyorder.csv>
- How to Generate Datasets: <https://www.cdc.gov/nhsn/pdfs/opc/opc-datasets-508.pdf>
- How to Filter Data by Time Period: <https://www.cdc.gov/nhsn/pdfs/opc/opc-filter-time-period-508.pdf>
- How to Modify a Report: <https://www.cdc.gov/nhsn/pdfs/opc/opc-modify-report-508.pdf>
- General Analysis Resources: <https://www.cdc.gov/nhsn/opc/ssi/index.html>

# Thank you for viewing this 2022 NHSN Training presentation!

- Please submit any questions about the content of the presentation to [NHSN@cdc.gov](mailto:NHSN@cdc.gov).

**Additional NHSN training resources:**

<https://www.cdc.gov/nhsn/training/>

**Training Questions:** [NHSNTrain@cdc.gov](mailto:NHSNTrain@cdc.gov)