

Patient Safety Component – Surgical Site Infections (PSC - SSIs)

How to Add and Analyze Custom Procedure and Events Part 1

NHSN Acute Care Analytics Team

Division of Healthcare Quality Promotion, CDC

Goals for Today

- This training will provide an overview of NHSN Custom Reporting
- After the completion of this training, the PS user will be able to:
 - Identify what a Custom Procedure is and how it is created
 - Identify what a Custom Event is and how it is created

NHSN Defined Procedures and Events – Patient Safety

APPENDIX.

Specific event types available for SSI attribution by NHSN procedure category

Operative Procedure Category	Specific Event Type
AAA - Abdominal aortic aneurysm repair	DIP - Deep Incisional Primary
	ENDO - Endocarditis
	GIT - Gastrointestinal tract
	IAB - Intraabdominal, not sp
AMP - Limb amputation	DIP - Deep Incisional Primary
	JNT - Joint or bursa
	SIP - Superficial Incisional Primary
	IAB - Intraabdominal, not sp
APPY - Appendix surgery	DIP - Deep Incisional Primary
	GIT - Gastrointestinal tract
	IAB - Intraabdominal, not sp
	ENDO - Endocarditis

NHSN Defined Procedures Category

January 2022

Procedure-associated Module
SSI Events

Table 1. Surgical Site Infection Criteria

Criterion	Surgical Site Infection (SSI)
	Superficial incisional SSI Must meet the following criteria:
	Date of event occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date)
	AND involves only skin and subcutaneous tissue
	AND patient has at least <u>one</u> of the following:
	a. purulent drainage from the superficial incision.
	b. organism(s) 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)).

NHSN Defined Events

NHSN Defined Procedures and Events



- 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 collections needs
 - Use of these tools is **optional** and must be defined by the facility
- The facility should define their own criteria prior to creating custom options

Custom procedure	<ul style="list-style-type: none">• Not an NHSN procedure• Not included in Monthly Reporting Plan• Off-plan reporting
Custom event	<ul style="list-style-type: none">• No NHSN Event criteria
Custom field	<ul style="list-style-type: none">• Not an NHSN variable• May be added to an NHSN defined procedure
There is not benchmarking available for custom created procedures. SIRS can not be calculated	

Creating a New Procedure – Radical Cystectomy (RC)


- Cystectomy is a procedure that removes the bladder for treatment of invasive bladder cancer
- An incision is made through the abdomen to remove the bladder and, potentially, other organs and affected tissue
- In 2019 a total of 75,022 new cases of Urinary Bladder cancer were reported, and 16,796 people died of this cancer in the United States¹
- A 2016 Mayo clinic study of 3,187 patients who underwent RC, indicated 766 were diagnosed with a postoperative infection, including 404 or 12.7% with a surgical site infections (SSI) within 30 days²

Custom Options Function (PSC)

- Accessed from the NHSN Facility side menu

“Facility ➡ Customize Forms”

- The page provides instructions and options for new variables, procedures and events that can be added by the user

 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 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

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 *:

Define Custom Fields

Add Row

Delete

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

Find

Add

Clear

Selecting the Appropriate Form

1) Selecting form type

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

The screenshot shows a web interface for defining custom forms. It includes a dropdown menu for 'Form Type' with 'Custom - PS - Procedure' selected. Below it is a 'Form' dropdown with a list of options. To the right is a 'Description' text field. Below these are 'Status' and 'Form Type' dropdowns. At the bottom, there is a table with columns 'Label', 'Type', and 'Status'. To the left of the table are buttons for 'Define Custom', 'Add Row', and 'Delete'. At the bottom right are buttons for 'Find', 'Add', and 'Clear'.

Form Type *: Custom - PS - Procedure

Form *: CDC-Defined - PS - Event
CDC-Defined - Patient
CDC-Defined - PS - Procedure
CDC-Defined - PS - Summary Data
Custom - PS - Event
Custom - PS - Procedure

Description *:

Status *:

Define Custom

Add Row

Delete

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

Find Add Clear

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

Form Type *: Custom - PS - Procedure ▼
Form *: CYST
Description *:
Status *:

Form Type *: Custom - PS - Procedure ▼
Form *: CYST
Description *: RADICAL CYSTECTOMY (RC)
Status *:

Form Type *: Custom - PS - Procedure ▼
Form *: CYST
Description *: RADICAL CYSTECTOMY (RC)
Status *: Active ▼

Find Add Clear

Remember to click to Add Button

Creating a New Procedure (cont.)

- Quality check to see if the new procedure category can be used

The screenshot displays the NHSN 'Add Procedure' form. On the left, a sidebar contains navigation links: NHSN Home, Alerts, Dashboard, Reporting Plan, Patient, Event, Procedure, Summary Data, COVID-19, Import/Export, Surveys, Analysis, Users, Facility, Group, Tools, Dynamic Forms, and Logout. The 'Procedure' link is highlighted, and a dropdown menu shows 'Add', 'Find', and 'Incomplete'. A red arrow points from the 'Add' option to the 'Add Procedure' form header. Another red arrow points from the 'Patient Information' section to the 'Procedure Information' section. The form itself is titled 'Add Procedure' and includes instructions: 'Mandatory fields marked with *' and 'Fields required when in Plan marked with >'. It is divided into two main sections: 'Patient Information' and 'Procedure Information'. The 'Patient Information' section includes fields for Facility ID (DHQP MEMORIAL HOSPITAL (ID 10018)), Patient ID, Secondary ID, Last Name, Middle Name, Sex, and Ethnicity. The 'Procedure Information' section includes fields for NHSN Procedure Code (CYST - RADICAL CYSTECTOMY (RC)), ICD-10 PCS, CPT Code, and Procedure Date. A 'Link/Unlink to Event' button is present at the bottom of the form.

NHSN Home

- Alerts
- Dashboard
- Reporting Plan
- Patient
- Event
- Procedure**
 - Add
 - Find
 - Incomplete
- Summary Data
- COVID-19
- 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 *: DHQP MEMORIAL HOSPITAL (ID 10018) ▼

Patient ID *: Find Find Procedures for Patient

Secondary ID:

Last Name:

Middle Name:

Sex *:

Ethnicity:

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

Procedure Information

NHSN Procedure Code *: CYST - RADICAL CYSTECTOMY (RC) ▼

Select button for system used

☐ ICD-10 PCS

☐ CPT Code

Procedure Date *: 29 Link/Unlink to Event

- Follow the same steps to manually add individual procedure records

<https://www.cdc.gov/nhsn/pdfs/training/2022/SSI-Reporting-508.pdf>

Creating a New SSI Event (PSC)

- Similar process as creating a new procedure
 - For events additional details are added to an already existing event form (SSI event)
- For this presentation, a new field will be added to indicate if urine leakage was responsible for an Intra-abdominal infection that can be linked to the newly created procedure Radical Cystectomy (RC)



Creating a New SSI Event (cont.)

Start on the “Customize Forms” page:

- 1) Select the form type for the new field – CDC – Defined-PS - Event
- 2) Assign the existing form for the new field to appear on
- 3) Enter a description that clearly describes the field

Remember to make to event active

The screenshot shows the 'Custom Options' page. It includes instructions for adding, finding, editing, and deleting records. Below the instructions are sections for 'Custom Form' and 'Custom Field Labels'. The 'Custom Form' section has a 'Form Type' dropdown set to 'CDC-Defined - PS - Event', a 'Form' dropdown, a 'Description' text field, and a 'Status' dropdown set to 'Active'. The 'Custom Field Labels' section has a table with columns 'Label', 'Type', and 'Status'. There are 'Find', 'Add', and 'Clear' buttons at the bottom.

This screenshot shows the 'Form Type' dropdown set to 'CDC-Defined - PS - Event'. The 'Form' dropdown is highlighted in yellow. The 'Description' text field is empty, and the 'Status' dropdown is set to 'Active'.

This screenshot shows the 'Form' dropdown set to 'SSI - Surgical Site Infection'. The 'Description' text field is filled with 'IAB SSI - URINE LEAKAGE FROM CYSTECTOMY PROCEDURE'. The 'Status' dropdown is set to 'Active'. A blue arrow points from the text 'Remember to make to event active' to the 'Status' dropdown.

Creating a New SSI Event (cont.)

- 5) Add a label to the field. This will be the label that appears on the form.
- 6) Select the type of variable (alpha-numeric, numeric, or date)
- 7) Save the newly created field

Form Type *: CDC-Defined - PS - Event
Form *: SSI - Surgical Site Infection
Description *: IAB SSI - URINE LEAKAGE FROM CYSTECTOMY PROCEDURE
Status *: Active

Multiple Fields can be added to the new custom variables created

Define Custom Fields			
<input type="button" value="Add Row"/>			
<input type="button" value="Delete"/>	Label	Type	Status
<input type="checkbox"/>	URINE LEAK SSI	Alphanumeric	Active
<input type="checkbox"/>			

Creating a New SSI Event (cont.)

- Check to see if the new field is added to the event form

The screenshot displays the NHSN 'Add Event' form. On the left is a navigation menu with options: NHSN Home, Alerts, Dashboard, Reporting Plan, Patient, Event, Procedure, Summary Data, COVID-19, Import/Export, Surveys, Analysis, Users, Facility, Group, Tools, Dynamic Forms, and Logout. The 'Event' menu item is selected, and a dropdown shows 'Add', 'Find', and 'Incomplete'. A large orange arrow points from the 'Add' button to the 'Add Event' form.

The 'Add Event' form is divided into several sections:

- Patient Information:** Includes fields for Facility ID (DHQP MEMORIAL HOSPITAL (ID 10018)), Patient ID, Secondary ID, Last Name, Middle Name, Sex, and Ethnicity. Race options are American Indian/Alaska Native, Asian, Black or African American, Native Hawaiian/Other Pacific Islander, and White.
- Event Information:** Includes Event Type (SSI - Surgical Site Infection), NHSN Procedure Code, and a section for 'Select button for system used' with options for ICD-10 PCS and CPT Code. It also has fields for Outpatient Procedure, Procedure Date, MDRO Infection Surveillance, Location, and Date Admitted to Facility.
- Event Details:** Includes Specific Event, Infection present at the time of surgery, Detected, Secondary Bloodstream Infection, COVID-19, Died, Discharge Date, and Pathogens Identified.
- Custom Fields:** A red box highlights this section, which contains the 'URINE LEAK' field.

- Follow the same steps to manually add individual procedure records
<https://www.cdc.gov/nhsn/pdfs/training/2022/SSI-Reporting-508.pdf>

Import Custom Procedure File


- Option to add multiple procedure records at once
- Data must be imported with a *header row* and the *header names* must match the *variable names* as they appear in the template file
- Must be uploaded via .csv file
- Required fields must be completed in order to upload the file successfully
 - CPT codes are not required for custom procedures, but encouraged


patID	sex	dob	Medicare ID	Proc Code	Proc CPTC	Proc Date	Proc Duration Hr	Proc Duration Min	Sw Class	asa	scope	Surgeon Code	anesthesia	Ht Feet	Ht Inches	Wt English	diabetes	custom1
001534	F	5/24/53	2345671M	CSY		2/15/22	5	37	cc	2	Y	5698	Y	5	2	147	N	Y
004558	M	9/16/43	3456892M	CSY		5/9/22	6	7	cc	2	Y	7623	Y	6	0	197	y	Y

Resources for Importing Custom Files

- Found on the PSC – SSI website
 - Instructions on how to import SSI event data ([Importing Patient Safety Procedure Data \(cdc.gov\)](#))
- Import template file to add procedures to
 - Provides example of how data is entered in a .csv file format

Supporting Materials

[NHSN Organism List \(All Organisms, Common Commensals, MBI Organisms, and UTI Bacteria\) – June 2022](#)  [XLS – 560 KB]

[Sample Procedure Import File](#)  [XLSX – 25 KB]

[How to Import Patient Safety Procedure Data, January 2020](#)  [PDF – 400 KB]

patID	sex	dob	Medicare ID	Proc Code	Proc CPTC	Proc Date	Proc Duration Hr	Proc Duration Min	Sw Class	asa	scope	Surgeon Code	anesthesia	Ht Feet	Ht Inches	Wt English	diabetes	custom1
001534	F	5/24/53	2345671M	CSY		2/15/22	5	37	cc	2	Y	5698	Y	5	2	147	N	Y
004558	M	9/16/43	3456892M	CSY		5/9/22	6	7	cc	2	Y	7623	Y	6	0	197		Y

References

1. U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2021 submission data (1999-2019): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; www.cdc.gov/cancer/dataviz, released in June 2022.
2. Parker WP, Tollefson MK, Heins CN, Hanson KT, Habermann EB, Zaid HB, Frank I, Thompson RH, Boorjian SA. Characterization of perioperative infection risk among patients undergoing radical cystectomy: Results from the national surgical quality improvement program. Urol Oncol. 2016 Dec;34(12):532.e13-532.e19. doi: 10.1016/j.urolonc.2016.07.001. Epub 2016 Aug 5. PMID: 27503783.
3. Brown KG, Solomon MJ, Latif ER, Koh CE, Vasilaras A, Eisinger D, Sved P. Urological complications after cystectomy as part of pelvic exenteration are higher than that after cystectomy for primary bladder malignancy. J Surg Oncol. 2017 Mar;115(3):307-311. doi: 10.1002/jso.24511. Epub 2016 Nov 18. PMID: 27859276.

Thank you for viewing this NHSN Quick Learn Training!

- Please submit any questions about the content of the presentation to NHSN@cdc.gov

Additional NHSN training resources:

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

Training Questions – NHSNTrain@cdc.gov