Surgical Site Infection (SSI) Surveillance

Teresa C. Horan, MPH
Gloria C. Morrell, RN, MSN, CIC

October 3, 2012
Updated November 20, 2012

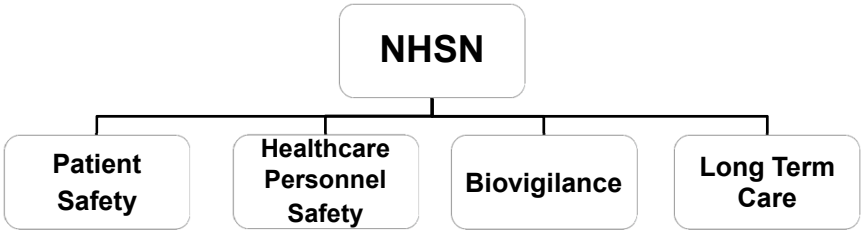
Nothing to Disclose

Updated SSI Slide Numbers

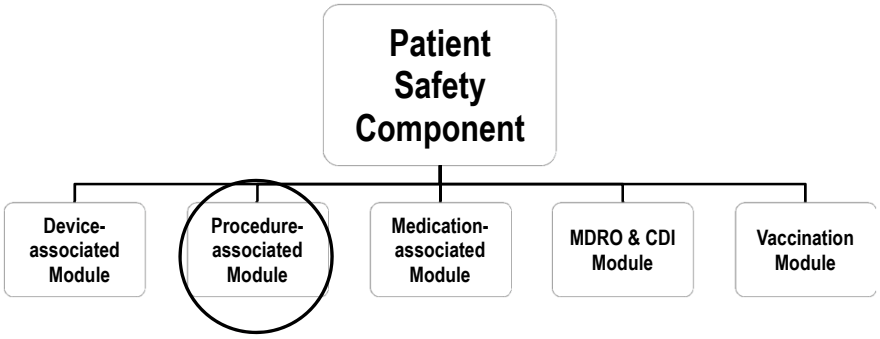
- 86 – Added code OTH to the 30-day list and code VSHN to the 90-day list
- 89 – POA infection definition removed; not used in 2013
- 90 – Example 1 modified (Example 2 removed)
- 94 – Wording “in Table 5” added
- 101 – Updated wording of Date of Event
- 110 – Modified definition of post-discharge detected
- 112 – Removed word “exactly”
- 113 – Example modified
- 114 – Replaced secondary BSI flow diagram with additional guidance

* There will be an “Updated Slide” note on each slide

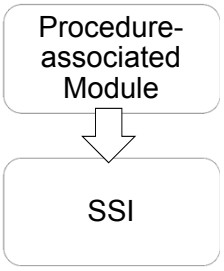
NHSN Structure
4 Components



Patient Safety Component
5 Modules



Procedure-associated Module



SSI Surgical site infection

Post-procedure pneumonia (PPP) is being retired at end of 2012

Resources for SSI Surveillance

- NHSN Forms (January 2013)
  - 57.106: Monthly Reporting Plan
  - 57.120: Surgical Site Infection
  - 57.121: Denominator for Procedure

Resources for SSI Surveillance

- NHSN Patient Safety Component Manual, January 2013
  - Ch 1: NHSN Overview: Surveillance Techniques
  - Ch 3: Monthly Reporting Plan
  - Ch 9: SSI Protocol, Forms, and Tables of Instructions
  - Ch 16: Key Terms
  - Ch 17: Infection Site Definitions

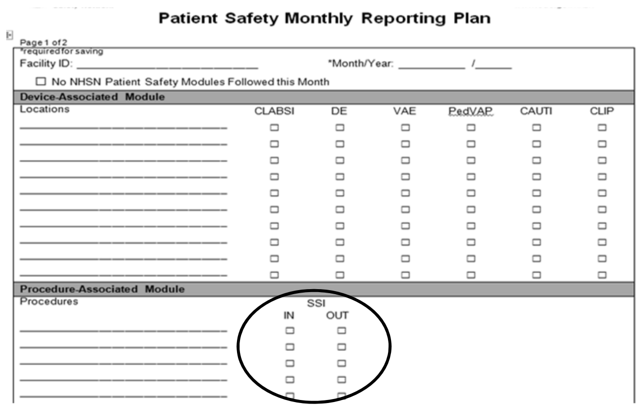
http://www.cdc.gov/nhsn/TOC_PSCManual.html

Monthly Reporting Plan

- Plans are the roadmap to your data
- Only data included in Plans will be used by CDC in aggregate data analysis (i.e., only “in-Plan” data)
- Plans drive much of the business logic of the NHSN application
- Must have one for every month of the year

Changes to Plan in 2013 for PA Module

- No Post-procedure Pneumonia (PPP)
- For SSI, no choice for “Both” but will be able to indicate that both in- and out-patients are being monitored for SSI



Patient Safety Monthly Reporting Plan

Page 1 of 2
*required for saving

Facility ID: ______________________ *Month/Year: __________ /______

☐ No NHSN Patient Safety Modules Followed this Month

Device-Associated Module

Locations	CLABSI	DE	VAE	PedVAP	CAUTI	CLIP
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐

Procedure-Associated Module

Procedures	SSI	
	IN	OUT
____________	☐	☐
____________	☐	☐
____________	☐	☐
____________	☐	☐
____________	☐	☐

SSI - Active Surveillance Methods

- Determine which surgical patients you will monitor
- Review admission, readmission, and OR logs
- Review patient charts for signs and symptoms of SSI, risk factors
- Review lab, Xray, other diagnostic test reports
- Review nurses and physician notes
- Visit the ICU and wards – talk to primary care staff

Post-discharge SSI Surveillance Methods

- Surgeon and/or patient surveys by mail or phone
  - Develop a tool that includes the SSI and most common specific infection site criteria for the operative procedures being monitored
  - Train surgeons and their office staff
- Review of postoperative clinic records

Criteria must be met regardless of where the SSI is detected!

CMS Reporting via NHSN – Current Requirements

(as of 5/9/2012)

HAI Event	Facility Type	Reporting Start Date
CLABSI	Acute Care Hospitals: Adult, Pediatric, and Neonatal ICUs	January 2011
CAUTI	Acute Care Hospitals: Adult and Pediatric ICUs	January 2012
SSI	Acute Care Hospitals: Inpatient COLO and HYST Procedures	January 2012
I.V. antimicrobial start	Outpatient Dialysis Facilities	January 2012
Positive blood culture	Outpatient Dialysis Facilities	January 2012
Signs of vascular access infection	Outpatient Dialysis Facilities	January 2012
CLABSI	Long Term Care Hospitals*: Adult and Pediatric LTAC ICUs and Wards	October 2012
CAUTI	Long Term Care Hospitals*: Adult and Pediatric LTAC ICUs and Wards	October 2012
CAUTI	Inpatient Rehabilitation Facilities: Adult and Pediatric IRF Wards	October 2012
MRSA Bacteremia LabID Event	Acute Care Hospitals: FacWideIN	January 2013
C. difficile LabID Event	Acute Care Hospitals: FacWideIN	January 2013
HCW Influenza Vaccination	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	Ambulatory Surgical Centers	October 2014

* Long Term Care Hospitals are called **Long Term Acute Care Hospitals** in NHSN

NHSN and CMS

- COLO and HYST must be included in your Monthly Reporting Plans every month for data to be reported on your behalf to CMS
- Must follow the NHSN SSI protocol exactly and report complete and accurate data in a timely manner
  - Report each SSI detected or indicate that no SSI occurred
  - Report each COLO and HYST performed on inpatients

http://www.cdc.gov/nhsn/PDFs/FINAL-ACH-SSI-Guidance.pdf

NHSN and CMS

- A subset of SSI following in-Plan, inpatient COLO and HYST procedures are used to fulfill CMS reporting requirements:
  - ≥18 year old patient at time of surgery
  - Deep incisional primary or organ/space SSI
  - Detected by <u>all</u> surveillance methods (A, P, RF, RO) within 30 days of date of procedure
- The risk models used to calculate the expected number of SSI for the SIR are based only on the patient's age and ASA score

http://www.cdc.gov/nhsn/PDFs/FINAL-ACH-SSI-Guidance.pdf

COLO and HYST

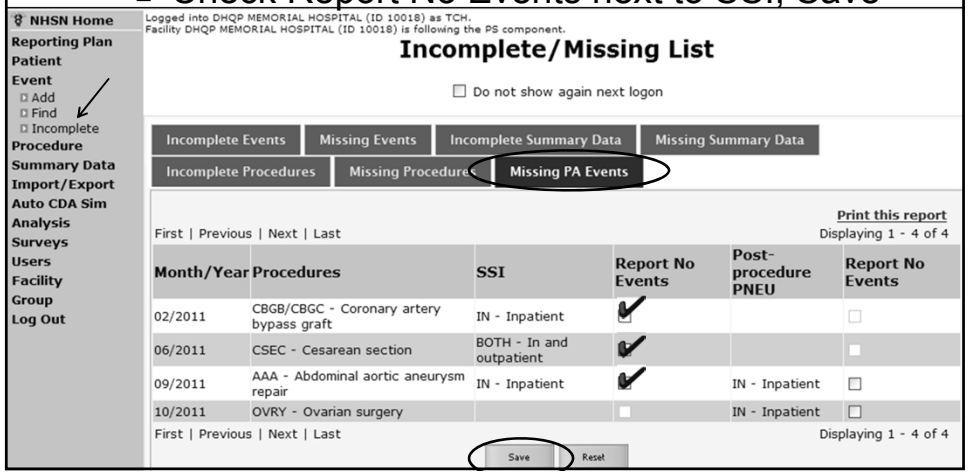
Legacy Code	Operative Procedure	Description	ICD-9-CM Codes / CPT Codes
COLO	Colon surgery	Incision, resection, or anastomosis of the large intestine; includes large-to-small and small-to-large bowel anastomosis; does not include rectal operations	17.31-17.36, 17.39, 45.03, 45.26, 45.41, 45.49, 45.52, 45.71-45.76, 45.79, 45.81-45.83, 45.92-45.95, 46.03, 46.04, 46.10, 46.11, 46.13, 46.14, 46.43, 46.52, 46.75, 46.76, 46.94 44140, 44141, 44143, 44144, 44145, 44146, 44147, 44150, 44151, 44160, 44204, 44205, 44206, 44207, 44208, 44210
HYST	Abdominal hysterectomy	Abdominal hysterectomy; includes that by laparoscope	68.31, 68.39, 68.41, 68.49, 68.61, 68.69 58150, 58152, 58180, 58200, 58210, 58541, 58542, 58543, 58544, 58548, 58570, 58571, 58572, 58573, 58951, 58953, 58954, 58956

HYST Reporting Detail

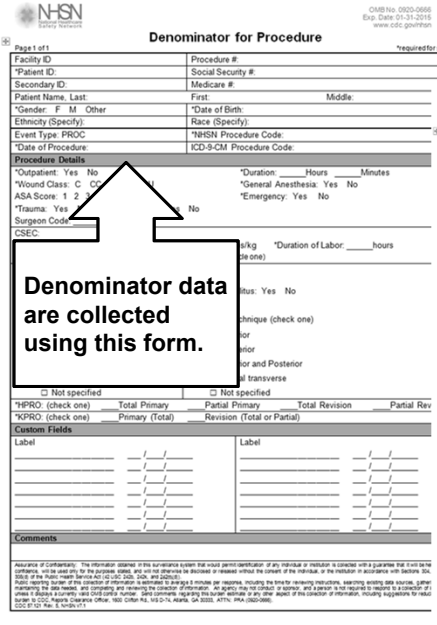
- Which structures and how they are detached (the surgical technique or approach), not the location of where the structures were physically removed, determines how the ICD-9-CM code is assigned
  - 68.41 – Laparoscopic total abdominal hysterectomy (HYST), even if uterus is removed through the vagina
  - 68.51 – Laparoscopically assisted vaginal hysterectomy (VHYS); vaginal incision

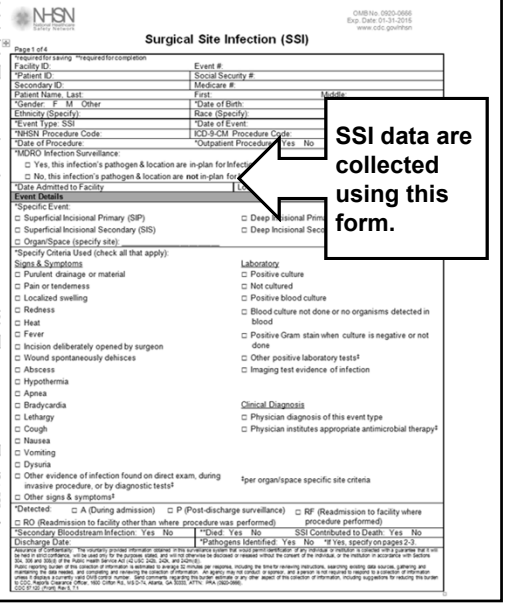
If you have no SSI to report…

- Click on Event → Incomplete
- Click on Missing PA Events tab
- Check Report No Events next to SSI; Save



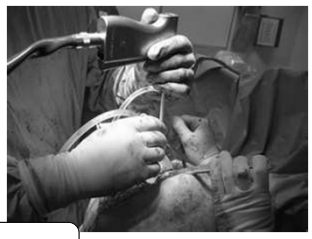
SSI Surveillance Forms





Key Term: NHSN Operative Procedure

A procedure that
1. **is performed on a patient who is an NHSN inpatient or an NHSN outpatient,**
2. **takes place during an operation where a surgeon makes a skin or mucous membrane incision (including the laparoscopic approach) and primarily closes the incision before the patient leaves the operating room, and**
3. **is represented by an NHSN Operative Procedure Code**



Skin-to-skin

Primary Closure

- Primary closure is defined as closure of all tissue levels, regardless of the presence of wires, wicks, drains, or other devices or objects extruding through the incision.
- However, regardless of whether anything is extruding from the incision, if the skin edges are not fully approximated for the entire length of the incision (e.g., are loosely closed with gaps between suture/staple points), the incision is <u>not</u> considered primarily closed and therefore the procedure would <u>not</u> be considered an operation. In such cases, any subsequent infection would <u>not</u> be considered an SSI, although it may be an HAI if it meets criteria for another specific infection site (e.g., skin or soft tissue infection).

Key Term: NHSN Inpatient

A patient whose date of admission to the healthcare facility and the date of discharge are *different* calendar days.

Key Term: NHSN Outpatient

A patient whose date of admission to the healthcare facility and the date of discharge are the *same* day

Key Term: Operating Room

- **A patient care area that met the Facilities Guidelines Institute or American Institute of Architects' criteria for an operating room when it was constructed or renovated.**
- **May include:**
  - **Traditional operating room**
  - **C-section room**
  - **Interventional radiology room**
  - **Cardiac catheterization lab**

NHSN Operative Procedure Codes

Each NHSN operative procedure category is defined by a group of ICD-9-CM procedure codes

Legacy Code	Operative Procedure	Description	ICD-9-CM Codes / CPT Codes
HTP	Heart transplant	Transplantation of heart	37.51-37.55
HYST	Abdominal hysterectomy	Abdominal hysterectomy; includes that by laparoscope	68.31, 68.39, 68.41, 68.49, 68.61, 68.69 58150, 58152, 58180, 58200, 58210, 58541, 58542, 58543, 58544, 58548, 58570, 58571, 58572, 58[illegible] 58951, 58953, 58954, [illegible]
KPRO	Knee prosthesis	Arthroplasty of knee	00.80 [illegible] 54, 81.55
KTP	Kidney transplant	Transplantation of kidney	

CPT codes do not take precedence over ICD-9 codes when categorizing NHSN operative procedures.

NHSN Operative Procedures

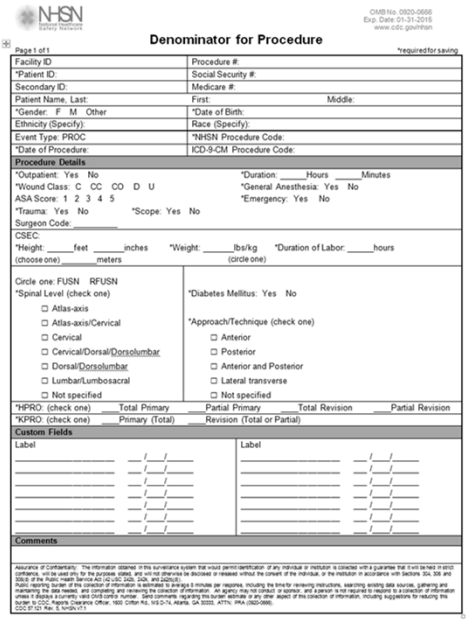
When an NHSN Operative Procedure is selected for monitoring, <u>all</u> the procedures within that category must be followed.

Code	Procedure	Description	ICD-9-CM Codes
AAA	Abdominal aortic aneurysm repair	Resection of a[illegible] aorta with anastom[illegible] replacement	38.34, 38.44, 38.64
AMP	Limb amputation	Total or partial amputation or disarticulation of the upper or lower limbs, including digits	84.00-84.19, 84.91
APPY	Appendix surgery	Operation of appendix (not incidental to another procedure)	47.01, 47.09, 47.2, 47.91, 47.92, 47.99
AVSD	Shunt for dialysis	Arteriovenostomy for renal dialysis	39.27, 39.42

Completing the Denominator for Procedure Form

Denominator Data

- **The surveillance period is one month.**
- **Complete a Denominator for Procedure record for <u>every</u> operation meeting the NHSN operative procedure definition that was done during that month if it is in your Monthly Reporting Plan.**
- **Submit data within a month of the end of this period.**



NHSN

OMB No. 0920-0666
Exp. Date: 01-31-2015
www.cdc.gov/nhsn

Denominator for Procedure

Page 1 of 1 *required for saving

Facility ID	Procedure #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
Event Type: PROC	*NHSN Procedure Code:
*Date of Procedure:	ICD-9-CM Procedure Code:

Procedure Details

*Outpatient: Yes No
*Wound Class: C CC CO D U
ASA Score: 1 2 3 4 5
*Trauma: Yes No
*Scope: Yes No
Surgeon Code: _____
*Duration: _____Hours _____Minutes
*General Anesthesia: Yes No
*Emergency: Yes No

CSEC:
*Height: _____feet _____inches (choose one) _____meters
*Weight: _____lbs/kg (circle one)
*Duration of Labor: _____hours

Circle one: FUSN RFUSN
*Spinal Level (check one)
☐ Atlas-axis
☐ Atlas-axis/Cervical
☐ Cervical
☐ Cervical/Dorsal/Dorsolumbar
☐ Dorsal/Dorsolumbar
☐ Lumbar/Lumbosacral
☐ Not specified

*Diabetes Mellitus: Yes No

*Approach/Technique (check one)
☐ Anterior
☐ Posterior
☐ Anterior and Posterior
☐ Lateral transverse
☐ Not specified

*HPRO: (check one) ___Total Primary ___Partial Primary ___Total Revision ___Partial Revision
*KPRO: (check one) ___Primary (Total) ___Revision (Total or Partial)

Custom Fields

Label	Label
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____

Comments

Assurance of Confidentiality: The 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 242k, 242m, and 242b(d)).

Public reporting burden of this collection of information is estimated to average 8 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC, Reports Clearance Officer, 1600 Clifton Rd, MS D-74, Atlanta, GA 30333, ATTN: PRA (0920-0666).

CDC 57.121 Rev. 6, 10/2014

Denominator for Procedure

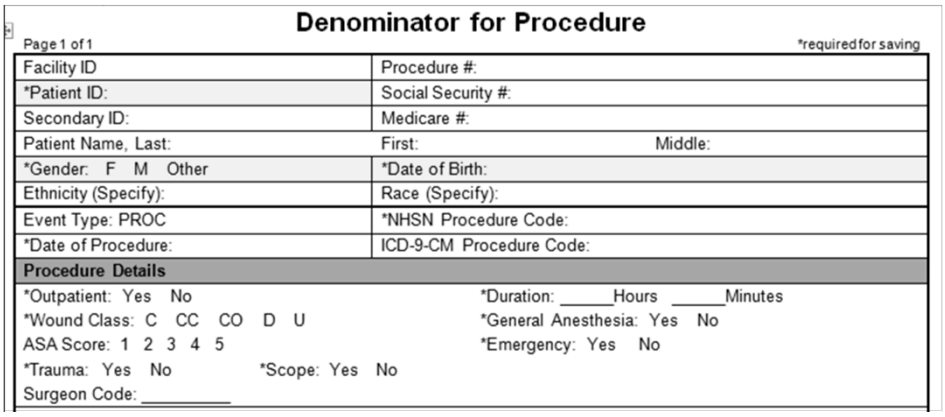
For example, if your Monthly Reporting Plan indicates that you will monitor COLO procedures in January, and 43 COLO were done that month, then you should enter / import 43 separate COLO procedure records into NHSN by the end of February.

Procedure-Associated Module HELP

Procedures	SSI
COLO - Colon surgery	IN - Inpatient
HYST - Abdominal hysterectomy	IN - Inpatient

Denominator for Procedure

Patient Information:
Patient ID, Gender, and Date of Birth are required.

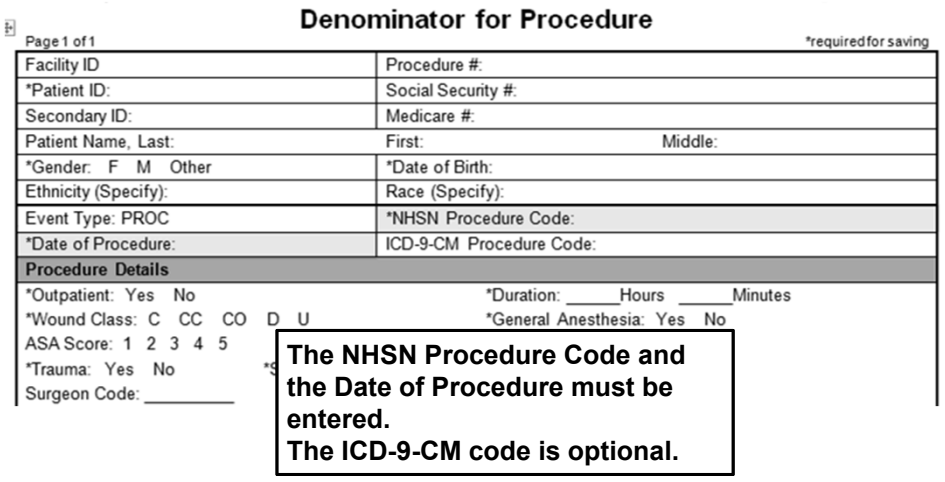


Denominator for Procedure

Page 1 of 1 *required for saving

Facility ID	Procedure #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
Event Type: PROC	*NHSN Procedure Code:
*Date of Procedure:	ICD-9-CM Procedure Code:
Procedure Details	
*Outpatient: Yes No	*Duration: _____Hours _____Minutes
*Wound Class: C CC CO D U	*General Anesthesia: Yes No
ASA Score: 1 2 3 4 5	*Emergency: Yes No
*Trauma: Yes No	*Scope: Yes No
Surgeon Code: _____	

Procedure Code and Procedure Date

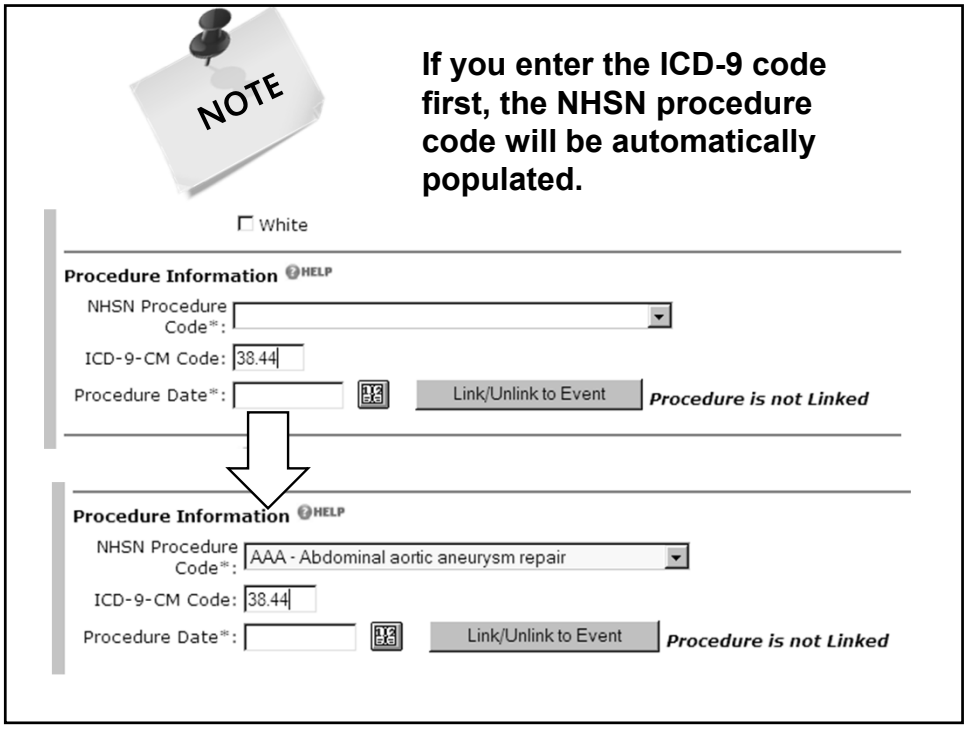


Denominator for Procedure

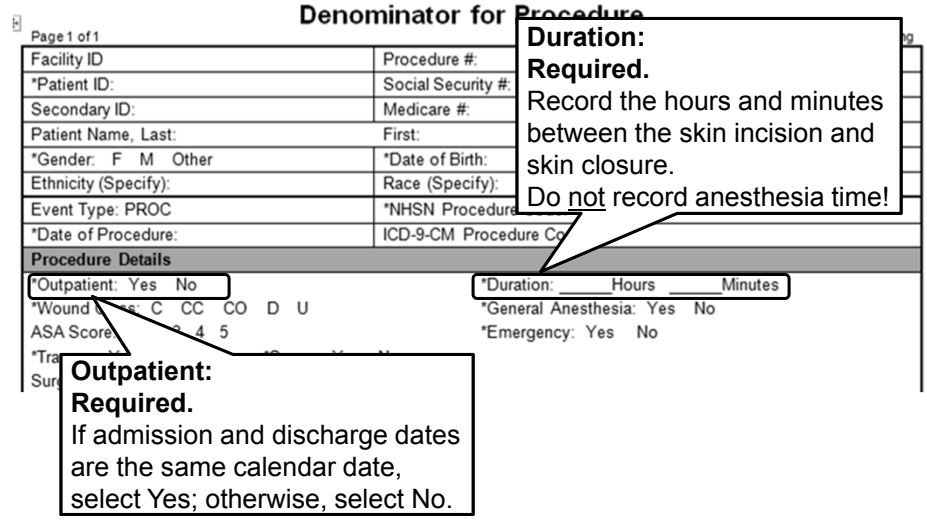
Page 1 of 1 *required for saving

Facility ID	Procedure #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
Event Type: PROC	*NHSN Procedure Code:
*Date of Procedure:	ICD-9-CM Procedure Code:
Procedure Details	
*Outpatient: Yes No	*Duration: _____Hours _____Minutes
*Wound Class: C CC CO D U	*General Anesthesia: Yes No
ASA Score: 1 2 3 4 5	
*Trauma: Yes No	
Surgeon Code: _____	

The NHSN Procedure Code and the Date of Procedure must be entered.
The ICD-9-CM code is optional.



Procedure Details – Outpatient and Duration



Important Note

- In Chapter 9, the Reporting Instructions in the Denominator Data section and the Table of Instructions provide important guidance on the many nuances of how to report the number of operative procedure records and their details in a variety of situations.
- The examples shown in this presentation are only some of them.
- Please read and follow all of the instructions carefully!

Reporting Instructions

- Some operative procedures have more than one incision
  - CBGB, and certain operations in the CEA, FUSN, RFUSN, and PVBY categories
  - Example: CBGB in which an incision to harvest a donor vessel is made that is separate from the primary incision
  - Example: FUSN with both anterior and posterior approaches
- Complete only one *Denominator for Procedure* form
  - Record the duration as time from first skin incision to primary closure of last incision

Reporting Instruction

- If procedures in more than one NHSN operative procedure category are done *through the same incision* during the same trip to the OR, create a record for each procedure that you are monitoring in the Monthly Reporting Plan, and use the total time for the duration for each record.

Example: Patient had a coronary artery bypass graft with a chest incision only (CBGC) and also a mitral valve replacement (CARD). The time from skin incision to skin closure was 5 hours. A *Denominator for Procedure* form is completed for the CBGC and another for the CARD, indicating the duration as 5 hours and 0 minutes on each form.

Reporting Instruction

- EXCEPTION: If a patient has both a CBGC and a CBGB during the same trip to the OR, report only as a CBGB.

Example: Patient was scheduled to have a coronary artery bypass graft with a chest incision only (CBGC), however during the procedure it became necessary to harvest a vessel from the leg. Even though an ICD-9-CM procedure code for a CBGC and a CBGB will be assigned by coders, only complete a CBGB *Denominator for Procedure* form. The time from chest skin incision to chest primary closure is reported for the duration of the procedure.

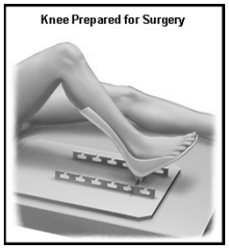
Reporting Instruction

- If the patient goes to the OR more than once during the same admission and another procedure of the same or different NHSN operative procedure category is performed through the same incision within 24 hours of the end of the original incision, report only one *Denominator for Procedure* form for the original procedure combining the durations for both procedures.

Example: Patient had colon surgery (COLO) performed on Tuesday morning which had a duration of 3 hours and 10 minutes. On Tuesday evening, he was returned to the OR where the COLO incision was opened to repair a bleeding vessel (OTH). The duration of the second procedure was 1 hour and 10 minutes.

Report only one COLO with a combined duration of 4 hours and 20 minutes. Do not report an OTH record.

Reporting Instruction: Bilateral Procedures

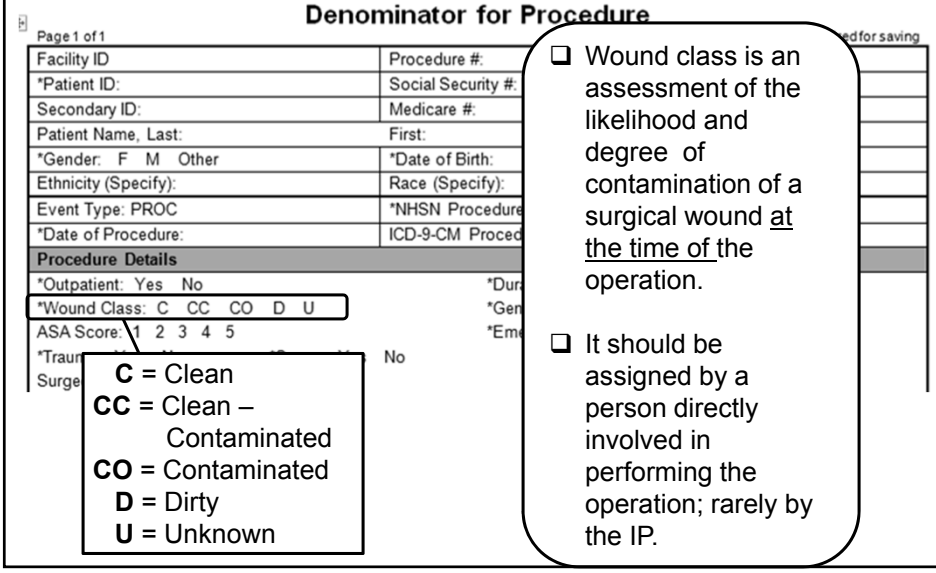


- For procedures that can be performed bilaterally during the same trip to the OR (e.g., KPRO), two separate *Denominator for Procedure* forms are completed.

- To document the duration of the procedure, indicate the incision time to closure for each procedure separately or, alternatively, take the total time for both procedures and split it evenly between the two.

Procedure Details – Wound Class

Denominator for Procedure



C = Clean
CC = Clean – Contaminated
CO = Contaminated
D = Dirty
U = Unknown

- Wound class is an assessment of the likelihood and degree of contamination of a surgical wound <u>at the time of</u> the operation.
- It should be assigned by a person directly involved in performing the operation; rarely by the IP.

Wound Class

Clean (I)
- Uninfected wound with no inflammation
- Respiratory, alimentary, genital* or uninfected urinary tract are <u>not entered</u>
- Primarily closed
- Closed drainage, if needed

Clean-Contaminated (II)
- Respiratory, alimentary, genital*, or urinary tracts <u>entered</u> under controlled conditions and without unusual contamination
- Include operations on biliary tract, appendix, vagina, oropharynx if no evidence of infection or major break in technique

***Includes female and male reproductive tracts**

Wound Class

Contaminated (III)

- ❑ Open, fresh, accidental wounds
- ❑ Major breaks in sterile technique or gross spillage from the GI tract
- ❑ Includes incisions into acute, nonpurulent inflamed tissues

Dirty or Infected (IV)

- ❑ Old traumatic wounds with retained devitalized tissue
- ❑ Wounds involving existing clinical infection or perforated viscera

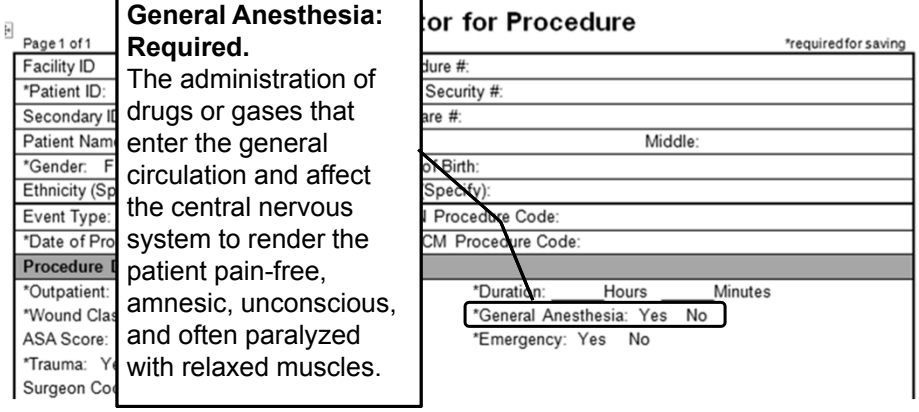
Note: NHSN allows "unknown" to be reported through 2013, however, the procedure will not be included in the aggregate pool or your facility's risk-adjusted metrics.

Wound Class Cases

Case	Wound Class
Susanne had an appendectomy following 1 day of acute abdominal pain with rebound tenderness. At the end of the case, the surgeon indicates that the appendix was inflamed and the surgical area was irrigated and cefoxitin was ordered for 3 days postoperatively.	3
Fred had a cholecystectomy using a laparoscopic technique. The gallbladder was removed successfully with no breaks in operative asepsis.	2
George had a KPRO revision. When the surgeon makes the incision into the surgical site, she notes that the knee joint demonstrates purulent material and inflammation. A specimen is obtained and sent to the laboratory which grows *S. aureus* (MSSA).	4
Mary had a scheduled, uneventful abdominal hysterectomy.	2

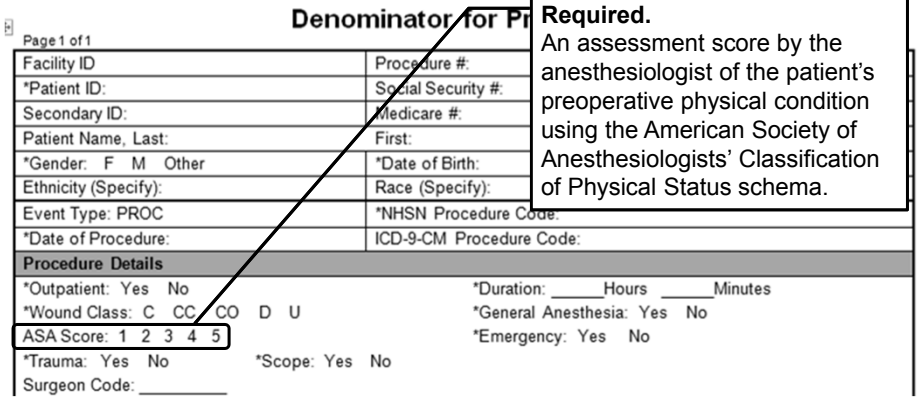
Procedure Details – General Anesthesia

General Anesthesia: Required.
The administration of drugs or gases that enter the general circulation and affect the central nervous system to render the patient pain-free, amnesic, unconscious, and often paralyzed with relaxed muscles.



Procedure Details – ASA Score

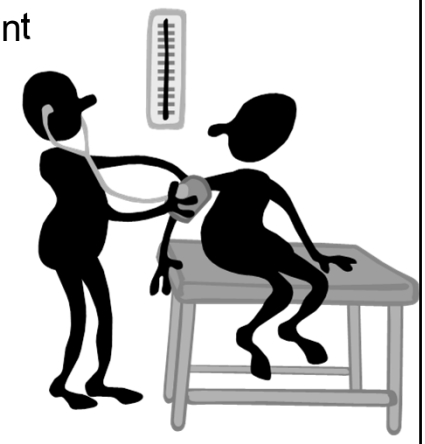
ASA Score: Required.
An assessment score by the anesthesiologist of the patient's preoperative physical condition using the American Society of Anesthesiologists' Classification of Physical Status schema.



ASA Score

- Required only for inpatient procedures

1. Normally healthy patient
2. Patient with mild systemic disease
3. Patient with severe systemic disease that is not incapacitating
4. Patient with an incapacitating systemic disease that is a constant threat to life
5. Moribund patient who is not expected to survive for 24 hours with or without operation



Procedure Details – Emergency

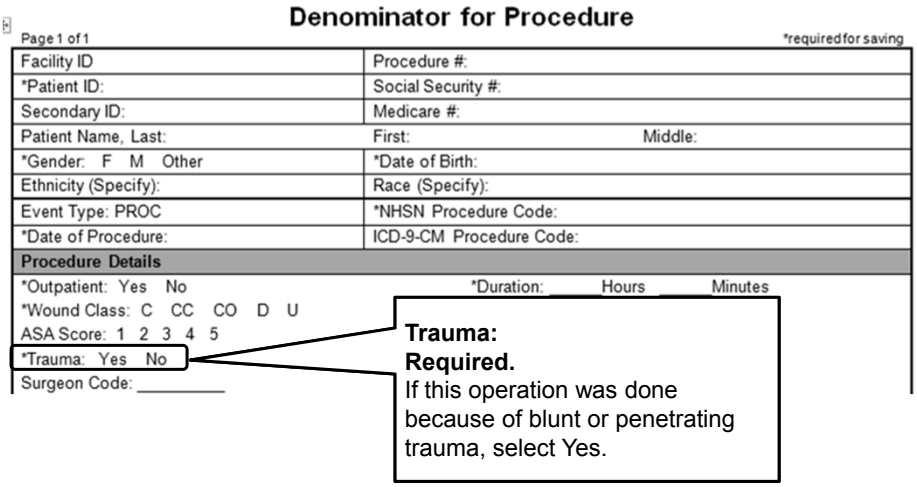
Denominator for Procedure

Page 1 of 1 *required for saving

Facility ID	Procedure #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
Event Type: PROC	*NHSN Procedure Code:
*Date of Procedure:	ICD-9-CM Procedure Code:
Procedure Details	
*Outpatient: Yes No	*Duration: _____Hours _____Minutes
*Wound Class: C CC CO D U	*General Anesthesia: Yes No
ASA Score: 1 2 3 4 5	*Emergency: Yes No
*Trauma: Yes No	*Scope: Yes No
Surgeon Code: _____	

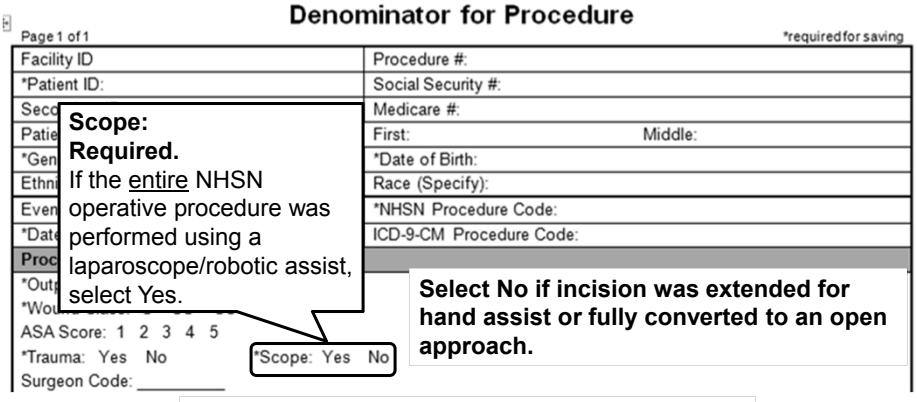
Emergency:
Required.
Select Yes if this operative procedure was a nonelective and unscheduled operation; otherwise, select No.

Procedure Details – Trauma



Trauma:
Required.
If this operation was done because of blunt or penetrating trauma, select Yes.

Procedure Details – Scope



Scope:
Required.
If the entire NHSN operative procedure was performed using a laparoscope/robotic assist, select Yes.

Select No if incision was extended for hand assist or fully converted to an open approach.

Select Yes if scope used for HYST or VHYS even if uterus was removed through the vagina.

Select Yes if scope used to harvest donor vessel during a CBGB.

Procedure Details – Surgeon Code

Denominator for Procedure

Page 1 of 1 *required for saving

Facility ID	Procedure #:
*Patient ID	curity #:
Secondary	#:
Patient Na	Middle:
*Gender:	Birth:
Ethnicity (	ecify):
Event Typ	ocedure Code:
*Date of Procedu	ICD-9-CM Procedure Code:
Procedure Det	

*Outpatient: Y o *Duration: _____Hours _____Minutes
*Wound Clas CC CO D U *General Anesthesia: Yes No
ASA Score 2 3 4 5 *Emergency: Yes No
*Trauma: Yes No *Scope: Yes No
Surgeon Code:

Surgeon Code: Optional.
Enter the code of the surgeon who performed the principal operative procedure.

If more than one surgeon performed the operation, enter the code for the surgeon who was primarily responsible for the case.

Procedure Details – Implant

- No longer required!
- Instead certain operative procedures will require monitoring for deep incisional or organ/space SSI for either 30 days or 90 days
- Implant definition too broad which limited its usefulness as an SSI stratifier
- Also too difficult to collect

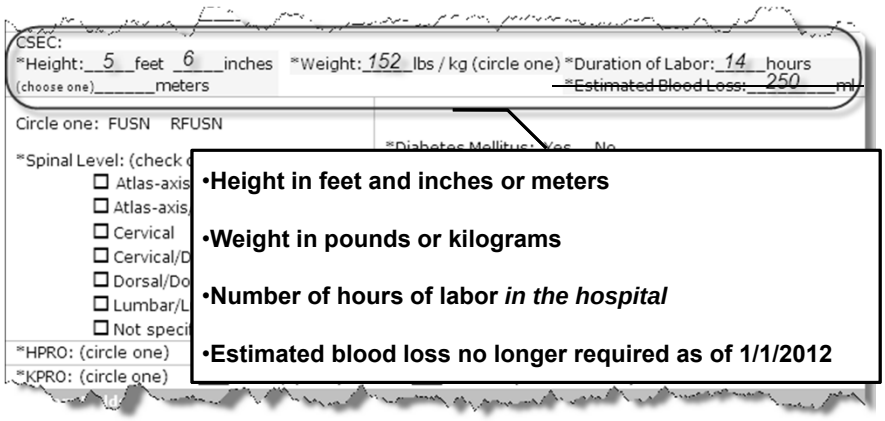
Additional Fields Required for Specific Procedures

Additional Fields for Specific Procedures

- There are 5 procedures for which additional risk factors are collected:
  - Cesarean Section – CSEC
  - Spinal Fusion and Refusion – FUSN; RFUSN
  - Hip Arthroplasty – HPRO
  - Knee Arthroplasty – KPRO

When any of the above procedures are included in the *Monthly Reporting Plan*, the corresponding additional fields must be completed.

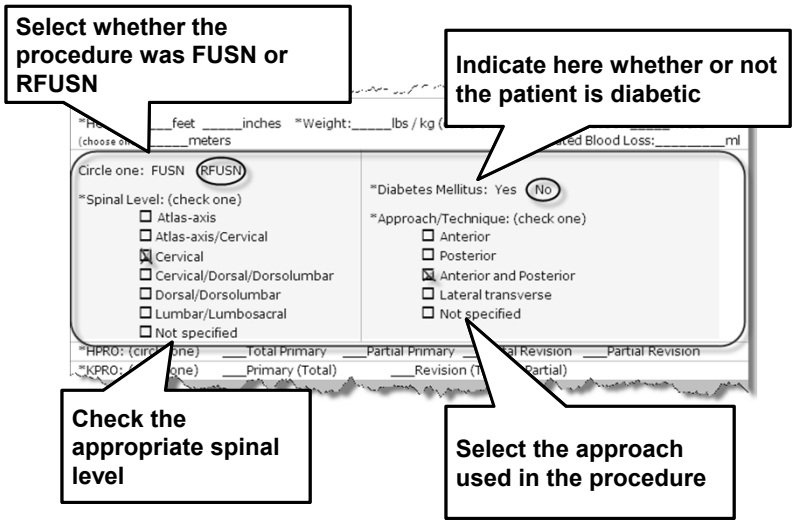
Cesarean Section – CSEC



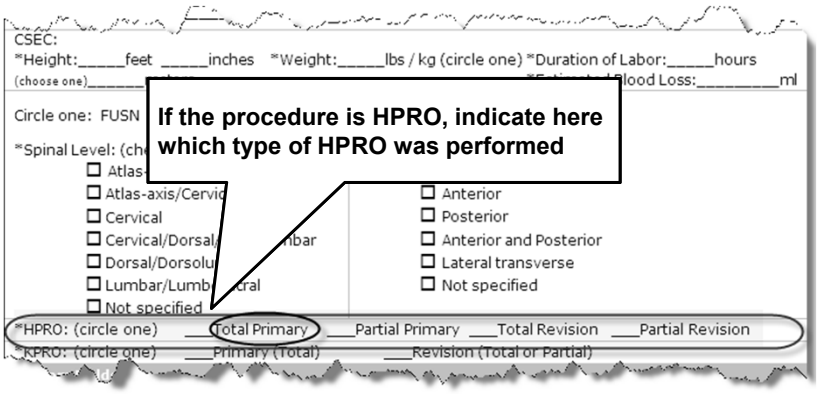
Reporting Instruction: Labor

- Length of time from beginning of active labor as an inpatient to delivery of the infant, expressed in hours (if ≤30 min, round down; >30 min, round up; if none, enter 0)
- Check for documentation in chart
- May be defined by your hospital's policies and procedures but should reflect the onset of regular contractions or induction that leads to delivery during this admission

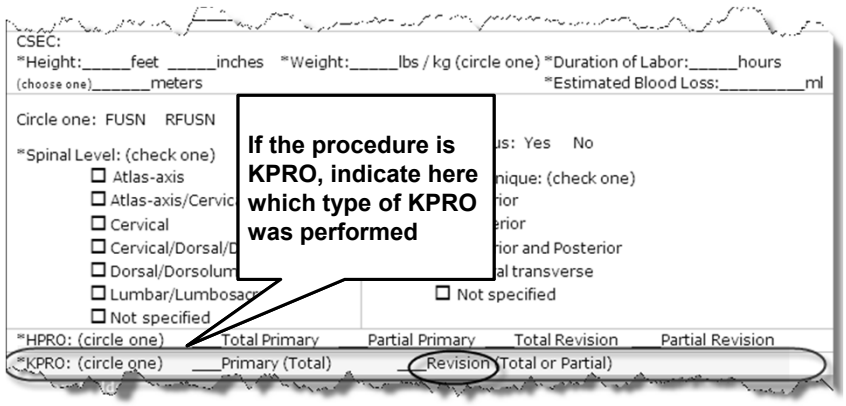
Fusion (FUSN) and Refusion (RFUSN)

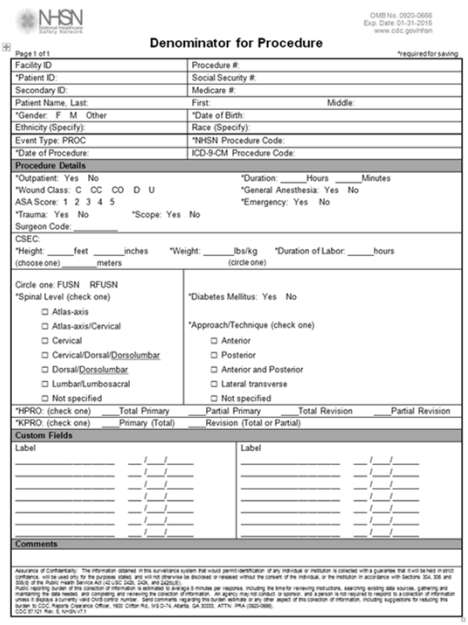


Hip Arthroplasty – HPRO



Knee Arthroplasty – KPRO





Denominator for Procedure

Page 1 of 1 *required for saving

Facility ID	Procedure #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
Event Type: PROC	*NHSN Procedure Code:
*Date of Procedure:	ICD-9-CM Procedure Code:

Procedure Details

*Outpatient: Yes No *Duration: _____Hours _____Minutes
*Wound Class: C CC CO D U *General Anesthesia: Yes No
ASA Score: 1 2 3 4 5 *Emergency: Yes No
*Trauma: Yes No *Scope: Yes No
Surgeon Code: _____

CSEC:
*Height: _____feet _____inches *Weight: _____lbs/kg *Duration of Labor: _____hours
(choose one) _____meters (circle one)

Circle one: FUSN RFUSN
*Spinal Level (check one)
- ☐ Atlas-axis
- ☐ Atlas-axis/Cervical
- ☐ Cervical
- ☐ Cervical/Dorsal/Dorsolumbar
- ☐ Dorsal/Dorsolumbar
- ☐ Lumbar/Lumbosacral
- ☐ Not specified

*Diabetes Mellitus: Yes No

*Approach/Technique (check one)
- ☐ Anterior
- ☐ Posterior
- ☐ Anterior and Posterior
- ☐ Lateral transverse
- ☐ Not specified

*HPRO: (check one) ____Total Primary ____Partial Primary ____Total Revision ____Partial Revision
*KPRO: (check one) ____Primary (Total) ____Revision (Total or Partial)

Custom Fields

Label		Label	
_____	__/__/____	_____	__/__/____
_____	__/__/____	_____	__/__/____
_____	__/__/____	_____	__/__/____
_____	__/__/____	_____	__/__/____
_____	__/__/____	_____	__/__/____
_____	__/__/____	_____	__/__/____

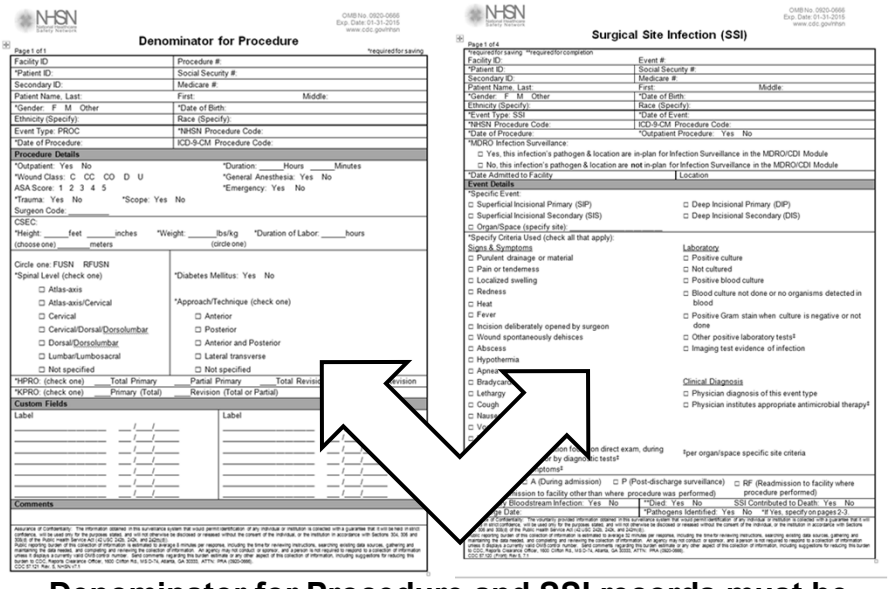
Comments

Assurance of Confidentiality: The 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)).
Public reporting burden of this collection of information is estimated to average 8 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC Reports Clearance Officer, 1600 Clifton Rd., M/S D-74, Atlanta, GA 30333, ATTN: PRA (0920-0666).
CDC 57.121 Rev. 5, NHSN.V11

Summary

- Complete and enter or import a *Denominator for Procedure* record for every NHSN operative procedure performed that is selected for surveillance.
- Use the SSI Protocol, Tables of Instructions, and Key Terms chapters of the Patient Safety Manual for guidance.

Linking and Importing Records



Denominator for Procedure

Page 1 of 1 *required for saving

Facility ID:	Procedure #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
Event Type: PROC	*NHSN Procedure Code:
*Date of Procedure	ICD-9-CM Procedure Code:

Procedure Details

*Outpatient: Yes No
*Duration: _____Hours _____Minutes
*Wound Class: C CC CO D U
*General Anesthesia: Yes No
ASA Score: 1 2 3 4 5
*Emergency: Yes No
*Trauma: Yes No
*Scope: Yes No
Surgeon Code: _____
CSEC:
*Height: _____feet _____inches
*Weight: _____lbs/kg
*Duration of Labor: _____hours
(choose one) _____meters
(circle one)

Circle one: FUSN RFUSN
*Spinal Level (check one)
☐ Atlas-axis
☐ Atlas-axis/Cervical
☐ Cervical
☐ Cervical/Dorsal/Dorsolumbar
☐ Dorsal/Dorsolumbar
☐ Lumbar/Lumbosacral
☐ Not specified

*Diabetes Mellitus: Yes No

*Approach/Technique (check one)
☐ Anterior
☐ Posterior
☐ Anterior and Posterior
☐ Lateral transverse
☐ Not specified

*HPRO (check one) ____Total Primary ____Partial Primary ____Total Revision ____Revision
*KPRO (check one) ____Primary (Total) ____Revision (Total or Partial)

Custom Fields

Label	Label
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____
_____ __/__/____	_____ __/__/____

Comments

Surgical Site Infection (SSI)

Page 1 of 4 *required for saving **required for completion

Facility ID:	Event #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
*Event Type: SSI	*Date of Event:
*NHSN Procedure Code:	ICD-9-CM Procedure Code:
*Date of Procedure:	*Outpatient Procedure: Yes No

*MDRO Infection Surveillance:
☐ Yes, this infection's pathogen & location are in-plan for Infection Surveillance in the MDRO/CDI Module
☐ No, this infection's pathogen & location are **not** in-plan for Infection Surveillance in the MDRO/CDI Module

*Date Admitted to Facility | Location

Event Details

*Specific Event:
☐ Superficial Incisional Primary (SIP)
☐ Deep Incisional Primary (DIP)
☐ Superficial Incisional Secondary (SIS)
☐ Deep Incisional Secondary (DIS)
☐ Organ/Space (specify site): _____

*Specify Criteria Used (check all that apply):

Signs & Symptoms
☐ Purulent drainage or material
☐ Pain or tenderness
☐ Localized swelling
☐ Redness
☐ Heat
☐ Fever
☐ Incision deliberately opened by surgeon
☐ Wound spontaneously dehisces
☐ Abscess
☐ Hypothermia
☐ Apnea
☐ Bradycardia
☐ Lethargy
☐ Cough
☐ Nausea

Laboratory
☐ Positive culture
☐ Not cultured
☐ Positive blood culture
☐ Blood culture not done or no organisms detected in blood
☐ Positive Gram stain when culture is negative or not done
☐ Other positive laboratory tests‡
☐ Imaging test evidence of infection

Clinical Diagnosis
☐ Physician diagnosis of this event type
☐ Physician institutes appropriate antimicrobial therapy‡

‡per organ/space specific site criteria

☐ A (During admission) ☐ P (Post-discharge surveillance) ☐ RF (Readmission to facility where procedure performed)

Bloodstream Infection Yes No
*Died Yes No SSI Contributed to Death: Yes No
*Pathogens Identified: Yes No *If Yes, specify on pages 2-3.

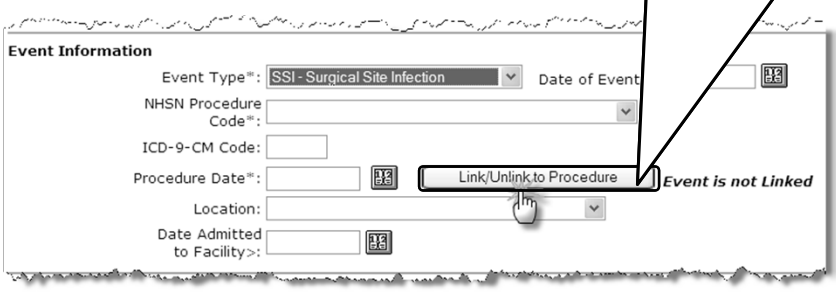
Denominator for Procedure and SSI records must be LINKED so that the correct risk factor data are matched to the SSI for a given patient.

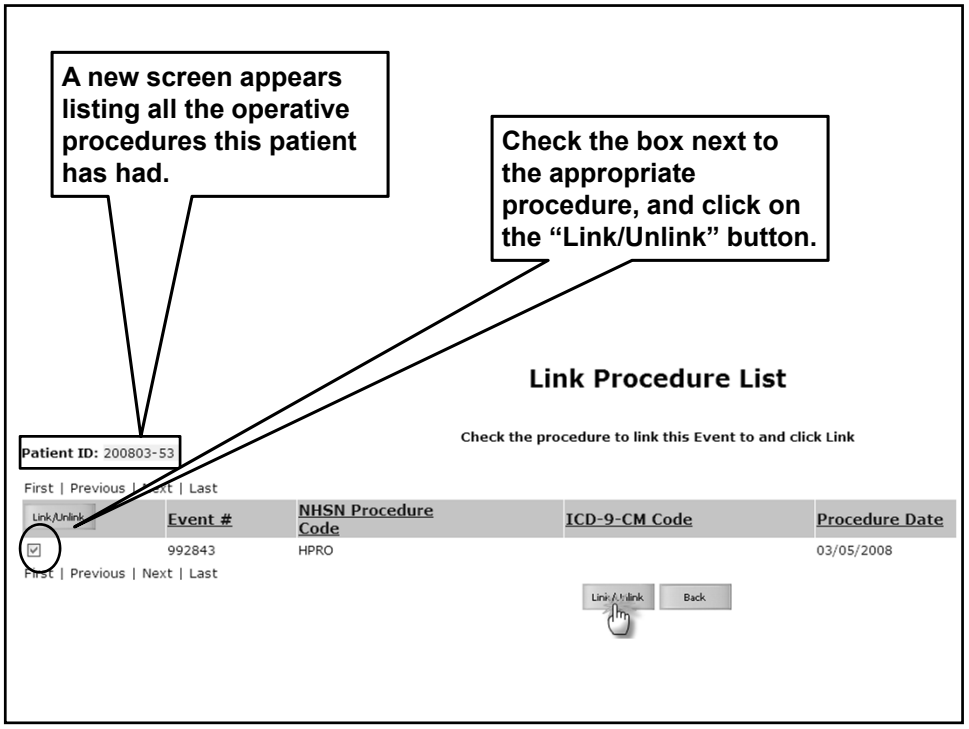
Linking Procedure and SSI Records

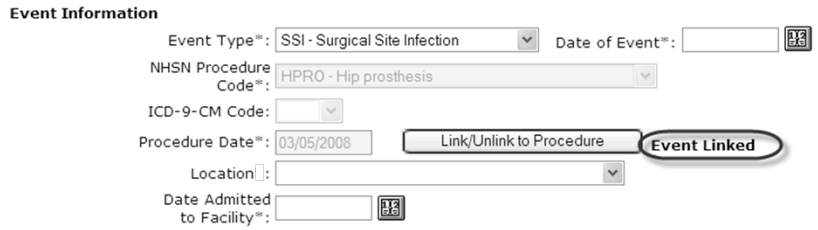
1. Enter the Denominator for Procedure record
2. Enter the SSI record
3. Link the two records

Step 2

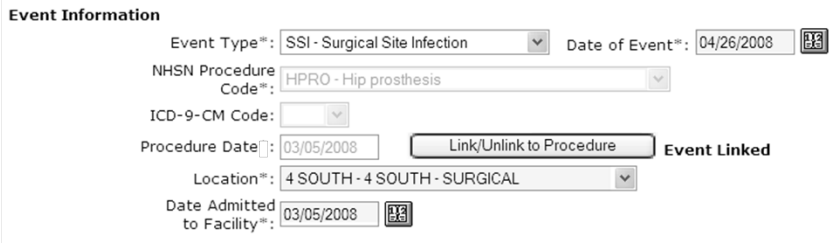
When SSI is selected from the Event Type field, the link button automatically appears on the screen and message indicates that the event is not linked. Click on the button. Don't need to enter the procedure data.



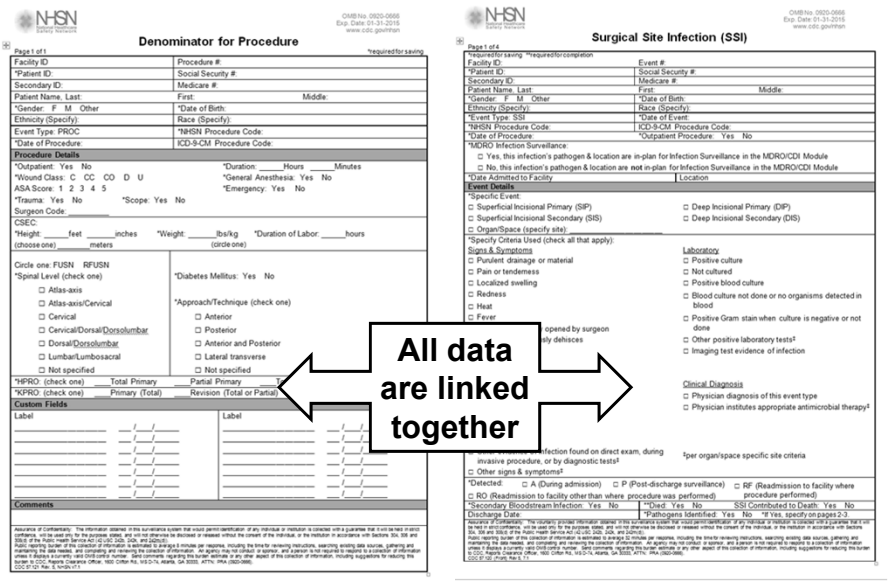




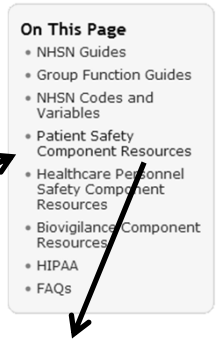
After linking an SSI to its corresponding procedure, the remainder of the SSI form must still be completed and the record saved for linking to occur.



After clicking SAVE…



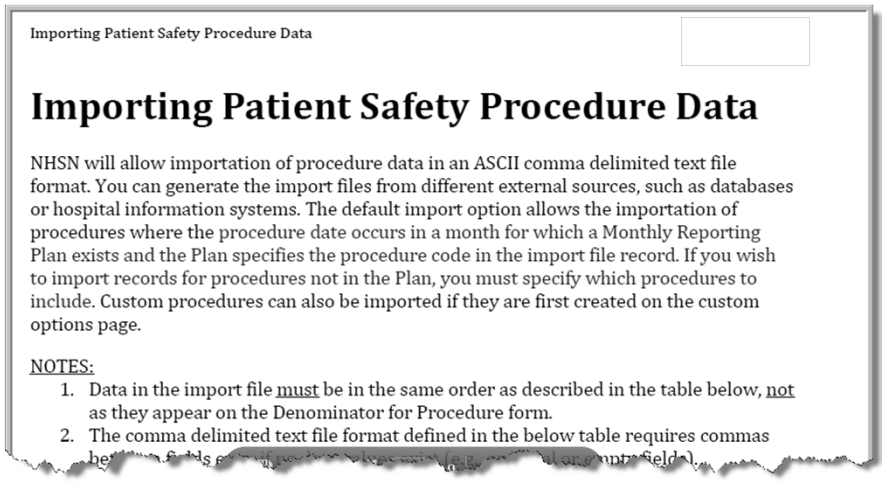
Importing Procedures



You will need help from your IT staff to create the file that will pull data from your Operating Room data systems.

- **Importing Patient Safety Procedure Data**
  NHSN allows the importation of operative procedures. The following documents provide information on the procedure import process, including the required file specifications.
  - How to Import Patient Safety Procedure Data [PDF - 0.8 MB] May 2011
  - Patient Safety Procedure Data Import File Specifications [PDF - 182 KB] February 2012
  - Sample Procedure Import File [CSV - 1 KB] February 2012

Importing Procedures



Importing Patient Safety Procedure Data

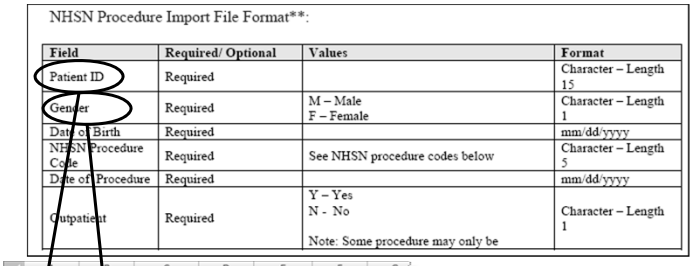
Importing Patient Safety Procedure Data

NHSN will allow importation of procedure data in an ASCII comma delimited text file format. You can generate the import files from different external sources, such as databases or hospital information systems. The default import option allows the importation of procedures where the procedure date occurs in a month for which a Monthly Reporting Plan exists and the Plan specifies the procedure code in the import file record. If you wish to import records for procedures not in the Plan, you must specify which procedures to include. Custom procedures can also be imported if they are first created on the custom options page.

NOTES:

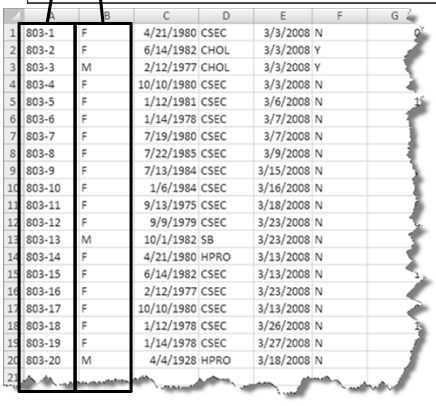
1. Data in the import file must be in the same order as described in the table below, not as they appear on the Denominator for Procedure form.
2. The comma delimited text file format defined in the below table requires commas

http://www.cdc.gov/nhsn/PDFs/ImportingProcedureData_current.pdf



NHSN Procedure Import File Format**:

Field	Required/ Optional	Values	Format
Patient ID	Required		Character – Length 15
Gender	Required	M – Male F – Female	Character – Length 1
Date of Birth	Required		mm/dd/yyyy
NHSN Procedure Code	Required	See NHSN procedure codes below	Character – Length 5
Date of Procedure	Required		mm/dd/yyyy
Outpatient	Required	Y – Yes N - No Note: Some procedure may only be	Character – Length 1

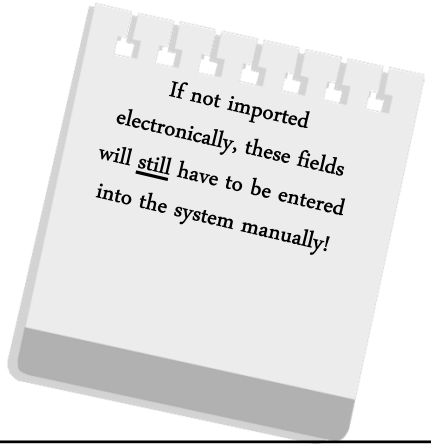


	A	B	C	D	E	F	G
1	803-1	F	4/21/1980	CSEC	3/3/2008	N	
2	803-2	F	6/14/1982	CHOL	3/3/2008	Y	
3	803-3	M	2/12/1977	CHOL	3/3/2008	Y	
4	803-4	F	10/10/1980	CSEC	3/3/2008	N	
5	803-5	F	1/12/1981	CSEC	3/6/2008	N	
6	803-6	F	1/14/1978	CSEC	3/7/2008	N	
7	803-7	F	7/19/1980	CSEC	3/7/2008	N	
8	803-8	F	7/22/1985	CSEC	3/9/2008	N	
9	803-9	F	7/13/1984	CSEC	3/15/2008	N	
10	803-10	F	1/6/1984	CSEC	3/16/2008	N	
11	803-11	F	9/13/1975	CSEC	3/18/2008	N	
12	803-12	F	9/9/1979	CSEC	3/23/2008	N	
13	803-13	M	10/1/1982	SB	3/23/2008	N	
14	803-14	F	4/21/1980	HPRO	3/13/2008	N	
15	803-15	F	6/14/1982	CSEC	3/13/2008	N	
16	803-16	F	2/12/1977	CSEC	3/23/2008	N	
17	803-17	F	10/10/1980	CSEC	3/13/2008	N	
18	803-18	F	1/12/1978	CSEC	3/26/2008	N	
19	803-19	F	1/14/1978	CSEC	3/27/2008	N	
20	803-20	M	4/4/1928	HPRO	3/18/2008	N	
21							

Every field that is required on the *Denominator for Procedure* form is put into a column of the import document.

The following required fields on the *Denominator for Procedure* record are marked "optional for import".

- ✓ For CSEC patient:
  - •Height
  - •Weight
  - •Duration of labor



Importing Procedures

SampleImport_withHeader.xls [Read-Only] [Compatibility Mode]

	A	B	C	D	E	F	G	H	I	J	K
1	patID	gender	dob	procCode	procDate	outpatien	durationH	durationM	wndClass	asa	scope
2	MD-2000	F	6/14/1941	AAA	12/10/2009	N	2	16	CC	2	N
3											
4											
5											

Note: If you create a "header row" with field names at the top, it must be <u>deleted</u> before the file is imported to NHSN!

In the NHSN application, select Import > Procedures and follow the instructions.

Additional Resources

- Mapping of ICD-9-CM Procedure Codes to NHSN Operative Procedure Categories

  http://www.cdc.gov/nhsn/XLS/ICD-9-cmCODEScurrent.xlsx

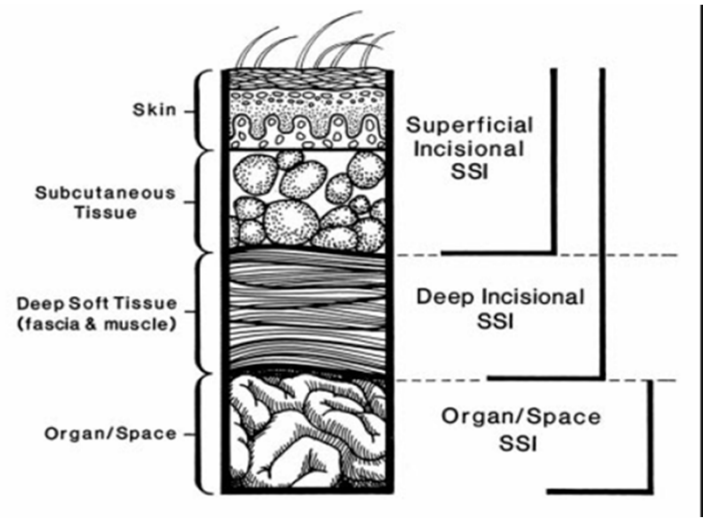
- Interactive Training Courses
  - Introduction to the Procedure-associated Module
  - SSI

Definitions of Surgical Site Infection

http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSIcurrent.pdf

http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf

SSI Definitions



Horan TC, Gaynes RP, Martone WJ, Jarvis WR, Emori TG. CDC definitions of nosocomial surgical site infections, 1992: a modification of CDC definitions of surgical wound infections. *Infect Control Hosp Epidemiol* **1992;13(10):606-8.**

Superficial Incisional SSI

A superficial incisional SSI (SIP or SIS) must meet the following criterion:

Infection occurs within 30 days after ~~the~~ **any NHSN** operative procedure **including those coded as 'OTH'**
and
involves only skin and subcutaneous tissue of the incision
and
patient has at least one of the following:

a. purulent drainage from the superficial incision
b. organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision
c. at least one of the following signs or symptoms of infection: pain or tenderness, localized swelling, redness, or heat, and superficial incision is deliberately opened by surgeon, and is culture-positive or not cultured. A culture-negative finding does not meet this criterion.
d. diagnosis of superficial incisional SSI by the surgeon or attending physician.

http://www.cdc.gov/nhsn/XLS/ICD-9-cmCODEScurrent.xlsx

Superficial Incisional SSI

Infection occurs within 30 days after any NHSN operative procedure, including those coded as 'OTH'

and

involves only skin and subcutaneous tissues of the incision

and

patient has at least one of the following:

a. purulent drainage from the superficial incision
b. organisms isolated from an aseptically-obtained culture of fluid or tissue from the superficial incision
c. superficial incision that is deliberately opened by a surgeon and is culture-positive or not cultured

Rearranged

and

patient has at least one of the following signs or symptoms: pain or tenderness; localized swelling; redness; or heat. A culture-negative finding does not meet this criterion.

d. diagnosis of a superficial incisional SSI by a surgeon or attending physician.

SIP and SIS

Superficial incisional primary (SIP)

A superficial incisional SSI that is identified in the primary incision in a patient that has had an operation with one or more incisions.
Examples:

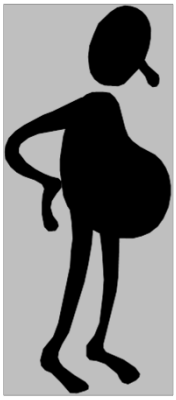
- C-section incision
- Chest incision for coronary artery bypass graft with a donor site [CBGB]

Superficial incisional secondary (SIS)

A superficial incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision. Example:

- Donor site incision for coronary artery bypass graft with a donor site [CBGB]

Example



Patient delivers a baby by C-Section on August 23. On her first postpartum visit to her surgeon on September 20, she notes yellow purulent drainage in the superficial incision.

Does Gretchen have a surgical site infection? **Yes**

Is it a superficial SSI? **Yes**

Is it an SIP or an SIS? **SIP**

Example

Patient underwent a coronary artery bypass graft (CBGB) in which the surgeon obtained a donor vessel from a site in Robert's left leg.

5 days postoperatively, patient had pain and edema in the leg incision. The surgeon opened the superficial incision, drained the pus, and irrigated the wound.

Does Robert have a superficial incisional SSI? **Yes**

Is it a SIS or SIP? **SIS**

Deep Incisional SSI

A deep incisional SSI (DIP or DIS) must meet the following criterion:

Infection occurs within 30 ~~days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure~~ **or 90 days after the NHSN operative procedure according to the list in Table 3**

and

involves deep soft tissues (e.g., fascial and muscle layers) of the incision

and

patient has at least one of the following:

a. purulent drainage from the deep incision ~~but not from the organ/space component of the surgical site~~

b. a deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured when the patient has at least one of the following signs or symptoms: fever (>38°C), or localized pain or tenderness. A culture-negative finding does not meet this criterion.

c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during ~~reoperation~~ **invasive procedure**, or by histopathologic or ~~radiologic examination~~ **imaging test**

d. diagnosis of a deep incisional SSI by a surgeon or attending physician.

Deep Incisional SSI

Infection occurs within 30 or 90 days after the NHSN operative procedure according to the list in Table 3

and

involves deep soft tissues of the incision (e.g., fascial and muscle layers)

and

patient has at least one of the following:

a. purulent drainage from the deep incision

b. a deep incision that spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured

and

patient has at least one of the following signs or symptoms: fever (>38°C); localized pain or tenderness. A culture-negative finding does not meet this criterion.

Rearranged

c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during an invasive procedure, or by histopathologic examination or imaging test

d. diagnosis of a deep incisional SSI by a surgeon or attending physician.

DIP and DIS

Deep incisional primary (DIP)

A deep incisional SSI that is identified in the primary incision in a patient that has had an operation with one or more incisions.
Examples:

- C-section incision
- Chest incision for coronary artery bypass graft with a donor site [CBGB]

Deep incisional secondary (DIS)

A deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision. Example:

- Donor site incision for coronary artery bypass graft with a donor site [CBGB]

Reporting Instructions

- Classify infection that involves both superficial and deep incisional sites as deep incisional SSI
- Classify infection that involves deep incisional and organ/space sites as deep incisional SSI
  - This may change in 2014

Organ/Space SSI

An organ/space SSI must meet the following criterion:

Infection occurs within 30 ~~days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure~~ **or 90 days after the NHSN operative procedure according to the list in Table 3**

and

infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure

and

patient has at least one of the following:

a. purulent drainage from a drain that is placed ~~through a stab wound~~ into the organ/space
b. organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space
c. an abscess or other evidence of infection involving the organ/space that is found on direct examination, ~~during reoperation~~, or by histopathologic or ~~radiologic examination~~ **invasive procedure imaging test**
d. diagnosis of an organ/space SSI by a surgeon or attending physician.

and

meets at least one criterion of a specific organ/space infection site listed in Table 4.

Organ/Space SSI

Infection occurs within 30 or 90 days after the NHSN operative procedure a… list in Table 3

and

involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure

and

patient has at least one of the following:

a. purulent drainage from a drain that is placed into the organ/space
b. organisms isolated from an aseptically-obtained culture of fluid or tissue in the organ/space
c. an abscess or other evidence of infection involving the organ/space that is found on direct examination, invasive procedure, or by histopathologic examination or imaging test
d. diagnosis of an organ/space SSI by a surgeon or attending physician.

and

meets at least one criterion of a specific organ/space infection site listed in Table 4.

Only for DI and O/S SSI

30-day Surveillance

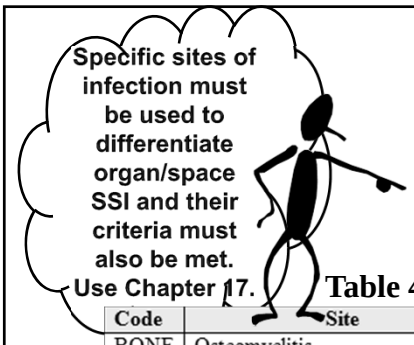
Code	Operative Procedure	Code	Operative Procedure
AAA	Abdominal aortic aneurysm repair	LAM	Laminectomy
AMP	Limb amputation	LTP	Liver transplant
APPY	Appendix surgery	NECK	Neck surgery
AVSD	Shunt for dialysis	NEPH	Kidney surgery
BILI	Bile duct, liver or pancreatic surgery	OVRY	Ovarian surgery
CEA	Carotid endarterectomy	PRST	Prostate surgery
CHOL	Gallbladder surgery	REC	Rectal surgery
COLO	Colon surgery	SB	Small bowel surgery
CSEC	Cesarean section	SPLE	Spleen surgery
GAST	Gastric surgery	THOR	Thoracic surgery
HTP	Heart transplant	THYR	Thyroid and/or parathyroid surgery
HYST	Abdominal hysterectomy	VHYS	Vaginal hysterectomy
KTP	Kidney transplant	XLAP	Exploratory Laparotomy
		OTH	Other operative procedures not included in the NHSN categories

90-day Surveillance

Code	Operative Procedure
BRST	Breast surgery
CARD	Cardiac surgery
CBGB	Coronary artery bypass graft with both chest and donor site incisions
CBGC	Coronary artery bypass graft with chest incision only
CRAN	Craniotomy
FUSN	Spinal fusion
FX	Open reduction of fracture
HER	Herniorrhaphy
HPRO	Hip prosthesis
KPRO	Knee prosthesis
PACE	Pacemaker surgery
PVBY	Peripheral vascular bypass surgery
RFUSN	Refusion of spine
VSHN	Ventricular shunt

Recap

- For any NHSN operative procedure, monitor for superficial SSI for 30 days only
- For selected NHSN operative procedures, monitor for deep incisional or organ/space SSI for either 30 days or 90 days (Table 3)



Organ/Space SSI

Table 4. Specific Sites of an Organ/Space SSI

Code	Site	Code	Site
BONE	Osteomyelitis	JNT	Joint or bursa
BRST	Breast abscess or mastitis	LUNG	Other infections of the respiratory tract
CARD	Myocarditis or pericarditis	MED	Mediastinitis
DISC	Disc space	MEN	Meningitis or ventriculitis
EAR	Ear, mastoid	ORAL	Oral cavity (mouth, tongue, or gums)
EMET	Endometritis	OREP	Other infections of the male or female reproductive tract
ENDO	Endocarditis	OUTI	Other infections of the urinary tract
EYE	Eye, other than conjunctivitis	SA	Spinal abscess without meningitis
GIT	GI tract	SINU	Sinusitis
HEP	Hepatitis	UR	Upper respiratory tract
IAB	Intraabdominal, not specified else-where	VASC	Arterial or venous infection
IC	Intracranial, brain abscess or dura	VCUF	Vaginal cuff

Exception to HAI Rule for Certain Organ/Space SSIs

- If a patient has an infection in the organ/space being operated on in the first 2-day period of hospitalization and the surgical incision was closed primarily, subsequent continuation of this infection type during the remainder of that hospitalization is considered an organ/space SSI, if organ/space SSI and site-specific infection criteria are met.
- Rationale: Risk of continuing or new infection considered to be minimal when surgeon elects to close a wound primarily.

Example

- On 8/1, patient presents to ED with acute abdomen and is admitted to the OR on the same day for colon resection (COLO). Peritoneal abscess noted at time of surgery. Incision is closed primarily with a JP drain in an adjacent stab wound.
- Even on antibiotics, patient continues to have low-grade fevers, abdominal pain, and purulent drainage via JP drain. Patient returned to OR on 8/6 for exploration and new abscesses were found.
- This is reported as an SSI-IAB.

Reporting Instructions

- In Chapter 9, the Reporting Instructions in the SSI criteria table, the Numerator Data section and the Table of Instructions provide important guidance on the many nuances of how to report SSI details in a variety of situations.
- The examples shown in this presentation are only some of them.
- Please read and follow all of the instructions carefully!

When a patient with an SSI has had more than one operation…

If a patient has several NHSN operations prior to an SSI, report the operation that was performed most closely in time prior to the infection date.

<u>Example</u>: Patient underwent a COLO on 2/12/13. Three days later, he went back to surgery to repair a leaking anastomosis (OTH). He developed an intraabdominal abscess on 2/28/13. This SSI is attributed to the second procedure (OTH), not the COLO.

If more than one operation is done through a single incision…

First, attempt to determine the procedure that is thought to be associated with the infection.

Example: If the patient had a CBGC and CARD done at the same time and develops an infected valve, then the SSI will be linked to the CARD.

If it's not clear (as in the case of a superficial incisional SSI), use the NHSN Principal Operative Procedure Selection Lists to select which operative procedure to report.

NHSN Principal Operative Procedure Category Selection Lists

- Five lists in Table 5
  - Abdominal operations
  - Thoracic operations
  - Neurosurgical (spine) operations
  - Neurosurgical (brain) operations
  - Neck operations
- Categories with the highest risk of SSI are listed before those with lower risks
  - In 2013, order is COLO, SB, REC; currently order is SB, REC, COLO
  - In 2013, HYST is still before VHYS

Table 5. NHSN Principal Operative Procedure Category Selection Lists

Priority	Code	Abdominal Operations
1	LTP	Liver transplant
2	COLO	Colon surgery
3	BILI	Bile duct, liver or pancreatic surgery
4	SB	Small bowel surgery
5	REC	Rectal surgery
6	KTP	Kidney transplant
7	GAST	Gastric surgery
8	AAA	Abdominal aortic aneurysm repair
9	HYST	Abdominal hysterectomy
10	CSEC	Cesarean section
11	XLAP	Laparotomy
12	APPY	Appendix surgery
13	HER	Hemiorrhaphy
14	NEPH	Kidney surgery
15	VHYS	Vaginal Hysterectomy
16	SPLE	Spleen surgery
17	CHOL	Gall bladder surgery
18	OVRY	Ovarian surgery

continued…

Table 5. NHSN Principal Operative Procedure Category Selection Lists

Priority	Code	Thoracic Operations
1	HTP	Heart transplant
2	CBGB	Coronary artery bypass graft with donor incision(s)
3	CBGC	Coronary artery bypass graft, chest incision only
4	CARD	Cardiac surgery
5	THOR	Thoracic surgery
Priority	**Code**	**Neurosurgical (Spine) Operations**
1	RFUSN	Refusion of spine
2	CRAN	Crainiotomy
3	FUSN	Spinal fusion
4	LAM	Laminectomy
Priority	**Code**	**Neurosurgical (Brain) Operations**
1	VSHN	Ventricular shunt
2	RFUSN	Refusion of spine
3	CRAN	Craniotomy
4	FUSN	Spinal fusion
5	LAM	Laminectomy
Priority	**Code**	**Neck Operations**
1	NECK	Neck surgery
2	THYR	Thyroid and or parathyroid surgery

SSI after Laparoscopic Procedure

- If more than one of the laparoscopic/robotic incisions becomes infected, report only one SSI
  - If one is a superficial incisional SSI and another is a deep incisional SSI, report as a deep incisional SSI

Completing the SSI Event Form (Numerator)

Reporting SSIs

Surgical Site Infection (SSI)

Page 1 of 4

*required for saving **required for completion

Facility ID:	Event #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name. Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
*Event Type: SSI	*Date of Event:
*NHSN Procedure Code:	ICD-9-CM Procedure Code:
*Date of Procedure:	*Outpatient Procedure: Yes No

*MDRO Infection Surveillance:

☐ Yes, this infection's pathogen & location are in-plan for Infection Surveillance in the MDRO/CDI Module

☐ No, this infection's pathogen & location are **not** in-plan for Infection Surveillance in the MDRO/CDI Module

*Date Admitted to Facility:	Location

Event Details

*Specific Event:

☐ Superficial Incisional Primary (SIP)	☐ Deep Incisional Primary (DIP)
☐ Superficial Incisional Secondary (SIS)	☐ Deep Incisional Secondary (DIS)
☐ Organ/Space (specify site): _____	

*Specify Criteria Used (check all that apply):

Signs & Symptoms	Laboratory
☐ Purulent drainage or material	☐ Positive culture
☐ Pain or tenderness	☐ Not cultured
☐ Localized swelling	☐ Positive blood culture
☐ Redness	☐ Blood culture not done or no organisms detected in blood
☐ Heat	
☐ Fever	☐ Positive Gram stain when culture is negative or not done
☐ Incision deliberately opened by surgeon	
☐ Wound spontaneously dehisces	☐ Other positive laboratory tests‡
☐ Abscess	☐ Imaging test evidence of infection
☐ Hypothermia	
☐ Apnea	
☐ Bradycardia	Clinical Diagnosis
☐ Lethargy	☐ Physician diagnosis of this event type
☐ Cough	☐ Physician institutes appropriate antimicrobial therapy‡
☐ Nausea	
☐ Vomiting	
☐ Dysuria	
☐ Other evidence of infection found on direct exam, during invasive procedure, or by diagnostic tests‡	‡per organ/space specific site criteria
☐ Other signs & symptoms‡	

*Detected: ☐ A (During admission)	☐ P (Post-discharge surveillance)	☐ RF (Readmission to facility where procedure performed)
☐ RO (Readmission to facility other than where procedure was performed)		
*Secondary Bloodstream Infection: Yes No	**Died: Yes No	SSI Contributed to Death: Yes No
Discharge Date:	*Pathogens Identified: Yes No	*If Yes, specify on pages 2-3.

Assurance of Confidentiality: The voluntarily provided information obtained in this surveillance system that could 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, 308 and 309(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d)).

Public reporting burden of this collection of information is estimated to average 32 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC, Reports Clearance Officer, 1600 Clifton Rd., M/S D-74, Atlanta, GA 30333, ATTN: PRA (0920-0666).

CDC 57.106, (Form), Rev 5.11

Complete a Surgical Site Infection (SSI) form for each patient found to have an SSI using the definitions.

SSI Form – Patient Demographics

Required fields are highlighted

NHSN National Healthcare Safety Network Page 1 of 3

Surgical Site Infection (SSI)

OMB No. 0920-0666
Exp. Date: 03-31-2011

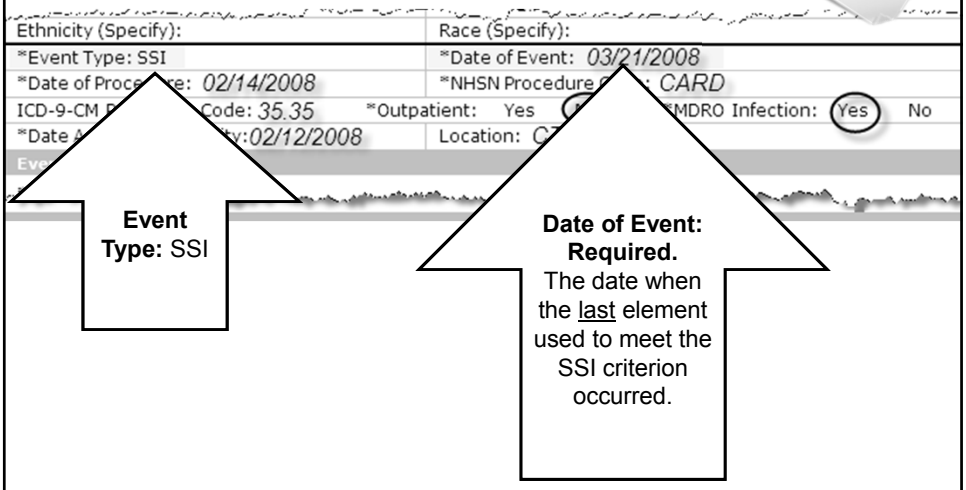
*required for saving **required for completion Facility ID: **40000**	Event #: **246810**
*Patient ID: **144141**	Social Security #:
Secondary ID:	
Patient Name. Last:	First: Middle:
*Gender: F M	*Date of Birth: **06/16/1959**
Ethnicity (Specify):	Race (Specify):
*Event Type: SSI	*Date of Event:
*NHSN Procedure Code:	ICD-9-CM Procedure Code:
*Date of Procedure:	*Outpatient: Yes No
*MDRO Infection Surveillance: ☐ Yes, this event's pathogen & location are in-plan for the MDRO/CDAD Module ☐ No, this event's pathogen & location are **not** in-plan for the MDRO/CDAD Module	
*Date Admitted to Facility:	Location:

Event Details

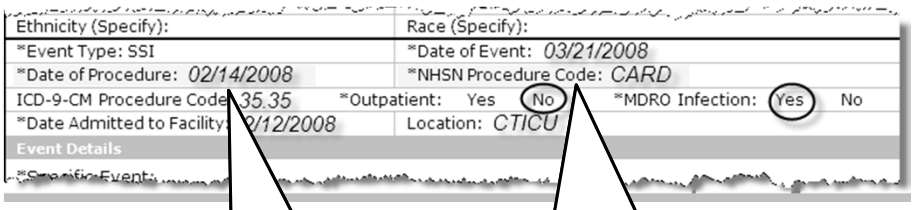
*Specific Event:

SSI Form – Basic SSI Information

*Updated Slide



SSI Form– Basic SSI Information

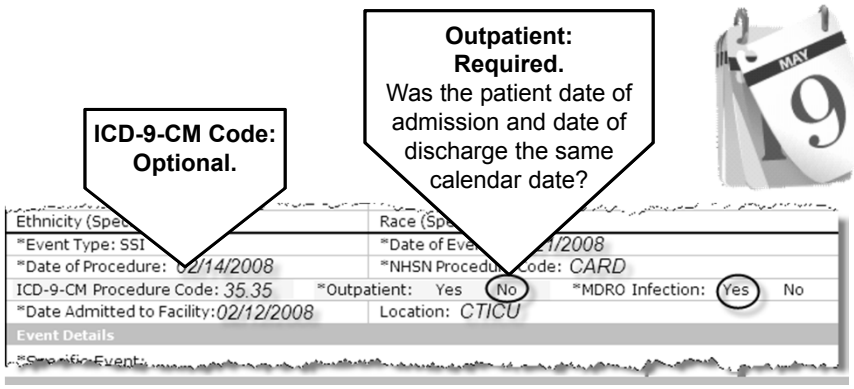


Reporting SSI for Patients who are Readmitted

- Use the admission date of the surgical admission as the Date Admitted to Facility, not the readmission date
- Then the Date of Procedure and Date of Event will be in the correct sequence

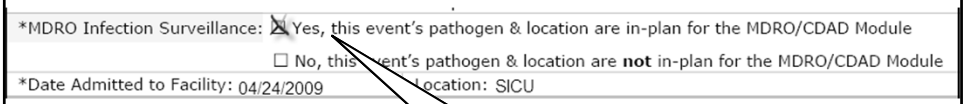
Date Admitted to Facility ≤ Date of Procedure < Date of Event

SSI Form – Basic SSI Information



Some procedures are only allowed as inpatients (e.g., solid organ transplants, open heart procedures, etc.)

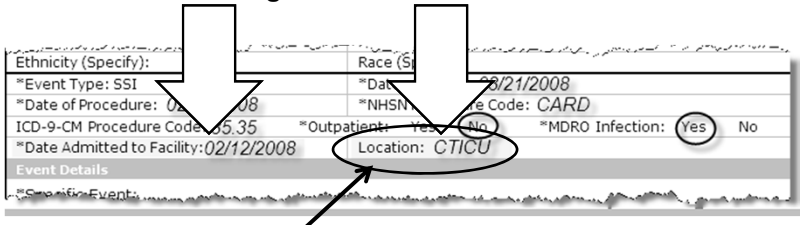
SSI Form – MDRO Infection



MDRO Infection:
Required.
If this SSI is an NHSN-defined MDRO infection that you are monitoring in your Monthly Reporting Plan, select Yes.

SSI Form – Basic SSI Information

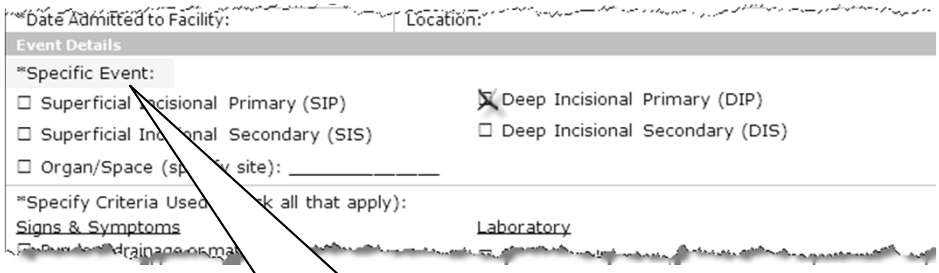
Enter the date the patient was admitted to the hospital when the operation was performed (not the date of readmission) and the location where the patient was housed after leaving the OR / PACU.



Note: Location is an optional field for SSI!

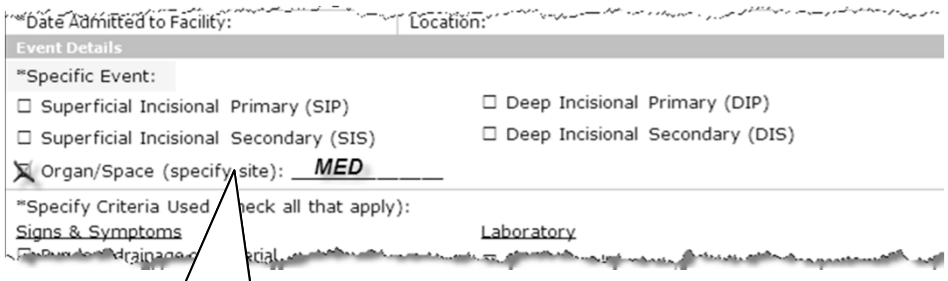
Note: This is <u>never</u> a location or admission date associated with a readmission or a place where the patient may be after discharge (e.g., nursing home).

SSI Form – Event Details



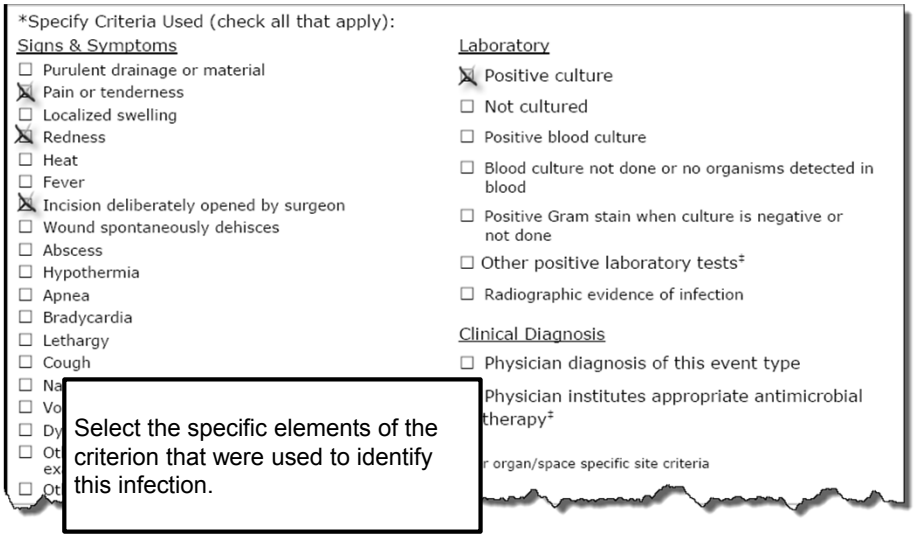
Specific Event: Required.
Check the box to indicate the definition that was used to identify the SSI.

SSI – Event Details



If the specific event is Organ/Space, specify the organ/space site that was identified. See Chapter 17.

SSI – Event Details



Select the specific elements of the criterion that were used to identify this infection.

SSI – Event Details

*Updated Slide

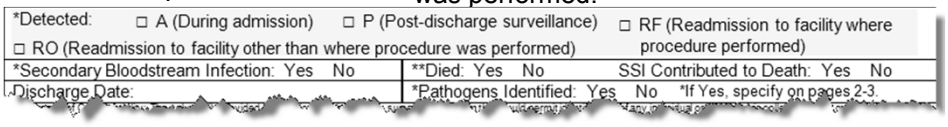
Detected:
Required.
Check the box to indicate when/how the SSI was identified.

A SSI was identified before the patient was discharged from the facility following the operation

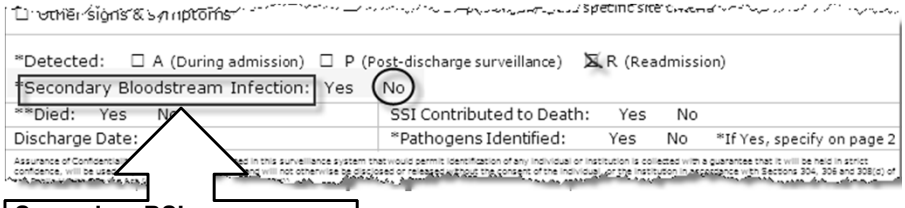
P SSI was identified only as part of post-discharge surveillance, including ED visit without readmission. If readmitted, use RF or RO as appropriate.

RF SSI was identified due to patient readmission to the facility where the operation was performed.

RO SSI was identified due to patient admission to a facility other than where the operation was performed.



SSI – Event Details



Secondary BSI: Required.
If the patient had a culture-confirmed bloodstream infection with a documented SSI, circle Yes.

Secondary BSI

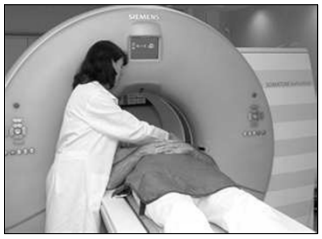
- If the criterion met for the primary infection site requires a culture, then at least one organism from that site must match an organism in the blood culture (antibiograms of the isolates do not have to match).
  - Example: Patient grows *E. coli* in her deep incision and in her blood. The SSI is reported with a secondary BSI and the pathogen as *E. coli*.

http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf, App 1

Secondary BSI (cont.)

*Updated Slide

- If the criterion met for the primary infection site does not require a culture and the blood isolate is a logical pathogen for the site, report as secondary BSI.



Example: Postoperative patient had abscess in small bowel noted during reoperation. No specimens except blood taken; blood grew *Bacteroides fragilis*. The infection was reported as an SSI-GIT meeting criterion 1 (surgically-identified abscess), with a secondary BSI. The organism was reported as *B. fragilis*.

http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf, App 1

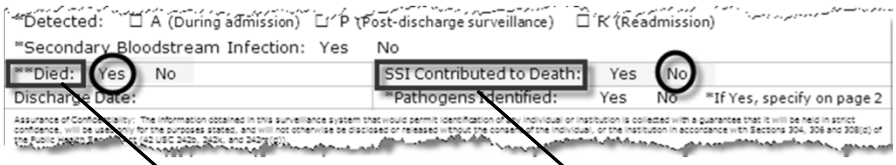
Secondary BSI Guide

*Updated Slide

- Besides the 2 examples just given, there are other scenarios in this guide that you will find helpful
  - Examples when blood and site-specific cultures do not match
  - Examples when blood is positive but site-specific culture is negative
- Definition of matching organism
- Additional notes and reporting instructions

http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf, App 1

SSI – Event Details



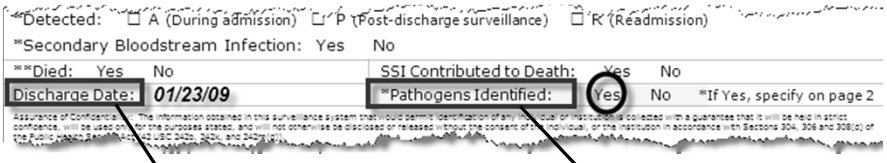
Died:
Required for completion.
If the patient died during this hospitalization, circle Yes.

** The record may be saved without completing this field, but it will be considered incomplete.

SSI Contributed to Death:
Required only if the patient died.

If the SSI caused the death or exacerbated an existing condition which led to death, circle Yes.

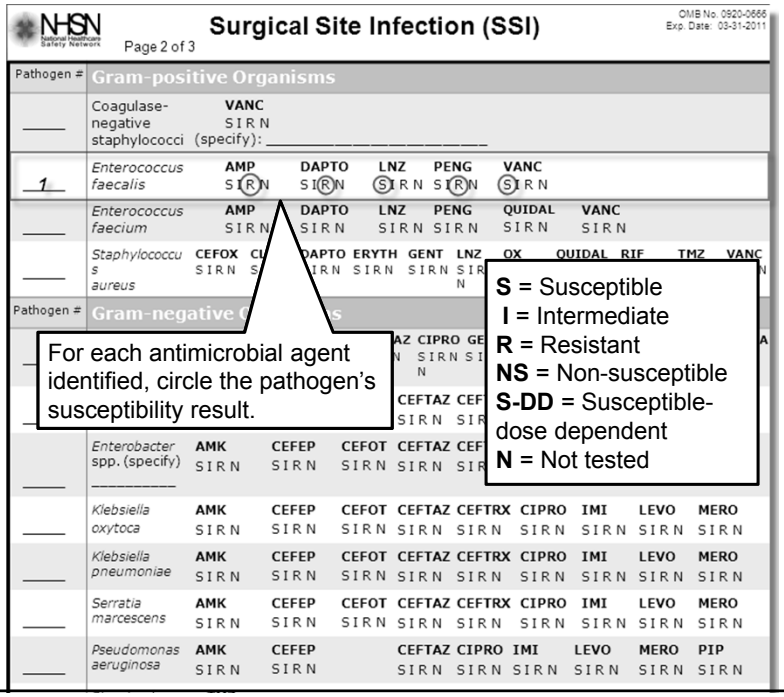
SSI – Event Details



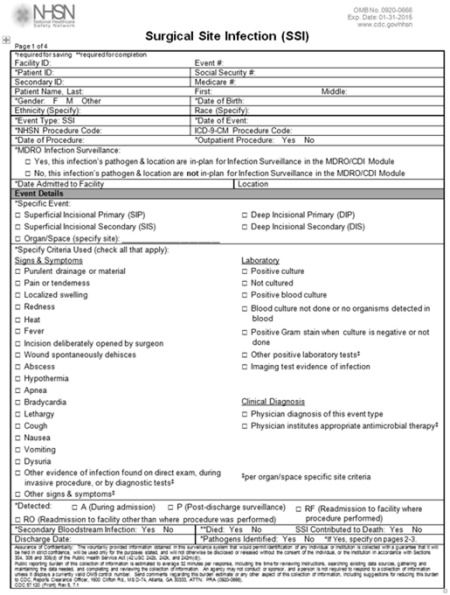
Discharge Date:
Optional.
The date the patient was discharged from the hospital. This is the hospitalization during which the operation was performed.

Pathogens Identified:
Required.
Circle Yes if one or more pathogens was identified.

Specific information about the pathogen is entered on the back of the form.

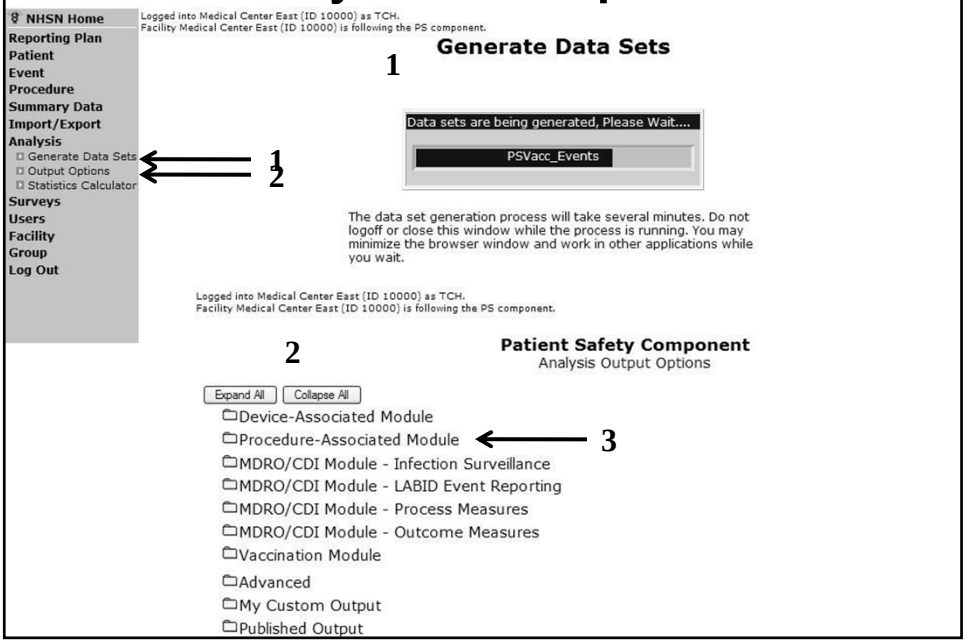


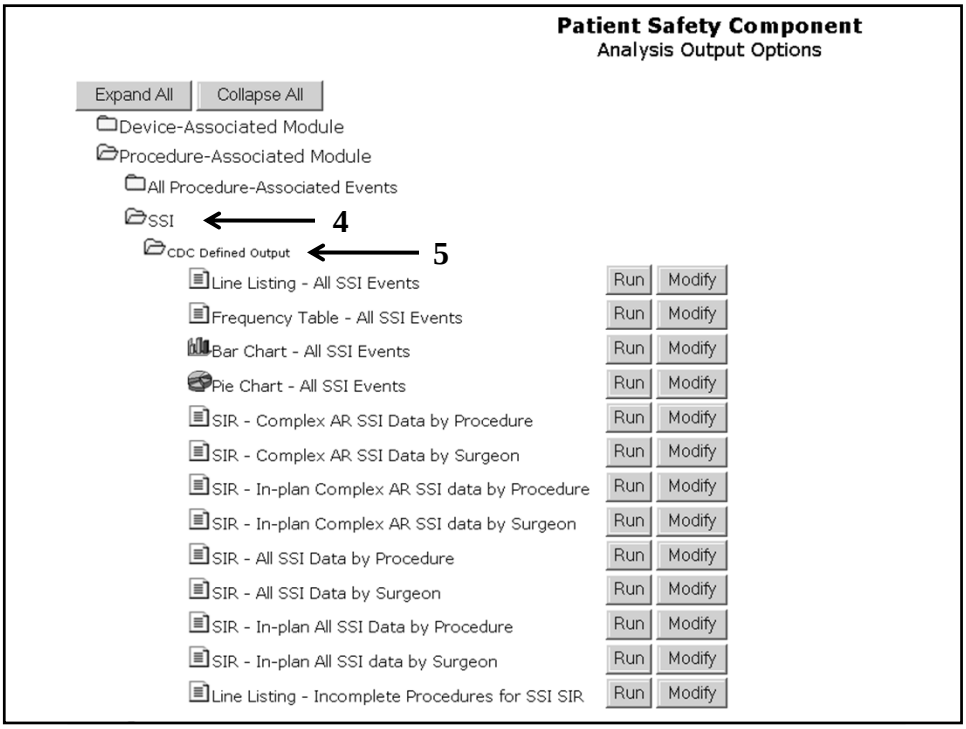
Summary



- Complete and enter or import *Surgical Site Infection* records for the procedures that are selected for surveillance.
- Use the SSI Protocol, Tables of Instructions, Infection Site Definitions chapters of the Patient Safety Manual for guidance.

Analysis and Reports





SSI Line List

National Healthcare Safety Network

Line Listing for All Surgical Site Infection Events

As of: December 26, 2006 at 5:56 PM

Date Range: SSI_EVENTS.procDate 09/01/2006 to 12/21/2006

Org ID	Patient ID	Date of Birth	Gender	Admission Date	Event ID	Event Date	Event Type	Specific Event	Procedure Date	Procedure Code
10036	01-001-*2314	08/06/1950	F	09/16/2008	1254978	09/22/2008				
10036	1108-021	11/17/1950	F	11/11/2008	1517853	12/04/2008				
10036	0908-013	06/03/1954	F	09/15/2008	1517854	09/21/2008				
10036	0908-004	02/12/1987	F	09/09/2008	1517855	09/24/2008				
10036	1008-010	08/14/1941	F	10/11/2008	1517856	10/16/2008				

Frequency Table

Frequency
Percent
Row Pct
Col Pct

Table of procCode by spcEvent

procCode	spcEvent DIP	spcEvent EMET	spcEvent SIP	Total
CHOL	2 40.00 100.00 66.67	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 40.00
CSEC	0 0.00 0.00 0.00	1 20.00 100.00 100.00	0 0.00 0.00 0.00	1 20.00
HPRO	1 20.00 50.00 33.33	0 0.00 0.00 0.00	1 20.00 50.00 100.00	2 40.00
Total	3 60.00	1 20.00	1 20.00	5 100.00

Standardized Infection Ratio (SIR)

SIR = Number of observed infections (O) divided by the number of expected infections (E)

$$SIR = \frac{O}{E}$$

SIR

- A summary measure used to track HAIs at a national, state, other group, or local level over time
- Adjusts for patients of varying risk within each facility
- SIR compares the actual number of HAIs reported with the baseline U.S. experience (i.e., NHSN aggregate data are used as the standard population)
- An SIR >1.0 indicates that more HAIs were observed than predicted

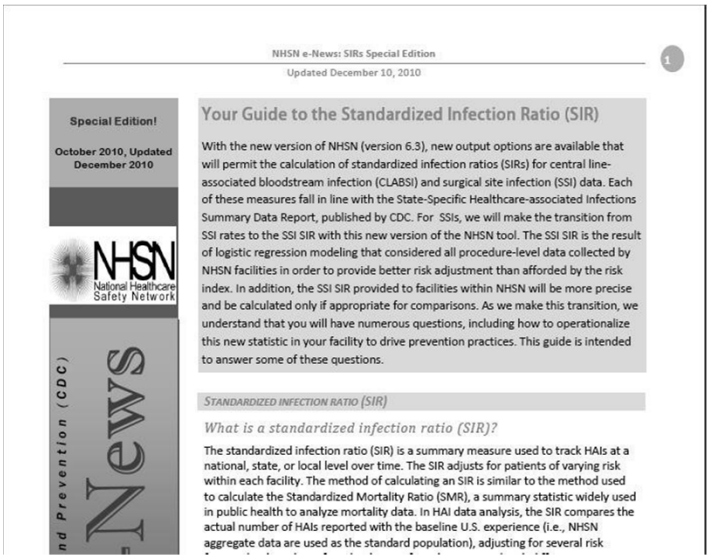
SSI SIR

- Allows for all available risk factors to be considered
- Each factor's "weight" varies according to its significant contribution to the risk of SSI for the procedure
- For all NHSN procedures, the models predicted SSI risk better than the basic risk index

Calculating E for SSI SIRs

- Using the parameter estimates from the logistic regression models, the probability of SSI for each patient is calculated and these are summed across patients to yield the expected number of SSIs (E).
- This is done for you in the NHSN analysis tool!
- See special edition of newsletter for details:

http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf



NHSN e-News: SIRs Special Edition

Updated December 10, 2010

1

Special Edition!

October 2010, Updated December 2010

NHSN National Healthcare Safety Network

News

Your Guide to the Standardized Infection Ratio (SIR)

With the new version of NHSN (version 6.3), new output options are available that will permit the calculation of standardized infection ratios (SIRs) for central line-associated bloodstream infection (CLABSI) and surgical site infection (SSI) data. Each of these measures fall in line with the State-Specific Healthcare-associated Infections Summary Data Report, published by CDC. For SSIs, we will make the transition from SSI rates to the SSI SIR with this new version of the NHSN tool. The SSI SIR is the result of logistic regression modeling that considered all procedure-level data collected by NHSN facilities in order to provide better risk adjustment than afforded by the risk index. In addition, the SSI SIR provided to facilities within NHSN will be more precise and be calculated only if appropriate for comparisons. As we make this transition, we understand that you will have numerous questions, including how to operationalize this new statistic in your facility to drive prevention practices. This guide is intended to answer some of these questions.

STANDARDIZED INFECTION RATIO (SIR)

What is a standardized infection ratio (SIR)?

The standardized infection ratio (SIR) is a summary measure used to track HAIs at a national, state, or local level over time. The SIR adjusts for patients of varying risk within each facility. The method of calculating an SIR is similar to the method used to calculate the Standardized Mortality Ratio (SMR), a summary statistic widely used in public health to analyze mortality data. In HAI data analysis, the SIR compares the actual number of HAIs reported with the baseline U.S. experience (i.e., NHSN aggregate data are used as the standard population), adjusting for several risk

http://www.cdc.gov/nhsn/PDFs/Newsletters/NHSN_NL_OCT_2010SE_final.pdf

Predictive Risk Factors

NHSN Operative Procedure	Risk Factor(s) – All SSIs
AAA	Duration
CBGB/C	Age, ASA, duration, gender, number of beds*
COLO	Age, anesthesia, ASA, duration, endoscope, medical school affiliation*, number of beds*, wound class
FUSN	Approach, ASA, diabetes, duration, medical school affiliation*, spinal level, trauma, wound class
HPRO	Age, anesthesia, ASA, duration, HPRO type, number of beds* trauma
HYST	Age, anesthesia, ASA, duration, endoscope, number of beds*
KPRO	Age, anesthesia, ASA, duration, gender, KPRO type, number of beds*, trauma
LAM	Anesthesia, ASA, duration, endoscope
PVBY	Age, ASA, duration, gender, medical school affiliation*
RFUSN	Approach, diabetes, duration
VSHN	Age, medical school affiliation*,number of beds*, wound class

*Risk factors from Patient Safety Annual Facility Survey

Mu Y, et al. ICHE 2011;32(10):970-986

SSI SIR Options in NHSN

All SSI SIR Model	• Includes superficial, deep and organ/space • Superficial and deep SSIs limited to primary incisions only • Includes SSIs identified on admission, readmission and via post-discharge surveillance
Complex A/R SSI Model	• Includes only SSIs identified on admission/readmission to facility where procedure was performed • Includes only inpatient procedures • Includes only deep incisional primary and organ/space SSIs
Complex 30-day SSI model (used for CMS IPPS)	• Includes only in-plan, inpatient COLO and HYST procedures in patients ≥18 years of age • Includes only deep incisional primary and organ/space SSIs with an event date within 30 days of the procedure • Uses only age and ASA to determine risk

Overall SSI SIR

Org ID	Summary Yr	Procedure Count	infCountAll	All SSI Model Number Expected	All SSI Model SIR	All SSI Model SIR p-value	All SSI Model 95% Confidence Interval
10018	2009	524	13	6.687	1.94	0.0196	1.150, 3.091

- **During 2009, there were 524 procedures performed and 13 SSIs identified.**
- **Based on the NHSN 2006-2008 baseline data, 6.687 SSIs were expected.**
- **This results in an SIR of 1.94 (13/6.687), signifying that during this time period this facility identified 94% more SSIs than expected.**
- **The p-value and 95% Confidence Interval indicate that the number of observed SSIs is significantly higher than the number of expected SSIs.**

SSI Rates

- Go to Advanced Output Options
- No comparative statistics

Questions: Email user support:
nhsn@cdc.gov

NHSN website:
http://www.cdc.gov/nhsn/