


**NATIONAL HEALTHCARE SAFETY  
NETWORK SURGICAL SITE INFECTION  
(SSI)- SURVEILLANCE**

*Surveillance Definitions*




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**REFERENCE ACKNOWLEDGMENT**  
**2024 NHSN ANNUAL TRAINING**

► *Surgical Site Infection Event (SSI) Surveillance Basics*

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## PATIENT SAFETY COMPONENT: CHAPTER 9

### ► Setting:

- SSI surveillance will occur in any inpatient facility and/or hospital outpatient procedure department where the selected NHSN operative procedure(s) are performed.

### ► Requirements

- SSI Surveillance follows at least one NHSN operative procedure category (of the **39 eligible** categories) as noted on the facility Monthly Reporting Plan (MRP). Collect SSI event (numerator) and operative procedure (denominator) data on all procedures included in the operative procedure categories selected on the facility MRP.
- All procedures are monitored for superficial incisional, deep incisional, and organ/space SSI events. The type of SSI reported into NHSN must reflect the deepest tissue level where SSI criteria are met during the surveillance period.
- SSI events are reported to NHSN regardless of noted evidence of infection at time of surgery (PATOS). Each SSI is linked to a specific NHSN operative denominator procedure.
- An SSI event is reported by the facility where the NHSN operative procedure is performed.



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## NHSN OPERATIVE PROCEDURE



### ► Definition of an NHSN Operative Procedure:

- Is a procedure that is included in the ICD-10-PCS or CPT NHSN operative procedure code mapping.

**And**

- Takes place during an operation where at least one incision (including laparoscopic approach and cranial Burr holes) is made through the skin or mucous membrane, or entry through an existing incision (such as an incision from a prior operative procedure).

**And**

- Takes place in an operating room (OR), defined as a patient care area that met the Facilities Guidelines Institute's (FGI) or American Institute of Architects' (AIA) criteria for an operating room when it was constructed or renovated. This may include an operating room, C-section room, interventional radiology room, or a cardiac catheterization lab.



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## NHSN OPERATIVE PROCEDURE CODES

- ▶ Allows NHSN to standardize NHSN SSI surveillance reporting.
- ▶ NHSN operative procedure category inclusions is based on operative procedure codes.
- ▶ Operative procedure codes are required to determine the correct NHSN operative procedure category to be reported (entry of codes into the NHSN application is optional but recommended).
- ▶ NHSN uses ICD-10-CM/PCS & CPT operative procedure coding systems.
- ▶ Must include all qualifying procedures in the selected operative procedure categories indicated on the facility MRP.

▶ *The date of procedure determines the year of protocol/procedure code documents to use with SSI surveillance.*



## NHSN OPERATIVE PROCEDURE CATEGORIES

▶ **Table 2**, page 9-16 SSI protocol:

**39** NHSN operative procedure categories eligible for SSI surveillance.

| 30-day Surveillance |   |
|---------------------|---|
| Category            | Operative Procedure   |
| AAA                 | Abdominal aortic aneurysm repair                                      |
| AMP                 | Limb amputation   |
| APPY                | Appendix surgery  |
| AVSD                | Shunt for dialysis  |
| BILI                | Bile duct, liver or pancreatic surgery                                |
| CEA                 | Carotid endarterectomy  |
| CHOL                | Gallbladder surgery   |
| COLO                | Colon surgery   |
| CSEC                | Cesarean section  |
| GAST                | Gastric surgery   |
| HTP                 | Heart transplant  |
| HYST                | Abdominal hysterectomy  |
| KTP                 | Kidney transplant   |
| LAM                 | Laminectomy   |
| LTP                 | Liver transplant  |
| NECK                | Neck surgery  |
| NEPH                | Kidney surgery  |
| OVRV                | Ovarian surgery   |
| PRST                | Prostate surgery  |
| REC                 | Rectal surgery  |
| SB                  | Small bowel surgery   |
| SPL                 | Spleen surgery  |
| THOR                | Thoracic surgery  |
| THYR                | Thyroid and/or parathyroid surgery                                    |
| VHYS                | Vaginal hysterectomy  |
| XLAP                | Exploratory laparotomy  |
| 90-day Surveillance |   |
| Category            | Operative Procedure   |
| BRS                 | 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  |
| FLSN                | Spinal fusion   |
| FX                  | Open reduction of fracture  |
| HER                 | Herniorrhaphy   |
| HPRO                | Hip prosthesis  |
| KPRO                | Knee prosthesis   |
| PACE                | Pacemaker surgery   |
| PVBY                | Peripheral vascular bypass surgery                                    |
| VSHN                | Ventricular shunt   |

**Notes:**

- Superficial incisional SSIs are monitored for a 30-day period for all procedure categories.
- Secondary incisional SSIs are monitored for a 30-day period regardless of the surveillance period for the primary incision site.



## DENOMINATOR FOR PROCEDURE DETAILS

**Denominator for Procedure**

Page 1 of 2 \*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-10-PCS or CPT Procedure Code:              |                            |
| <b>Procedure Details</b>   |  |                            |
| *Outpatient: Yes No  | *Duration: ____ Hours ____ Minutes             |                            |
| *Wound Class: C CC CO D  | *General Anesthesia: Yes No                    |                            |
| ASA Score: 1 2 3 4 5   | *Emergency: Yes No                             |                            |
| *Trauma: Yes No  | *Scope: Yes No                                 | *Diabetes Mellitus: Yes No |
| *Height: ____ feet ____ inches   | *Closure Technique: Primary Other than primary |                            |
| (choose one) ____ meters   | Surgeon Code: _____                            |                            |
| *Weight: ____ lbs/kg (circle one)  |  |                            |
| CSEC: *Duration of Labor: ____ hours   |  |                            |
| Circle one: FUSN   |  |                            |
| *Spinal Level (check one)  |  |                            |
| <input type="checkbox"/> Atlas-axis<br><input type="checkbox"/> Atlas-axis/Cervical<br><input type="checkbox"/> Cervical<br><input type="checkbox"/> Cervical/Dorsal/Dorsolumbar<br><input type="checkbox"/> Dorsal/Dorsolumbar<br><input type="checkbox"/> Lumbar/Lumbosacral |  |                            |
| *Approach/Technique (check one)  |  |                            |
| <input type="checkbox"/> Anterior<br><input type="checkbox"/> Posterior<br><input type="checkbox"/> Anterior and Posterior   |  |                            |
| Circle one: HPRO KPRO  |  |                            |
| ICD-10-PCS Supplemental Procedure Code for HPRO/KPRO:  |  |                            |

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## NHSN INPATIENT OPERATIVE PROCEDURE VS. NHSN OUTPATIENT OPERATIVE PROCEDURE

- ▶ **NHSN Inpatient Operative Procedure:**
  - ▶ An NHSN operative procedure performed on a patient whose date of admission to the healthcare facility and the date of discharge are different calendar days.
- ▶ **NHSN Outpatient Operative Procedure:**
  - ▶ An NHSN operative procedure performed on a patient whose date of admission to the healthcare facility and date of discharge are the same calendar day.

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# DENOMINATOR REPORTING INSTRUCTIONS

- ▶ Denominator data is submitted for each individual NHSN operative procedure performed assigned to the procedure category selected for monitoring on the facility MRP.
- ▶ Depending on scenario, Denominator Reporting Instructions provide guidance related to:
  - ▶ Number of procedure forms to complete
  - ▶ Duration of procedure(s)
  - ▶ More than one operative procedure through same incision/surgical space within 24 hours
  - ▶ HYST/VHYS reporting
  - ▶ Patient expires in the Operating Room

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## APPENDIX B: GUIDANCE FOR MULTIPLE PROCEDURE REPORTING

**APPENDIX B**  
Guidance for Multiple Procedure Reporting

This table addresses the 12 NHSN operative procedure categories that are included in [Denominator for Reporting Instruction #6- Same NHSN operative procedure category via separate incisions](#). AMP, BRST, CEA, FUSN, FX, HER, HPRO, KPRO, LAM, NEPH, OVRY, PVBY. The instruction provides guidance on correct procedure reporting when multiple procedures from one of these categories (procedures from the same category) are performed via separate incisions per patient per calendar day. The table includes the maximum # of procedures per day per patient and an explanation.

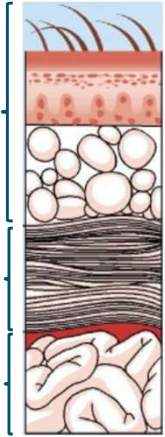
| Operative Procedure Category | Maximum # Of Procedures Per Day | Explanation   |
|------------------------------|---------------------------------|---|
| AMP - Limb amputation        | 4                               | Corresponds to the four (4) extremities (left arm, left leg, right arm, right leg).<br><br>In instances where multiple AMP procedures are performed on the same extremity only one AMP procedure should be reported for that extremity.   |
| BRST - Breast surgery        | 2                               | Corresponds to the left breast and right breast.  |
| CEA - Carotid endarterectomy | 2                               | Corresponds to the left artery and right artery.  |
| FUSN - Spinal fusion         | 4                               | Corresponds to the four (4) anatomical spinal levels (cervical, thoracic, lumbar, sacral).<br><br>When more than one anatomical spinal level is fused, report the NHSN spinal level and approach in which the most vertebrae were fused.<br><br>The number of FUSN procedures reported depends on various factors: <ul style="list-style-type: none"> <li>• When a spinal fusion procedure is performed on one spinal level/contiguous spinal levels, this is considered one FUSN procedure for reporting purposes although multiple joints may be fused and multiple procedure codes are assigned.</li> <li>• When an anterior and posterior incision are made to access one spinal level/contiguous spinal levels (such as C3-C5 spinal fusion with anterior and posterior approach) one FUSN procedure is reported. Indicate "Anterior and Posterior" approach on the denominator for procedure form.</li> </ul> |

- ▶ Addresses the 12 NHSN operative procedure categories that are in **Denominator for Reporting Instruction #6- Same NHSN operative procedure category via separate incision**: AMP, BRST, CEA, FUSN, FX, HER, HPRO, KPRO, LAM, NEPH, OVRY, PVBY.
- ▶ Correct procedure reporting when multiple procedures form one of these categories (procedures from the same category) are performed via separate incision per patient per calendar day.
- ▶ The table includes the maximum # of procedures per day per patient and an explanation.



## SSI: THREE TISSUE LEVELS SURGICAL SITE INFECTION CRITERIA

- ▶ **Superficial Incisional**
  - ▶ Skin and subcutaneous tissues of the incision
- ▶ **Deep Incisional**
  - ▶ Deep soft tissues of the incision
    - ▶ For example, muscle and fascia
- ▶ **Organ/Space**
  - ▶ Any part of the body deeper than the fascial/muscle layers



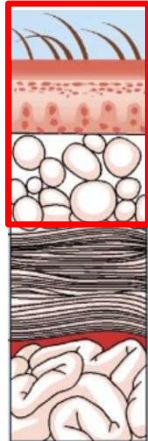
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## DEFINITIONS

- ▶ **Superficial Incisional SSI Criteria:**
- Must meet the following criteria
  - DOE occurs within 30 after any NHSN operative procedure
    - Day 1 = procedure date

**AND**

  - Involves only skin and subcutaneous tissue of the incision



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## DEFINITIONS

### ► Superficial Incisional SSI Criteria cont.:

#### AND

- Patient has at least one of the following
  - a. Purulent drainage from the superficial incision.
  - b. Organisms identified from an aseptically obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing.
  - c. Superficial incision that is deliberately opened by a surgeon, physician\* or physician designee and culture or non-culture-based testing is not performed **AND** Patient has at least one of the following signs or symptoms: localized pain or tenderness, localized swelling, erythema, or heat.
  - d. Diagnosis of superficial incisional SSI by a physician\* or physician designee



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## DEFINITIONS

### ► Superficial Incisional SSI Criteria Notes:

#### ► Two specific types of superficial incisions SSIs

#### ► 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 (chest incision for 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 one or more incisions (e.g., donor site for CBGB)

**Note:** Refer to SSI Event Reporting Instruction #7 for NHSN operative procedure categories with secondary incision sites available for SSI attribution.



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## KEY CONCEPT

### ► Reporting Instructions for Superficial SSI

- A stitch abscess (minimal inflammation and discharge contained to the points of suture penetration) is not considered an SSI
- A localized stab wound, or pin site infection is not considered an SSI
  - may be SKIN/ST infection
  - A laparoscopic trocar site is considered a surgical incision and not a stab wound. If the surgeon uses the trocar site to place a drain at the end of the procedure this is considered a surgical incision.
- Diagnosis of cellulitis (redness/warmth/swelling), by itself, does not meet the criteria for incision SSI criterion 'd'.



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## KNOWLEDGE CHECK

- 11/1 – Mr. Wall is admitted for a spinal fusion.
- 11/4 - patient discharged
- 11/20 – on post-op visit patient noted to have redness and swelling of the superficial incision. The wound is not cultured nor probed. The patient is given antibiotics and sent home.

### Does this meet the superficial SSI definition?

- 11/29 Mr. Wall presents to the Emergency room with purulent drainage from the superficial incision. The wound is cultured and grows MRSA. Patient is given antibiotics and discharged home.

### Does the patient meet the superficial SSI definition?



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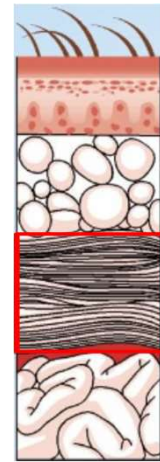
## DEFINITIONS

### ► Deep Incisional SSI Criteria:

- Must meet the following criteria
  - DOE occurs within 30 or 90 days after any NHSN operative procedure according to the list in Table 2 in Chapter 9
    - Day 1 = procedure date

### AND

- Involves deep soft tissues of the incision
  - For example, fascial and muscle layers



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## DEFINITIONS

### ► Deep Incisional SSI Criteria cont:

### AND

- Patient has at least one of the following:
  - a. Purulent drainage from the deep incision
  - b. Deep incision spontaneously dehisces or is deliberately opened or aspirated by a surgeon, **physician\*\* or physician designee** **AND is culture-positive or not cultured.** *A culture-negative finding does not meet this criterion.* **AND** The patient has at least **one** of the following signs or symptoms: fever (>38°C), or localized pain or tenderness.
  - c. An abscess or other evidence of infection involving the deep incision is detected on gross anatomical or histopathologic exam, or imaging test

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## DEFINITIONS

### ► Deep Incisional SSI Criteria Notes:

- Two specific types of deep incisions SSIs
- 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 (chest incision for CBGB)
- Deep incisional secondary (SIS)
  - A deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with one or more incisions (e.g., donor site for CBGB)

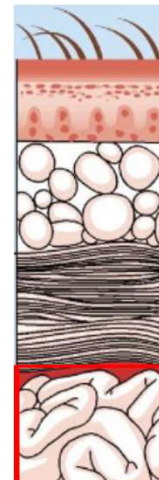
**Note:** Refer to SSI Event Reporting Instruction #7 for NHSN operative procedure categories with secondary incision sites available for SSI attribution.



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## DEFINITIONS

- **Organ/Space SSI Criteria:**
  - Must meet the following criteria
    - DOE occurs within 30 or 90 days after any NHSN operative procedure according to the list in Table 2 in Chapter 9
      - Day 1 = procedure date
- AND**
- Involves any part of the body deeper than the fascial/muscle layers that is opened or manipulated during the operative procedure



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# DEFINITIONS

## ► Organ/Space SSI Criteria cont.:

AND

- Patient has at least one of the following:
  - a) Purulent drainage from a drain that is placed into the organ/space
    - for example: closed suction drainage system, open drain, T-tube drain, CT-guided drainage
  - b) Organism(s) identified from fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method
  - c) An abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test evidence definitive or equivocal for infection.

AND

- Meets at least one criterion for a specific organ/space infection site listed in Table 3. These criteria can be found in the Surveillance Definitions for Specific Types of Infections, Chapter 17

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# ORGAN SPACE SSI

► General Organ space SSI criterion AND applicable Chapter 17 site-specific criterion must be met to fully meet Organ Space SSI criteria.

AND

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Table 3. Specific Sites of an Organ/Space SSI


| Category | Specific Site                                     | Category | Specific Site  |
|----------|---|----------|--|
| BONE     | Osteomyelitis                                     | MED      | Mediastinitis  |
| BRST     | Breast abscess or mastitis                        | MEN      | Meningitis or ventriculitis  |
| CARD     | Myocarditis or pericarditis                       | ORAL     | Oral cavity infection (mouth, tongue, or gums)   |
| DISC     | Disc space infection                              | OREP     | Deep pelvic tissue infection or other infection of the male or female reproductive tract |
| EAR      | Ear, mastoid infection                            | PJI      | Periprosthetic joint infection   |
| EMET     | Endometritis                                      | SA       | Spinal abscess/infection   |
| ENDO     | Endocarditis                                      | SINU     | Sinusitis  |
| GIT      | Gastrointestinal (GI) tract infection             | UR       | Upper respiratory tract, pharyngitis, laryngitis, epiglottitis                           |
| IAB      | Intraabdominal infection, not specified elsewhere | USI      | Urinary System Infection   |
| IC       | Intracranial infection                            | VASC     | Arterial or venous infection   |
| JNT      | Joint or bursa infection                          | VCUF     | Vaginal cuff infection   |
| LUNG     | Other infection of the lower respiratory tract    |          |  |

(Criteria for these sites can be found in Chapter 17 ([Surveillance Definitions for Specific Types of Infections](#)))

Note: [Appendix](#) contains a list of all NHSN operative procedure categories and the site-specific SSIs that may be attributable to each category.



## Criteria can be found in the Surveillance Definitions for Specific Types of Infections, Chapter 17


January 2023

**CDC/NHSN Surveillance Definitions for Specific Types of Infections**


**Introduction**

This chapter contains the CDC/NHSN surveillance definitions and criteria for all specific types of infections. This chapter also provides additional required criteria for the specific infection types that constitute organ space surgical site infections. (Refer to Chapter 9 Appendix for specific event types available for organ space SSI attribution for each [NHSN operative procedure category](#)). Comments and reporting instructions that follow the site-specific criteria provide further explanation and are integral to the correct application of the criteria. Refer to [Chapter 2: Identifying HAIs in NHSN](#) for specific guidance for making HAI determinations.

Infection criteria contained in this chapter may be necessary for determining whether a positive blood specimen represents a primary bloodstream infection (BSI) or is secondary to a different type of infection (see Appendix B [Secondary Bloodstream Infection \(BSI\) Guide](#)). A BSI that is identified as secondary to another site of infection must meet one of the infection criteria detailed in this chapter or an eligible infection criterion in the Patient Safety manual and meet other requirements. Secondary BSIs are not reported as Laboratory Confirmed Bloodstream Infections in NHSN, nor can they be associated with the use of a central line.

**NOTES:**

- See individual protocol chapters for infection criteria for urinary tract infections ([UTI](#)), bloodstream infections ([BSI](#)), pneumonia ([PNEU](#)), ventilator-associated infections ([VAI](#)), and surgical site infections ([SSI](#)).
- For NHSN reporting purposes, the term "organism(s)" in this chapter includes viruses.
- Organisms belonging to the following genera cannot be used to meet any NHSN definition: *Blastomyces*, *Histoplasma*, *Coccidioides*, *Parosoccidoides*, *Cryptococcus* and *Pneumocystis*. These organisms are typically causes of community-associated infections and are rarely known to cause healthcare-associated infections, and therefore are excluded.
- Antibiograms of the blood and isolates from potential primary sites of infection do not have to match for purposes of determining the source of BSI (see "matching organisms" below).
- A **matching organism** is defined as one of the following:
  - if genus and species are identified in both specimens, they must be the same.

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► **Appendix A: Specific event types available for SSI attribution by NHSN procedure category.**

- *SSI events are limited to the specific site types outlined in Appendix A for each procedure category.*
- *Starts pg. 9-33 SSI Protocol*
- *If an eligible event type occurs within the surveillance period following an NHSN operative procedure the event is attributed to that procedure.*

APPENDIX A

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<br>ENDO - Endocarditis<br>GIT - Gastrointestinal tract<br>IAB - Intraabdominal, not specified elsewhere<br>SIP - Superficial Incisional Primary<br>VASC - Arterial or venous infection  |
| AMP - Limb amputation                         | BONE - Osteomyelitis<br>DIP - Deep Incisional Primary<br>JNT - Joint or bursa<br>SIP - Superficial Incisional Primary   |
| APPY - Appendix surgery                       | DIP - Deep Incisional Primary<br>GIT - Gastrointestinal tract<br>IAB - Intraabdominal, not specified elsewhere<br>SIP - Superficial Incisional Primary  |
| AVSD - AV shunt for dialysis                  | DIP - Deep Incisional Primary<br>SIP - Superficial Incisional Primary<br>VASC - Arterial or venous infection  |
| BILI - Bile duct, liver or pancreatic surgery | DIP - Deep Incisional Primary<br>GIT - Gastrointestinal tract<br>IAB - Intraabdominal, not specified elsewhere<br>SIP - Superficial Incisional Primary  |
| BRST - Breast surgery                         | BRST - Breast abscess or mastitis<br>DIP - Deep Incisional Primary<br>DIS - Deep Incisional Secondary<br>SIP - Superficial Incisional Primary<br>SIS - Superficial Incisional Secondary   |
| CARD - Cardiac surgery                        | BONE - Osteomyelitis<br>CARD - Myocarditis or pericarditis<br>DIP - Deep Incisional Primary<br>ENDO - Endocarditis<br>IAB - Intraabdominal, not specified elsewhere<br>LUNG - Other infections of the lower respiratory tract<br>MED - Mediastinitis<br>SIP - Superficial Incisional Primary<br>VASC - Arterial or venous infection |



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## SSI-PROCEDURE-ASSOCIATED MODULE

- Chapter 2 terms **not** applicable to SSI:
  - Infection window period (IWP)
  - Present on admission (POA)
  - Healthcare-associated infection
  - (HAI)
  - Repeat infection timeframe (RIT)
- **SSI protocol uses terms:**
  - Date of Event (DOE)
  - Secondary BSI Attribution Period



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## SURVEILLANCE PERIOD

- ▶ **The timeframe following an NHSN operative procedure for monitoring and identifying an SSI event.**
  - The surveillance period is determined by the NHSN operative procedure category (Table 2).
  - Superficial incisional SSI: 30-day surveillance period for all procedure categories.
  - Secondary incisional SSI: 30-day surveillance period for secondary incision site for all procedure categories.

Table 2. Surveillance Periods for SSI Following Selected NHSN Operative Procedure Categories. Day 1 = the date of the procedure.

| 30-day Surveillance |   |          |                                    |
|---------------------|---|----------|------------------------------------|
| Category            | Operative Procedure   | Category | 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  | SIPLE    | 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             |
| 90-day Surveillance |   |          |                                    |
| Category            | 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                                    |          |                                    |
| VSHN                | Ventricular shunt   |          |                                    |

- Notes:
- Superficial incisional SSIs are monitored for a 30-day period for all procedure categories.
  - Secondary incisional SSIs are monitored for a 30-day period regardless of the surveillance period for the primary incision site.

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## DATE OF EVENT (DOE) FOR SSI

- ▶ **The date when the first element used to meet the SSI infection criterion occurs for the first time during the SSI surveillance period.**
  - ▶ DOE must occur within **appropriate 30- or 90-day SSI surveillance period.**
  - ▶ The type of SSI reported, and the DOE assigned must reflect the deepest tissue level where SSI criteria are met during the surveillance period.
    - ▶ Example: COLO performed
      - ▶ Meets SIP-SSI with DOE on day 8 of surveillance period.
      - ▶ Meets DIP-SSI with DOE on day 21 of surveillance period.
      - ▶ **DIP-SSI reported with DOE as day 21 attributed to the COLO.**

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### SSI EVENT DETAIL: TIMEFRAME FOR SSI ELEMENTS

- ▶ SSI guidelines do not offer a strict timeframe for elements of criteria to occur but in NHSN's experience, all elements required to meet an SSI criterion usually occur within a 7–10-day timeframe with typically no more than 2-3 days between elements.
- ▶ To ensure all elements associate to the SSI, elements must occur in a relatively tight timeframe.
  - ▶ **Example:** An element on day 5 of the surveillance period with another element three weeks later should not be used to cite an SSI.
- ▶ Cases differ based on elements that occur and type of SSI under consideration





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### SECONDARY BSI SCENARIOS FOR SSI

- ▶ **Scenario 1 (all levels of SSI):** At least **one** organism from the blood specimen **matches an organism identified from the site-specific specimen** used as an element to meet the NHSN SSI criterion AND the blood specimen is collected during the secondary BSI attribution period.
- ▶ The secondary BSI attribution period for SSI is a 17-day period which includes the SSI DOE, 3 days prior and 13 days after.

OR

| Post-Op Day | SSI Secondary BSI Attribution Period |
|-------------|--------------------------------------|
| 9           |                                      |
| 10          |                                      |
| 11          |                                      |
| 12          |                                      |
| 13          | DOE for an SSI                       |
| 14          |                                      |
| 15          |                                      |
| 16          |                                      |
| 17          |                                      |
| 18          |                                      |
| 19          |                                      |
| 20          |                                      |
| 21          |                                      |
| 22          |                                      |
| 23          |                                      |
| 24          |                                      |
| 25          |                                      |
| 26          |                                      |

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## SECONDARY BSI SCENARIOS FOR SSI

- **Scenario 2 (Organ/Space SSI Only):** An organism identified in the blood specimen is an element that is used to meet the NHSN Organ/Space SSI site-specific infection criterion and is collected during the timeframe for SSI elements.

IAB-Intraabdominal infection, not specified elsewhere, including gallbladder, bile ducts, liver (excluding viral hepatitis), spleen, pancreas, peritoneum, retroperitoneal, subphrenic or subdiaphragmatic space, or other intraabdominal tissue or area not specified elsewhere

Intraabdominal infections must meet at least **one** of the following criteria:

1. Patient has organism(s) identified from an abscess or from purulent material from intraabdominal space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment, for example, not Active Surveillance Culture/Testing (ASC/AST).
2. Patient has at least one of the following:
  - a. abscess or other evidence of intraabdominal infection on gross anatomic or histopathologic exam.
  - b. abscess or other evidence of intraabdominal infection on gross anatomic or histopathologic exam (See Reporting Instructions)

**AND** organism(s) identified from blood 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). The organism(s) identified in the blood must contain at least one MBI organism on the NHSN Organism List that can be accessed via the [spreadsheet](#) or the new [NHSN Terminology Browser](#).

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## GROSS ANATOMICAL EXAM



- Evidence of infection elicited or visualized on physical examination or observed during an invasive procedure.
- Examples:
  - intraabdominal abscess visualized during surgery
  - Visualization of pus or purulent drainage (includes from a drain).
  - SSI only: Abdominal pain or tenderness **post Cesarean section (CSEC) or hysterectomy (HYST/VHYS)** is sufficient gross anatomic evidence of infection without an invasive procedure to meet general Organ/Space SSI criterion "c" when a Chapter 17 reproductive tract infection criteria is met.
- **Imaging test evidence of is not gross anatomic evidence of infection.**

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## PURULENCE

- NHSN does not define purulence, as there is no standard, clinically agreed upon definition
  - The descriptors “pus” or “purulence” are sufficient evidence
- Drainage using a color descriptor **AND** a consistency descriptor (if combined) are acceptable to indicate purulence:
  - **Color:** green, yellow
  - **Consistency:** milky, thick, creamy, opaque, viscous
  - Example: ‘thick yellow’ drainage is acceptable to indicate purulence but ‘thick’ alone or ‘yellow’ alone is not.
- Gram stain results (WBCs or PMNs) cannot be used to define purulence

**Note:** The following descriptors cannot be used to define purulence/infection: ‘Cloudy’, ‘turbid’, ‘murky’, or the odor of the wound.



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## SSI EVENT REPORTING INSTRUCTIONS

- ▶ SSI Event Reporting Instructions starting on page 9-18 of the SSI module, provides guidance on accurate SSI even reporting including:
  - ▶ Excluded organisms
  - ▶ Infection Present at the time of surgery (PATOS)
  - ▶ SSI attribution
  - ▶ SSI even detected at another facility
  - ▶ SSI following invasive manipulation or accession of the operative site



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## INFECTION PRESENT AT TIME OF SURGERY(PATOS)

- Denotes that there is evidence of an infection visualized (seen) during the operative procedure to which the SSI is attributed.
- The evidence of infection must be noted intraoperatively and documented within the **narrative portion** of the operative note or report of surgery (commonly labeled the 'procedure in detail' or 'description of procedure's section')
  - Pre/post op diagnoses, 'indication for surgery' NOT surgical narrative.
  - A "Findings" section, if a reflection of what the surgeon 'sees' present at the time of surgery, can be considered a surgical narrative.
- PATOS is tissue level specific meaning the documented infection must be at the same tissue level of the subsequent SSI.
- Pathology findings, culture results, wound classification, trauma status, and imaging test findings cannot be used for PATOS determination.
- Traumas resulting in a contaminated case does not necessarily meet PATOS.



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## INFECTION PRESENT AT TIME OF SURGERY(PATOS)

- Examples that indicate evidence of infection may include:
  - Abscess, infection, purulence, phlegmon, or "feculent peritonitis".
  - A ruptured/perforated appendix is evidence of infection at the organ/space level
- Examples of verbiage that is not considered evidence of infection include but are not limited to:
  - colon perforation, contamination, necrosis, gangrene, fecal spillage, nicked bowel during procedure, or a note of inflammation.
- The use of the ending "itis" in an operative note does not automatically meet PATOS, as it may only reflect inflammation.
  - Examples: diverticulitis, peritonitis, appendicitis.



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## SSI FOLLOWING INVASIVE MANIPULATION/ACCESSION OF THE OPERATIVE SITE

- An SSI will not be attributed if the following 3 criteria are **ALL** met:
  - During the post-operative period, the surgical site is without evidence of infection related to the surgical site/space.
  - An invasive manipulation/accession of the site is performed for diagnostic or therapeutic purposes (for example, needle aspiration, accession of ventricular shunts, accession of breast expanders)
  - An infection subsequently develops in a tissue level which was entered during the manipulation/accession
- ▶ Notes:
  - ▶ Suspicion or evidence of infection may include signs and symptoms of infection (e.g. fever, abdominal pain) depending on the site of the procedure.
  - ▶ Tissue levels not manipulated/access are still eligible for SSI.
  - ▶ Does not include closed manipulation, wound packing or changing of wound packing materials, or routine flushing of catheters as part of standard care and maintenance.



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## SSI ATTRIBUTION

- SSI attribution after multiple categories of NHSN procedures are performed during a single trip to the OR:
  - Attribute the SSI to the procedure that is thought to be associated with the infection.
  - When attribution is not clear, use the NHNS Principal Operative Procedure Category Selection Lists (Table 4) to select the operative procedure to which to attribute the SSI.

Table 4. NHSN Principal Operative Procedure Category Selection List  
(The categories with the highest risk of SSI are listed before those with lower risks.)

| Priority | Category | Abdominal Operative Procedures                      |
|----------|----------|---|
| 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      | Herniorrhaphy                                       |
| 14       | NEPH     | Kidney surgery                                      |
| 15       | VHYS     | Vaginal hysterectomy                                |
| 16       | SPLE     | Spleen surgery                                      |
| 17       | CHOL     | Gall bladder surgery                                |
| 18       | OVRV     | Ovarian surgery                                     |
| Priority | Category | Thoracic Operative Procedures                       |
| 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 | Category | Neurosurgical (Brain/Spine) Operative Procedures    |
| 1        | VSHN     | Ventricular shunt                                   |
| 2        | CRAN     | Craniotomy  |
| 3        | FUSN     | Spinal fusion                                       |
| 4        | LAM      | Laminectomy   |
| Priority | Category | Neck Operative Procedures                           |
| 1        | NECK     | Neck surgery  |
| 2        | THYR     | Thyroid and/or parathyroid surgery                  |



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## RESOURCES

- ▶ NHSN Surgical Site Infection (SSI) Events webpage
  - ▶ <https://www.cdc.gov/nhsn/psc/ssi/index.html>
- ▶ Patient Safety Component Manual Chapter 9: SSI Protocol
  - ▶ <https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscasicurrent.pdf>
- ▶ Patient Safety Component Manual Chapter 17: CDC/NHSN Surveillance Definitions for Specific Types of Infections
  - ▶ [https://www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef\\_current.pdf](https://www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef_current.pdf)
- ▶ FAQs: Surgical Site Infections (SSI) Events:
  - ▶ <https://www.cdc.gov/nhsn/faqs/faq-ssi.html>
- ▶ Surgical Site Procedure Codes
  - ▶ [FAQs: Surgical Site Procedure Codes | NHSN | CDC](#)



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## QUESTIONS



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