

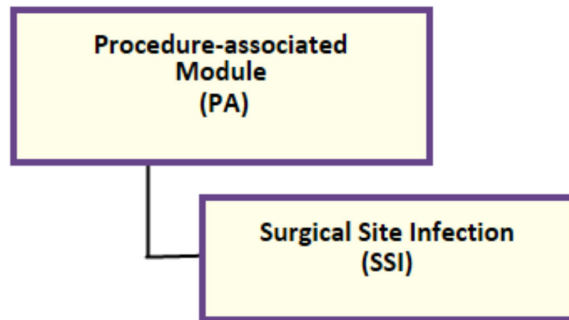
NATIONAL HEALTHCARE SAFETY NETWORK SURGICAL SITE INFECTION (SSI)- SURVEILLANCE

Surveillance Definitions Case Studies

IMPORTANCE OF SSI SURVEILLANCE

- SSIs are a substantial cause of morbidity and mortality
 - Prolonged hospitalizations
 - Increased costs
- The use of standardized SSI criteria applied in the same manner allows the use of data for epidemiological purposes
- Surveillance of SSI with feedback of data is important for prevention efforts and to reduce the risk of SSI
- Monitoring SSI events over time can help inform trends and quality improvement activities

CHAPTER 9-THE SSI PROTOCOL



Surgical Site Infection Event (SSI)

Table of Contents	
Introduction	1
Settings	2
Requirements	2
Surveillance Methods	3
Operative Procedure Codes	3
Definition of an NHSN Operative Procedure	4
SSI Event Details	5
Denominator for Procedure Details	7
Table 1. Surgical Site Infection Criteria	11
Table 2. Surveillance Periods for SSI Following Selected NHSN Operative Procedure Categories	16
Table 3. Specific Sites of an Organ/Space SSI	17
SSI Event (Numerator) Reporting	18
Table 4. NHSN Principal Operative Procedure Category Selection List	23
Denominator for Procedure Reporting	24
Data Analyses	27
Table 5. Inclusion Criteria of SSI in SIR Models	29
Table 6. Universal Exclusion Criteria for NHSN Operative Procedures	30
References	32
APPENDIX A	33
APPENDIX B	40

Introduction:

The CDC healthcare-associated infection (HAI) prevalence survey found that there were an estimated 110,800 surgical site infections (SSIs) associated with inpatient surgeries in 2015¹. Based on the 2021 HAI data results published in the NHSN's HAI Progress Report, about a 3% increase in the SSI standardized infection ratio (SIR) related to all NHSN operative procedure categories combined compared to the previous year was reported in 2021. No significant changes in SIR related to the Surgical Care Improvement Project (SCIP) NHSN operative procedure categories compared to the previous year was reported in 2021².

While advances have been made in infection control practices, including improved operating room ventilation, sterilization methods, barriers, surgical technique, and availability of antimicrobial prophylaxis, SSIs remain a substantial cause of morbidity, prolonged

NHSN OPERATIVE PROCEDURE

► Definition of an NHSN Operative Procedure:

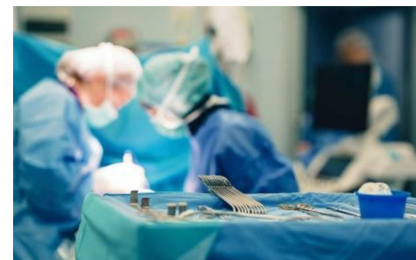
- Is included in the ICD-10-PCS or CPT NHSN operative procedure code mapping.

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.



NHSN OPERATIVE PROCEDURE CODES

- ▶ Allows NHSN to standardize NHSN SSI surveillance reporting.
- ▶ Procedures are included in each of the 39 NHSN operative procedure categories based on operative procedure codes.
- ▶ NHSN uses ICD-10-CM/PCS & CPT operative procedure coding systems.

▶ **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).**

- ▶ *Must use procedure code documents according to the date of procedure/protocol year.*
- ▶ *Must include all qualifying procedures in the selected operative procedure categories indicated on the facility MRP.*

IMPORTANT POINTS



- ▶ The procedure date is the date when the NHSN operative procedure starts.
- ▶ The procedure date determines the protocol year to use with SSI surveillance (for 2023 procedures use the 2023 SSI protocol and guidance documents).

▶ **For in-plan reporting purposes, only NHSN operative procedures are included in SSI surveillance and SSI events can only be attributed to NHSN operative procedures.**

- ▶ ***NHSN does not mandate reporting***—each facility decides what NHSN operative procedure categories to monitor within their MRP.

REQUIRED AND CONDITIONAL DATA POINTS

Procedure Details

Outpatient *: ☐ Duration (Hrs:Mins) *: :

Wound Class *: ☐ General Anesthesia *: ☐

ASA Score:

Emergency *: ☐ Trauma *: ☐ Scope *: ☐

Diabetes Mellitus *: ☐ Closure Technique *: ☐

Surgeon Code:

Height *: or m

Weight *: lbs or kg BMI

SPICE

APPENDIX B: GUIDANCE FOR MULTIPLE PROCEDURE REPORTING

January 2023

Procedure-associated Module
SSI Events

APPENDIX B

Guidance for Multiple Procedure Reporting event

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 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). 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). When more than one anatomical spinal level is fused, report the NHSN spinal level and approach in which the most vertebrae were fused. The number of FUSN procedures reported depends on various factors: <ul style="list-style-type: none">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.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.

9 - 40



- Appendix B added in 2023 to provide clarity and support to

Denominator Reporting Instruction #6: Same NHSN operative procedure category via separate incisions

- Operative Procedure Category
- Maximum # of Procedures Per Day
- Explanation

SPICE

KNOWLEDGE CHECK

You include COLO-Colon Surgery and HYST-Abdominal Hysterectomy for monitoring on your facility MRP.

Question 1:

How should procedures be determined for inclusion into each selected procedure category?

1. Review operative notes to determine which procedures to include
2. Identify all qualifying procedures by use of assigned NHSN ICD-10-PCS/CPT procedure codes
3. Identify all qualifying procedures by use of assigned NHSN ICD-10-PCD/CPT procedure codes-but only include those procedures in the denominator with subsequent SSI events

SSI: THREE TISSUE LEVELS SURGICAL SITE INFECTION CRITERIA

► Superficial Incisional

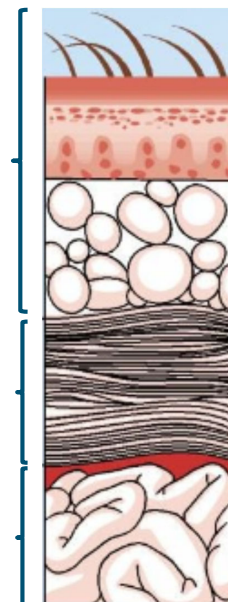
- Skin and subcutaneous tissues of the incision

► 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



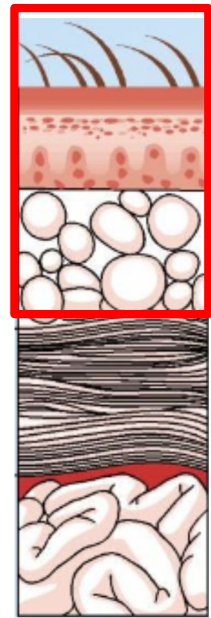
DEFINITIONS

► 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



SPICE

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*

SPICE

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)

SPICE



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.
- Cellulitis, by itself, does not meet the criteria for superficial incisional SSI

SPICE



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.

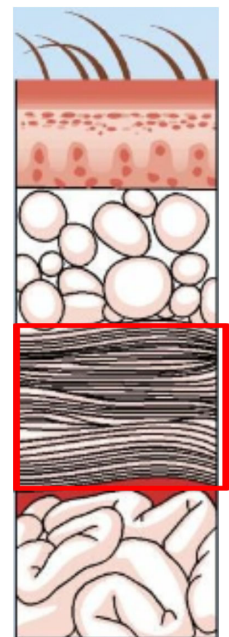
Does the patient meet the superficial SSI definition?

SPICE

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



SPICE

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 ($>38^{\circ}\text{C}$), or localized pain or tenderness.

- a. An abscess or other evidence of infection involving the deep incision is detected on gross anatomical or histopathologic exam, or imaging test

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)

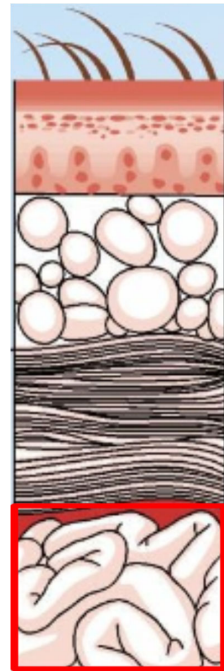
DEFINITIONS

► 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



DEFINITIONS

► Organ/Space SSI Criteria cont.:

AND

- Patient has at least one of the following:
 - 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*
 - Organism(s) identified from fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method
 - 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. Criteria can be found in the Surveillance Definitions for Specific Types of Infections, Chapter 17

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

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 ([VAE](#)), 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*, *Paracoccidioides*, *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 BSIs (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.

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.

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

► *Specific Event Types Available for SSI Attribution by Operative Procedure Code: Chapter 9 Appendix*

- *SSI event reporting is limited to the following specific event types for each procedure category*



SSI-PROCEDURE-ASSOCIATED MODULE

► Chapter 2 terms not applicable to SSI:

- Infection window period (IWP)
- Present infection (POA)
- Healthcare-associated infection
- (HAI)
- Repeat infection timeframe (RIT)

► SSI protocol uses terms:

- Date of Event (DOE)
- Secondary BSI Attribution Period



THE SSI EVENT: IMPORTANT POINTS

- ▶ Must collect SSI event (numerator) data on all procedures included in the selected operative procedure categories indicated on the facility's MRP
 - ▶ All procedures are monitored for superficial incisional, deep incisional, and organ/space SSI events and the type of SSI reported must reflect the deepest tissue level where SSI criteria are met during the surveillance period.
- ▶ Events meeting SSI criteria are reported to NHSN regardless of noted evidence of infection at time of surgery (there is no such thing as "POA" or 'ongoing' infection in SSI surveillance)
- ▶ **An SSI event is attributed to the facility where the NHSN operative procedure is performed.**



SSI EVENT DETAILS

▶ Surveillance Period for SSI:

- The surveillance period is determined by the NHSN operative procedure category.
- Superficial incisions are only followed for a 30-day period for all procedure types.
- Depending on the procedure category there may be a 30-day or 90-day surveillance period for deep or organ/space SSI.
- *Secondary incisional SSIs* are only followed for a 30-day period regardless of the primary site surveillance period.

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	OVR	Ovarian surgery
CEA	Carotid endarterectomy	PRST	Prostate surgery
CHOL	Gallbladder surgery	REC	Rectal surgery
COLO	Colon surgery	SB	Small bowel surgery
CSEC	Cesarean section	SPL	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 types.
- Secondary incisional SSIs are monitored for a 30-day period regardless of the surveillance period for the primary site.



SSI EVENT DETAIL: 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.**



SSI EVENT DETAIL: TIMEFRAME FOR SSI ELEMENTS

- ▶ The concept of infection window period (IWP) is not applicable to SSI surveillance. There are surveillance periods defined by the procedure category.
- ▶ **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



SSI EVENT DETAIL: SECONDARY BSI SCENARIOS FOR SSI

- **Scenario 1:** At least **one** organism from the blood specimen **matches an organism identified from the site-specific specimen** that is used as an element to meet the NHSN SSI criterion AND the blood specimen is collected during the secondary BSI attribution period.

OR

SSI
Secondary BSI
Attribution Period
3 days before DOE
+
DOE
+
13 days after DOE

SPICE

SSI EVENT DETAIL: 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. (See Appendix A of the BSI protocol)

Example
IAB '2b'

SPICE

SSI EVENT DETAIL: GROSS ANATOMICAL EXAM



- Evidence of infection elicited or visualized on physical examination or observed during an invasive procedure.
- Examples:
 - An intraabdominal abscess will require an invasive procedure to actually visualize the abscess
 - Visualization of pus or purulent drainage (includes from a drain).
 - SSI only: Abdominal pain or tenderness **post Cesarean section (CSEC) or hysterectomy (HYST or VHYS)** is sufficient gross anatomic evidence of infection without an invasive procedure to meet general Organ/Space SSI criterion “c” when OREP or EMET is met.

SSI EVENT DETAIL: GROSS ANATOMICAL EXAM



- SSI: Abdominal pain or tenderness **cannot** be applied as “other evidence of infection on gross anatomic exam” to meet Deep Incisional SSI criterion ‘c’ or to meet any Chapter 17 site-specific (for example, OREP ‘2’)
- **Imaging test evidence of infection cannot be applied to meet gross anatomic evidence of infection**
 - Imaging test evidence has distinct findings in the NHSN definitions (for example, IAB ‘3b’)

SSI EVENT DETAIL: 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 (as long as combined) are acceptable to indicate purulence:***
 - **Color:** green, yellow
 - **Consistency:** milky, thick, creamy, opaque, viscous
- Example: ‘**thick yellow**’ drainage acceptable to indicate purulence
- Gram stain results (WBCs or PMNs) cannot be used to define purulence



SSI EVENT REPORTING

► 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.
- 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.



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 “it is” in an operative note does not automatically meet PATOS, as it may only reflect inflammation.
 - *Examples: diverticulitis, peritonitis, appendicitis.*

SSI EVENT REPORTING

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
 - 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

SSI EVENT REPORTING

► SSI attribution after multiple types 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.
- If it is not clear, use the NHNS Principal Operative Procedure Category Selection Lists to select the operative procedure 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	OVRY	Ovarian surgery

SPICE

RESOURCES

- **On-Demand Video: ‘Patient Safety Component Navigating SSI Reporting in NHSN’**
- Content covered
 - Identify surveillance methods
 - Demonstrate how to locate Surgical Site Infection (SSI) resources on the NHSN website
 - Review reporting requirements for Monthly Reporting Plans (MRPs), numerator and denominator data



SPICE

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

- ▶ FAQs: Surgical Site Infections (SSI) Events:

<https://www.cdc.gov/nhsn/faqs/faq-ssi.html>



QUESTIONS

