

National Healthcare Safety Network Surgical Site Infection (SSI)- Surveillance

SURVEILLANCE DEFINITIONS

CASE STUDIES

Introduction

- CDC prevalence survey found estimated 110,800 SSIs associated with inpatient surgeries in 2015
- Saw an 8% increase in HAI SSI between 2014 and 2017¹
- 79,305 SSI for 17 procedures in 2017¹
- SSI is associated with a mortality rate of 3%, and 75% of SSI-associated deaths are directly attributable to the SSI.
- Average cost of a HAI SSI is \$28, 219¹

1 AHRQ National Scorecard on Hospital-Acquired Conditions Updated Baseline Rates and Preliminary Results 2014-2017

Key Concepts

Monthly Reporting Plan:

- Collect SSI event (numerator) and operative procedure (denominator) data collected for all procedures included in the selected operative procedure categories indicated on the facilitates monthly reporting plan.
- All procedures must be followed for superficial incisional, deep incisional, and organ/space SSI events and the type reported must reflect the deepest tissue level where SSI criteria are met during the surveillance period.
- SSI events is attributed to the facility in which the NHSN operative procedure is performed
- Events meeting SSI criteria are reported to NHSN regardless of noted evidence of infection at time of surgery.
- The date of the procedure determines the protocol year to use with SSI surveillance
- Those procedures identified by ICD-10-PCS or CPT operative procedure codes as an NHSN operative procedure will begin an SSI surveillance period. Only NHSN operative procedures are eligible for SSI attribution
- NHSN does not mandate reporting --facility decides what procedures to monitor
- Clinical vs. Surveillance NHSN offers standardized criteria that must be applied in the same manner by all who use them in order to be able to use the resulting data for epidemiological purposes

Key Concept

Active Surveillance Methods:

- Review of medical records or surgery clinic patient records
 - Admission, readmission, ED, and OR logs
 - Patient charts for signs and symptoms of SSI
 - Acceptable documentation includes patient-reported signs or symptoms within the SSI surveillance period, documented in the MR by a healthcare professional
 - Lab, imaging, other diagnostic test reports
 - Clinical/healthcare professional notes
 - ICD-10-CM Infection diagnosis codes to prompt further review.
- Visit the ICU and acute care unit- talk to primary care staff

NOTE: Any combination of these methods (or other methods identified by the facility) with the capacity to identify all SSIs is acceptable for use; however NHSN criteria for SSI must be used.

Key Concept

Post Discharge Surveillance Methods:

- Surgeon and/or patient surveys by mail or phone
 - Patients may have a difficult time assessing their infections
- Review of postoperative clinic records
- Line list of all readmission with diagnosis (i.e. infection, post-op infection)
- Line list of ED admissions with diagnosis (i.e. infection, post-op infection)
- ICD-10-PCS Discharge/Procedure codes to prompt further review
- Notification between facilities

NOTE: Facilities that have identified potential SSI events that are attributable to procedures performed at a different facility should provide details of the potential event to the facility where the procedure was originally performed.

Key Concept

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.

Key Concept

SSI Event Details

	SSI*	LabID*	VAE*	PedVAE*
Infection Window Period †	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Date of Event				
POA				
HAI				
Repeat Infection Timeframe (RIT)				
Secondary BSI Attribution Period				

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 or 90 day surveillance period for deep or organs 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	OVRY	Ovarian surgery
CEA	Carotid endarterectomy	PRST	Prostate surgery
CHOL	Gallbladder surgery	REC	Rectal surgery
COLD	Colon surgery	SB	Small bowel surgery
CSEC	Cesarean section	SPLE	Spleen surgery
GAST	Gastric surgery	THOR	Thoracic surgery
HPT	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		
CBGS	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		
PVBT	Peripheral vascular bypass surgery		
VOSH	Ventricular shunt		

SSI Event Details

Date of Event (DOE):

- The DOE is the date when the first element used to meet the SSI infection criterion occurs for the first time during the surveillance period.
- The date of event must fall within the SSI surveillance period to meet SSI criteria.
- The type of SSI reported and the DOE assigned must reflect the deepest tissue level where SSI criteria are met during the surveillance period.

Timeframe for SSI elements:

- SSI guidelines do not offer a strict timeframe.
- All elements required to meet an SSI criterion usually occur within a 7- 10 day timeframe and no more than 2-3 days between elements.
- To ensure all elements associate to the SSI, the elements must occur in a relatively tight timeframe.

SSI Event Details

Secondary BSI Attribution Period (SBAP):

- For a bloodstream infection to be deemed secondary to an SSI you must meet the following:
 - 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 SSI criterion and the blood specimen is collected during the SBAP.
 - The SBAP for SSI is a 17 day period that includes the date of the SSI event, 3 days prior, and 13 days after.
 - Scenario 2: Applies only to Organ Space SSI
 - An organism identified in the blood specimen is an element that is used to meet the Organ Space SSI site-specific criterion and is collected during the timeframe for SSI elements.

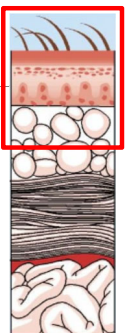
Definitions

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



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**

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)

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 laproscopic trocar site is considered a surgical incision and not a stab wound.
- Cellulitis, by itself, does not meet the criteria for superficial incisional SSI

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 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?

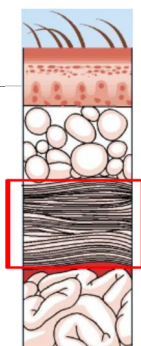
- 11/29 Mr. Wall presents to the Emergency room with purulent drainage from the superficial incision. The wound is cultured and grows MRSA. Patient is given antibiotics and discharged home.

Does the patient meet the superficial SSI definition?

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



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.
- c. 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 superficial incisions SSIs

Deep incisional primary (DIP)

- 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)

Deep 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)

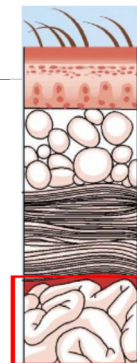
Definitions

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 of suggestive 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

Definitions

Organ/Space SSI Criteria – Site Specific Criteria- Chapter 9 Table 3

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.

Definitions

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

CBGC - Coronary bypass graft with chest incision	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
CEA - Carotid endarterectomy	DIP - Deep Incisional Primary DIS - Deep Incisional Secondary SIP - Superficial Incisional Primary SIS - Superficial Incisional Secondary VASC - Arterial or venous infection
CHOL - Gallbladder surgery	DIP - Deep Incisional Primary GIT - Gastrointestinal tract IAB - Intraabdominal, not specified elsewhere SIP - Superficial Incisional Primary
COLO - Colon surgery	DIP - Deep Incisional Primary GIT - Gastrointestinal tract IAB - Intraabdominal, not specified elsewhere OREP - Deep pelvic tissue infection or other infection of the male or female reproductive tract SIP - Superficial Incisional Primary USI - Urinary System Infection

Multiple tissue levels are involved in the infection: The type of SSI (superficial incisional, deep incisional, or organ/space) reported must reflect the deepest tissue level where SSI criteria are met during the surveillance period.

- Report infection that meets criteria for organ/space SSI as an organ/space SSI, regardless of superficial or deep tissue involvement.
- Report infection that meets criteria for deep incisional SSI as a deep incisional SSI, regardless of superficial tissue involvement.
- If an SSI started as a deep incisional SSI on day 10 of the SSI surveillance period and then a week later (day 17 of the SSI surveillance period) meets criteria for an organ space SSI, the DOE would be the date of the organ/ space SSI.

- Spinal culture grows MRSA

Does this meet for Organ/Space SSI?

If yes, what is the date of the infection?

If yes, what site specific criteria does it meet?

What happens to the superficial SSI picked up on 11/29?

SSI Event FAQ

Clinical Correlation

- Physician documentation of antimicrobial treatment for site specific infection
 - Used with site specific criteria such as IAB and GIT when imaging is equivocal

Other Recognized Cause

- A sign/symptom is eligible for use in meeting the SSI criteria unless there is physician documentation within the medical record that specifically states the sign/symptoms is due to something other than an SSI.
 - Seen in various site specific definitions available for Organ/Space SSI attribution such as the Bone (osteo) definition.

SSI Event FAQ

Gross Anatomical Exam:

- Evidence of infection elicited or visualized on physical examination or observed during an invasive procedure.
- This includes findings elicited on physical examination of a patient and may include findings noted during a medical/invasive procedure, dependent upon the location of the infection as well as the NHSN infection criterion.
- Examples:
 - 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.

NOTE: Imaging test evidence of infection is a unique and separate element from gross anatomic evidence of infection.

SSI Event FAQ

Purulence:

- NHSN does not define purulence
- The descriptors "pus" or "purulence" are sufficient evidence
- Documentation using descriptors such as milky, thick, viscous, creamy, opaque, yellow or green may be acceptable if used in combination with another eligible descriptor.
 - Fluid only described as green, or only described as thick, is not sufficient
 - Fluid described using a combination of these, thick and green, is more representative of purulence.

Note: Gram stain results such as WBCs or PMNs **cannot** be used to define purulence for SSI surveillance purposes.

SSI Event Reporting

SSI Event Reporting Instructions: Chapter 9 page 17

1. Excluded Organisms
2. Attributing SSI to an NHSN operative procedure when there is evidence of infection at the time of the primary surgery
3. **Infection present at time of surgery (PATOS)**
4. Multiple tissue levels are involved in the infection
5. Attributing SSI to a NHSN procedure when several are performed on different dates
6. Attributing SSI to NHSN procedures that involve multiple primary incision sites
7. Attributing SSI to NHSN procedures that have secondary incision sites
8. SSI detected at another facility
9. **SSI attribution after multiple types of NHSN procedures are performed during a single trip to the OR**
10. **SSI following invasive manipulation/accesion of the operative site**
11. Reporting instructions for post-operative infection scenarios

SSI Event Reporting

Present at time of Surgery (PATOS):

- Denotes that there is evidence of an infection visualized (seen) during the surgical procedure to which the subsequent SSI is attributed.
- Must be noted intraoperatively and documented within the **narrative portion** of the operative note or report of surgery.
- 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.
 - For example, a gunshot wound to the abdomen will be a trauma case with a high wound class but there would not have been time for infection to develop.

SSI Event Reporting

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

NOTE: SSI events when PATOS=yes are reportable to NHSN.

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 NHSN 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

Denominator for Procedure Details

American Association of Anesthesiologist' (ASA) Physical Status:

- Patients are assigned an ASA score of 1-6 at the time of surgery.
 - Patients with an ASA of 1-5 are eligible for SSI surveillance
 - Patients with an ASA of 6 are NOT eligible for SSI surveillance

Emergency Operative Procedure:

- A procedure that is documented per the facility's protocol to be an Emergent or Urgent procedure

Height and Weight:

- The patient most recent height and weight documented in the medical record

Denominator for Procedure Details

Diabetes:

- The NHSN SSI surveillance definition of diabetes indicates that the patient has a diagnosis of diabetes requiring management with insulin or a non-insulin anti-diabetic agent. This includes:
 - Patients with "insulin resistance" who are on management with an anti-diabetic agent.
 - Patients with gestational diabetes
 - Patients who are noncompliant with their diabetes medication
- The ICD-10-CM diagnosis codes that reflect the diagnosis of diabetes are also acceptable for use to answer YES to the diabetes field question on the denominator for procedure entry if they are documented during the admission where the procedure is performed.
- The NHSN definition excludes patients with no diagnosis of diabetes.
- The definition also excludes patients who receive insulin for perioperative control of hyperglycemia but have no diagnosis of diabetes.

Denominator for Procedure Details

Duration of Operative Procedure:

- The interval in hours and minutes between the Procedure/Surgery Start Time and the Procedure/Surgery Finish Time.
- Procedure/Surgery Start Time (PST): time when the procedure is begun (e.g., incision)
- Procedure/Surgery finish (PF):
 - time when all instrument and sponge counts are completed and verified as correct,
 - all postoperative radiologic studies to be done in the OR are completed,
 - all dressings and drains are secured, and
 - the physicians/surgeons have completed all procedure-related activities on the patient

Denominator for Procedure Details

General Anesthesia

- 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.
 - The does not include conscious sedation

Wound Class

- An assessment of the degree of contamination of a surgical wound at the time of the operation. Wound class should be assigned by a person involved in the surgical procedure (for example, surgeon, circulating nurse, etc.). The wound class must be applied according to the wound class schema that is adopted within each organization.
 - The found wound classifications available in NHSN are Clean, Clean-Contaminated, Contaminated, and Dirty/Infected
- APPY, BILL, CHOL, COLO, REC, SB and VHYS can never be recorded as clean

Denominator for Procedure Details

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 the date of discharge are the same calendar days

Trauma:

- Blunt or penetrating injury occurring prior to the start of the procedure.
- Scope:
 - An instrument used to visualize the interior of a body cavity or organ. Creation of several small incisions to perform or assist in the performance of an operation. Robotic assistance is considered equivalent to use of a scope for NHSN SSI surveillance

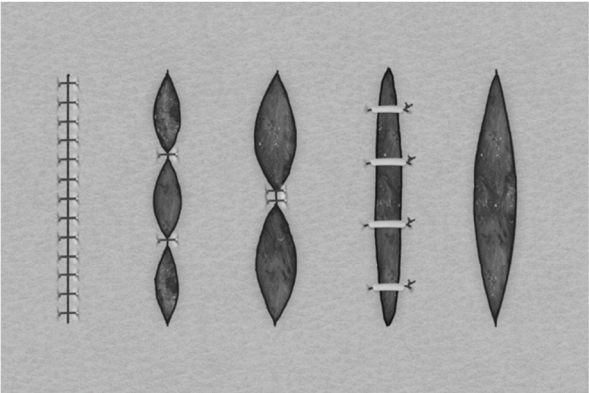
Denominator for Procedure Details

Scope:

- An instrument used to reach and visualize the site of the operative procedure. Involves the creation of several small incisions to perform or assist in the performance of an operation.
- ICD-10-PCS codes can be helpful in answering this scope question. The 5th character indicates the approach to reach the procedure site.

ICD-10 5th Character	Approach	NHSN Scope Designation
0	Open	NO
3	Percutaneous (Included only in CRAN and VSHN categories- procedures with BURR holes)	NO
4	Percutaneous endoscopic	YES
7	Via natural or artificial opening	NO
8	Via natural or artificial opening with endoscopic	NO
F	Via natural or artificial opening with percutaneous endoscopic assistance	YES

Denominator for Procedure



Resources

SSI Surveillance

<https://www.cdc.gov/nhsn/psc/ssi/index.html>

Patient Safety Component Manual

- Chapter 2-Identifying HAI for NHSN Surveillance
- Chapter 9- Surgical Site Infection Event
- Chapter 16-NHSN Key Terms
- Chapter 17- Surveillance Definitions for Specific Types of Infections
- FAQs

Case Studies & Discussion

Case Study #1

- 12/20 - 30yr old male admitted following MVA, CT scan showed moderate hemoperitoneum.
 - Shortly after admission the patient became hemodynamically unstable.
 - Patient was rushed to the OR where the following procedures were performed: splenectomy(SPLE), repair liver laceration (BILI), colon resection with primary anastomosis (COLO), drainage of abdominal wall hematoma
 - Operative note: upon opening the fascia, a large abdominal wall hematoma was encountered. The peritoneum was entered and we encountered a large amount of blood and fecal spillage. Drains were placed in the right and left upper quadrants through separate stab wounds prior to completion fo the case. The midline fascia was closed with running suture and the skin was closed with staples.
- 12/30 – Patient discharged home

Case Study #1

- 1/5 - Patient admitted to a different acute care hospital with abdominal pain and distension. The patient is nauseous, diaphoretic, febrile (T=38.3°C), and hypotensive on arrival.
 - A CT of the abdomen/pelvis reports multiple fluid collections throughout the abdomen, which are suspicious for early abscess formation.
 - Patient taken to the OR for a re-exploration of the abdomen under general anesthesia. Procedures performed: exploratory laparotomy, colon re-anastomosis, abdominal washout, drain placement
 - Operative Note: The abdomen was entered through the prior midline incision. Upon entering the abdominal cavity a large amount of murky fluid consistent with peritonitis was encountered. The abdominal fluid was aspirated and sent for culture.
 - Based on the details of the procedure, the ICD-10-PCS codes map as an NSHN COLO procedure.
 - The abdominal fluid culture resulted positive for *E. coli* and *E. faecium*.

Case Study #1

What SSI criteria would be most appropriate to apply?

- A. Not an SSI
- B. Organ/space SSI – IAB
- C. Organ/space SSI – OREP
- D. Deep incisional SSI

Which procedure is the SSI attributed to?

- A. 12/20 COLO
- B. 12/20 BILI
- C. 12/20 SPLE
- D. 1/5 COLO

Case Study #1

What would you assign PATOS as?

- A. PATOS = Yes
- B. PATOS = No

Which hospital would report the SSI to NHSN, and what designation would be selected in the “Detected” field on the SSI Event form?

- A. Second hospital, A (during admission)
- B. First hospital, P (post-discharge surveillance)
- C. First hospital, RO (readmission to facility other than where procedure was performed)
- D. Second hospital, RF (readmission to facility where procedure performed)

Case Study #2

- 9/1- Patient has a total laparoscopic hysterectomy (HYST).
 - 9/3- Patient discharged to home
 - 9/7- Patient presents to the ER with new abdominal pain
 - CT scan shows pelvic abscess 3 x 2cm.
 - VIR drainage of the abscess is performed and cultures of drainage are sent
 - Drainage culture grows *E.coli*
1. Does this meet for an SSI?
 2. If yes, which type? (superficial, deep, organ/space)
 3. If organ space, which site specific definition does it meet? (OREP, IAB, GIT)

Key Concept

OREP vs. IAB vs. GIT

OREP- Deep pelvic tissue infection or other infection of the male or female reproductive tract (for example, epididymis, testes, prostate, vagina, ovaries, uterus) including chorioamnionitis, but excluding vaginitis, endometritis or vaginal cuff infections

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

GIT-Gastrointestinal tract infection (esophagus, stomach, small and large bowel, and rectum) excluding gastroenteritis, appendicitis, and *C. difficile* infection