SURGICAL SITE INFECTION (SSI)

(Last updated January 1, 2014)

Identifying an HAI: For the purposes of NHSN surveillance in the acute care setting, a healthcare-associated infection (HAI) is a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that was not present on admission to the acute care facility.

> **NOTE:** The HAI definition is NOT to be used in the SSI, VAE or LabID event protocols.

An NHSN operative procedure is a procedure:

- That is included in the table titled "NHSN Operative Procedure Category Mappings to ICD-9-CM and CPT Codes"*

AND

- Takes place during an operation where at least **ONE** Δ of the following:
  - Δ incision (including laparoscopic approach) is made through the skin or mucous membrane
  - Δ reoperation via an incision that was left open during a prior operative procedure

AND

- Takes place in an operation room [OR] **

> * See pages 9-3 through 9-7 of January 2014 NHSN Patient Safety Manual – Procedure Associated Events component. NHSN will provide updates as needed concerning the transition from ICD-9-CM to ICD-1- procedure coding.

> ** 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 removed. This may include an operating room, C-section room, interventional radiology room, or a cardiac catheterization lab.

Exclusions: Otherwise eligible procedures that are assigned an ASA score of 6 are not eligible for NHSN SSI surveillance.

> **NOTE:**
> - ***As a 2014, incisional closure is NO LONGER a part of the NHSN operative procedure definition; all otherwise eligible procedures are included, regardless of closure type.***
> - For a complete list of all ICD-9-CM codes mapped to their assignment as an NHSN operative procedure category, a surgical procedure other than an NHSN operative procedure (OTH), or a non-operative procedure (NO), see ICD-9-CM Procedure Code Mapping to NHSN Operative Procedure Categories on pages 9-3 through 9-7 of the SSI Event portion of the Patient Safety Protocol or at http://www.cdc.gov/nhsn/XLS/ICD-9-cmCODEScurrent.xlsx).

Date of Event: For an SSI the date of vent is the date when the last element used to meet the SSI infection criterion occurred. Synonym: infection date.

Diabetes: The NHSN, SSI surveillance definition of diabetes indicates that the patient has a diagnosis of diabetes requiring management with insulin or non-insulin anti-diabetic agent. This includes patients with "insulin resistance" who are on management with anti-diabetic agents. This also includes patients with a diagnosis of diabetes who are noncompliant with their diabetes medications. The NHSN definition excludes patients with no diagnosis of diabetes, or a diagnosis of diabetes that is controlled by diet alone. The definition excludes patients who receive insulin for perioperative control of hyperglycemia but have no diagnosis of diabetes.

NOTE: Interim guidance (December 2013 NHSN newsletter) for reporting of diabetes is as follows:

Diabetes (Y/N):
The diabetes data field calls for a Yes/No data entry depending on whether the patient is a diagnosed diabetic on the basis of documentation in the medical record regarding diabetes management, either insulin or oral anti-diabetic agent(s). Indicate Y if 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. This also includes patients with a diagnosis of diabetes requiring management with an anti-diabetic agent, but who are noted to be non-compliant with their prescribed medications. Indicate N if the patient has no known diagnosis of diabetes, or a diagnosis of diabetes that is controlled by diet alone. Also indicate N if the patient receives insulin for perioperative control of hyperglycemia but has no diagnosis of diabetes.

Information about a patient's diabetes status should be routinely available in the admission H&P, preoperative patient evaluation, and other hospital records. However, we are aware that in many facilities the diabetes status may not be a standard element in the perioperative record. The interim method for data entry by NHSN users who lack time or resources to capture this information in 2014 is as follows: default to "N" value for all patients until a system is in place to identify and report this information. The diabetes field, with "Y" or "N" data entries in accordance with the NHSN protocol, will be required for all NHSN users beginning in 2015.

Duration of operative procedure: The interval in hours and minutes between the Procedure/Surgery Start Time, and the Procedure/Surgery Finish Time, as defined by the Association of Anesthesia Clinical Directors (AACD):

- Procedure/Surgery Start Time (PST): Time when the procedure is begun (e.g., incision for a surgical procedure).
- 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.

Emergency operative procedure: A nonelective, unscheduled operative procedure. Emergency operative procedures are those that do not allow for the standard immediate preoperative preparation normally done within the facility for a scheduled operation (e.g., stable vital signs, adequate antiseptic skin preparation, colon decontamination in advance of colon surgery, etc.).

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

Height: The patient's most recent height documented in the medical record in feet (ft) and inches (in), or meters (m).

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

NHSN Outpatient: A patient whose date of admission to the healthcare facility and date of discharge are the same calendar day.

Non-Primary Closure: is defined as closure that is other than primary and includes surgeries in which the superficial layers are left completely open during the original surgery and therefore cannot be classified as having primary closure. For surgeries with non-primary closure, the deep tissue layers may be closed by some means (with superficial layers left open), or the deep and superficial layers may both be left completely open. An example of a surgery with non-primary closure would be a laparotomy in which the incision was closed to the level of the deep tissue layers, sometimes called "fascial layers" or "deep fascia", but the superficial layers are left open. Another example would be an "open abdomen" case in which the abdomen is left completely open after the surgery. If the deep fascial levels of an incision are left open but the skin is closed, this is considered a non-primary closure since the incision was not closed at all tissue levels. Wounds that are "closed secondarily" at some later date, or described as "healing by secondary intention" should also be classified as having non-primary closure. Wounds with non-primary closure may or may not be described as "packed" with gauze or other material, and may or may not be covered with plastic, "wound vacs", or other synthetic devices or materials.

> **NOTE:** Assign the surgical wound closure that applies when the patient leaves the OR from the principal operative procedure. This instruction should be followed in scenarios where a patient leaves the OR with non-primary closure, but returns to the OR for a subsequent procedure that results in primary closure of the procedure.

+Primary closure is defined as closure of all tissue levels during the original surgery, regardless of the presence of wires, wicks, drains, or other devices or objects extruding through the incision. This category includes surgeries where the skin is closed by some means, including incisions that are described as being "loosely closed" at the skin level. Thus, if any portion of the incision is closed at the skin level, by any manner, a designation of primary closure should be assigned to the surgery.

> **NOTE:** Assign the surgical wound closure that applies when the patient leaves the OR from the principal operative procedure. This instruction should be followed in scenarios where a patient leaves the OR with non-primary closure, but returns to the OR for a subsequent procedure that results in primary closure of the procedure.

Scope: An instrument used to visualize the interior of a body cavity or organ. In the context of an NHSN operative procedure, use of a scope involves creation of several small incisions to perform or assist in the performance of an operation rather than use of a traditional larger incision (i.e., open approach). Robotic assistance is considered equivalent to use of a scope for NHSN SSI surveillance. See also Instructions for Completion of *Denominator for Procedure* Form and both Numerator Data and Denominator Data reporting instructions in the NHSN Patient Safety Manual.

Trauma: Blunt or penetrating injury.

Weight: The patient's most recent weight documented in the medical record in pounds (lbs.) or kilograms (kg) prior to or otherwise closest to the procedure.

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, e.g., surgeon, circulating nurse, etc. The wound class system used in NHSN is an adaptation of the American College of Surgeons wound classification schema. Wounds are divided into four classes:

***Clean*:** An uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital, or uninfected urinary tracts are not entered. In addition, clean wounds are primarily closed and, if necessary, drained with closed drainage. Operative incisional wounds that follow nonpenetrating (blunt) trauma should be included in this category if they meet the criteria.

> **NOTE:** The clean wound classification level will not be available for denominator data entry for the following NHSN operative procedure categories: APPY, BILI, CHOL, COLO, REC, SB, and VHYS.

***Clean-Contaminated*:** Operative wounds in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina, and oropharynx are included in this category, provided no evidence of infection or major break in technique is encountered

***Contaminated*:** Open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (e.g., open cardiac massage) or gross spillage from the gastrointestinal tract, and incisions in which acute, nonpurulent inflammation is encountered including necrotic tissue without evidence of purulent drainage (e.g., dry gangrene) are included in this category.

***Dirty or Infected*:** Includes old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

ASA physical status: Assessment by the anesthesiologist of the patient's preoperative physical condition using the American Society of Anesthesiologists' (ASA) Classification of Physical Status. Patient is assigned one of the following:

1. A normally healthy patient
2. A patient with mild systemic disease
3. A patient with severe systemic disease
4. A patient with severe systemic disease that is a constant threat to life
5. A moribund patient who is not expected to survive without the operation.

> **NOTE:** Do NOT report procedures with an ASA physical status of 6 (a declared brain-dead patient whose organs are being removed for donor purposes) to NHSN.

SUP INC – Superficial Incisional Surgical Site Infection

(Last updated January 1, 2014)

DEFINITION: A superficial incisional SSI must meet the following criterion:

☐ **Criterion 1:**

- Infection occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure day), including those coded as 'OTH'*

AND

- Infection involves only skin and subcutaneous tissue of the incision

AND

- Patient has at least **ONE** Δ of the following:
  - Δ purulent drainage from the superficial incision
  - Δ organisms isolated from an aseptically-obtained culture of **ONE** ☐ of the following:
    - ☐ fluid from the superficial incision
    - ☐ tissue from the superficial incision
  - Δ must meet **THREE** ☐ occurrences:
    - ☐ superficial incision is deliberately opened by surgeon, attending physician** or other designee
    - ☐ must meet **ONE** ○ of the following:
      - ○ is culture positive
      - ○ not cultured

NOTE: *A culture-negative finding does not meet this criterion*

- ☐ patient has at least **ONE** ○ of the following signs or symptoms of infection:
  - ○ pain or tenderness
  - ○ localized swelling
  - ○ redness
  - ○ heat
- Δ diagnosis of superficial incisional SSI by the surgeon or attending physician** or other designee (see reporting instructions)

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

** The term attending physician for the purposes of application of the NHSN SSI criteria maybe interpreted to mean the surgeon(s), infectious disease, other physician on the case, emergency physician or physician's designee (nurse practitioner or physician's assistant).

COMMENTS:

There are two specific types of superficial incisional SSIs:

1. 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 (e.g., C-section incision or chest incision for CBGB)
2. Superficial Incisional Secondary (SIS) – a superficial incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site incision for CBGB)

REPORTING INSTRUCTIONS: ***(Last updated January 1, 2014)***

The following do not qualify as criteria for meeting the NHSN definition of superficial SSI:

- A stitch abscess alone (minimal inflammation and discharge confined to the points of suture penetration)
- A localized stab wound or pin site infection. While it would be considered either a skin (SKIN) or soft tissue (ST) infection, depending on its depth, it is not reportable under this module.
- Diagnosis of "cellulitis", by itself, does not meet the **LAST** Δ criteria for Superficial Incisional SSI.
- Circumcision is not an NHSN operative procedure. An infected circumcision site in newborns is classified as CIRC and is not reportable under this module.
- An infected burn wound is classified as a BURN and is not reportable under this module.

DEEP INC– Deep incisional surgical site infection

(Last updated January 1, 2014)

DEFINITION: A deep incisional SSI must meet the following criteria:

☐ **Criterion 1**:

- Patient has **ONE** Δ of the following:
  - Δ infection occurs within **30 days** after the NHSN operative procedure (where day 1 = the procedure day) according to the "30-day Surveillance" portion of the table below titled "Surveillance Period for Deep Incisional or Organ/Space SSI Following Selected NHSN Operative Procedure Categories"
  - Δ infection occurs within **90 days** after the NHSN operative procedure (where day 1 = the procedure day) according to the "90-day Surveillance" portion of the table below titled "Surveillance Period for Deep Incisional or Organ/Space SSI Following Selected NHSN Operative Procedure Categories"

AND

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

AND

- Patient has at least **ONE** Δ of the following:

Δ purulent drainage from the deep incision

Δ must meet **ALL** ☐ of the following:

☐ choose **ONE** ○ of the following:

○ a deep incision spontaneously dehisces

○ a deep incision deliberately opened by a surgeon, attending physician** or other designee

** The term attending physician for the purposes of application of the NHSN SSI criteria maybe interpreted to mean the surgeon(s), infectious disease, other physician on the case, emergency physician or physician's designee (nurse practitioner or physician's assistant).

☐ choose **ONE** ○ of the following:

○ is culture-positive

○ not cultured

NOTE: *A culture-negative finding does not meet this criterion*

☐ has at least **ONE** ○ of the following signs or symptoms:

○ fever (>38˚C)

○ localized pain or tenderness

Δ choose **ONE** ☐ of the following:

☐ an abscess involving the deep incision that is detected during **ONE** ○ of the following:

○ on direct examination

○ during invasive procedure

○ by histopathologic examination or by imaging test

☐ other evidence of infection involving the deep incision that is found during **ONE** ○ of the following:

○ on direct examination

○ during invasive procedure

○ by histopathologic examination or by imaging test

COMMENTS:

There are two specific types of deep incisional SSIs:

1. Deep Incisional Primary (DIP) – a deep incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (e.g., C-section incision or chest incision for CBGB)

2. Deep Incisional Secondary (DIS) – a deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site incision for CBGB)

ORGAN/SPACE – Organ/Space Surgical Site Infection

(Last updated January 1, 2014)

DEFINITION: An organ/space SSI must meet the following criteria:

☐ **Criterion 1:**

- Patient has **ONE** Δ of the following:
  - Δ infection occurs within **30 days** after the NHSN operative procedure (where day 1 = the procedure date) according to the "30-day Surveillance" portion of the table below titled "Surveillance Period for Deep Incisional or Organ/Space SSI Following selected NHSN Operative Procedure Categories"
  - Δ infection occurs within **90 days** after the NHSN operative procedure (where day 1 = the procedure date) according to the "90-day Surveillance" portion of the table below titled "Surveillance Period for Deep Incisional or Organ/Space SSI Following selected NHSN Operative Procedure Categories"

AND

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

AND

- Patient has at least **ONE** Δ of the following:
  - Δ purulent drainage from a drain that is placed into the organ/space
  - Δ organisms isolated from an aseptically obtained culture of **ONE** ☐ of the following:
    - ☐ fluid in the organ/space
    - ☐ tissue in the organ/space
  - Δ choose **ONE** ☐ of the following:
    - ☐ an abscess detected during **ONE** ○ of the following:
      - ○ on direct examination
      - ○ during invasive procedure
      - ○ by histopathologic examination or by imaging test
    - ☐ other evidence of infection involving the organ/space is detected during **ONE** ○ of the following:
      - ○ on direct examination

- during invasive procedure
- by histopathologic examination or by imaging test

AND

- Patient meets at least one of the criterion for a specific organ/space infection site listed in the table *titled "Specific Sites of an Organ/Space SSI"* (found towards the end of this checklist)

COMMENTS:

Because an organ/space SSI involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure, the criterion for infection at these body sites must be met in addition to the organ/space SSI criteria. For example, an appendectomy with subsequent subdiaphragmatic abscess would be reported as an organ/space SSI at the intraabdominal specific site (SSI-IAB) when both organ/space SSI and IAB criteria are met. The table titled *"Specific Sites of an Organ/Space SSI"* lists the specific sites that must be used to differentiate organ/space SSI. These criteria can be found in the Surveillance Definitions chapter of the 2014 NHSN Patient Safety Manual or the corresponding checklist.

REPORTING INSTRUCTIONS: ***(Last updated January 1, 2014)***

- If a patient has an infection in the organ/space being operated on, subsequent continuation of this infection type during the remainder of the surveillance period is considered an organ/space SSI, if organ/space SSI and site-specific infection criteria are met.
- Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as SSI-MED rather than SSI-BONE.
- If meningitis (MEN) and a brain abscess (IC) are present together after operation, report as SSI-IC. Similarly, if meningitis and spinal abscess (SA) are resent together after an operation, report as SSI-SA.
- Report CSF shunt infection as SSI-MEN if it occurs within 90 days of placement; if later or after manipulation/access, it is considered CNS-MEN and is not reportable under this module.

SURGICAL SITE INFECTION (SSI)

Surveillance Period for Deep Incisional or Organ/Space SSI Following Selected NHSN Operative Procedure Categories. Day 1= the date of the procedure. ***(Last updated January 1, 2014)***

NOTE: *Superficial incisional SSIs are only followed for a 30-day period for all procedure types.*

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

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

Specific sites of an organ/space SSI. ***(Last updated July 1, 2014)***

Criteria for these sites can be found in the NHSN Help System (must be logged in to NHSN), in the Surveillance Definitions chapter of the 2014 NHSN Patient Safety Manual, or corresponding checklist.

Code	Site
BONE	Osteomyelitis
BRST	Breast abscess or mastitis
CARD	Myocarditis or pericarditis
DISC	Disc space
EAR	Ear, mastoid
EMET	Endometritis
ENDO	Endocarditis
EYE	Eye, other than conjunctivitis
GIT	GI tract
HEP	Hepatitis
IAB	Intraabdominal, not specified else-where
IC	Intracranial, brain abscess or dura
JNT	Joint or bursa

Code	Site
LUNG	Other infections of the respiratory tract
MED	Mediastinitis
MEN	Meningitis or ventriculitis
ORAL	Oral cavity (mouth, tongue, or gums)
OREP	Other infections of the male or female reproductive tract
OUTI	Other infections of the urinary tract
PJI	Perprosthetic Joint Infection
SA	Spinal abscess without meningitis
SINU	Sinusitis
UR	Upper respiratory tract
VASC	Arterial or venous infection
VCUF	Vaginal cuff

SSI EVENT REPORTING INSTRUCTIONS: ***(Last updated January 1, 2014)***

1. **Multiple tissue levels are involved in the infection:** The type of SSI (superficial incisional, deep incisional, or organ/space) reported should reflect the deepest tissue layer involved in the infection:
   a) Report infection that involves the organ/space as an organ/space SSI, whether or not it also involves the superficial or deep incision sites.
   b) Report infection that involves the superficial and deep incisional sites as a deep incisional SSI.
2. **Attributing SSI to a procedure when several are performed on different dates:** If a patient has several NHSN operative procedures performed on different dates prior to an infection, report the operative procedure code of the operation that was performed most closely in time prior to the infection date, unless there is evidence that the infection was associated with a different operation.

> ***NOTE:*** *for multiple NHSN operative procedures performed within a 24 hour period, see the "Denominator Reporting Instruction" 7.*

3. **Attributing SSI NHSN procedures that involve multiple primary incision sites:** If multiple primary incision sites of the same NHSN operative procedure become infected, only report as a single SSI, and assign the type of SSI (superficial incisional, deep incisional, or organ/space) that represents the deepest tissue level involved at any of the infected sites. For example:

a) If one laparoscopic incision meets criteria for a superficial incisional SSI and another meets the criteria for a deep incisional SSI, only report one deep incisional SSI.
b) If one or more laparoscopic incision sites meets criteria for superficial incisional SSI but the patient also has an organ/space SSI related to the laparoscopic procedure, only report one organ/space SSI.
c) If an operative procedure is limited to a single breast and involves multiple incisions in that breast that becomes infected, only report a single SSI.
d) In a colostomy formation or removal (take down) procedure, the stoma and other abdominal incision sites are considered primary incisions. If both the stoma and another abdominal incision develop superficial incisional SSI, report only as one SSI (SIP).

4. **Attributing SSI to NHSN procedures that that have secondary incisions sites:** Certain procedures can involve secondary incisions, when applicable including BRST, CBGB, CEA, FUSN, REC, PVBY, RFUSN. The superficial incisional and deep incisional SSI surveillance periods for any secondary incision site are 30 days, regardless of the required deep incisional or organ/space SSI surveillance period for the primary incision site(s) (see table above titled "Surveillance Period for Deep Incisional or Organ/Space SSI Following Selected NHSN Operative Procedure Categories"). Procedures meeting this designation are reported as only one operative procedure. For example:
   a) A saphenous vein harvest incision in a CBGB procedure is considered the secondary incision. One CBGB procedure is reported, the saphenous vein harvest site is monitored for 30 days after surgery for SSI, and the chest incision is monitored for 90 days.
   b) A tissue harvest site (e.g., Transverse Rectus Abdominis Myocutaneous [TRAM] flap) in a BRST procedure is considered the secondary incision site. One BRST procedure is reported, and if the secondary incision gets infected, reported as either SIS or DIS as appropriate.
5. **SSI detected at another facility:** It is required that if an SSI is detected at a facility other than the one in which the operation was performed, notify the IP of the index facility with enough detail so the infection can be reported to NHSN. When reporting the SSI, the index facility should indicate that Detected = RO.
6. **SSI attribution after surgical multiple types of NHSN procedures are performed during a single trip to the OR:** If more than one NHSN operative procedure category was performed through a single incision during a single trip to the operating room, attribute the SSI to the procedure that is thought to be associated with the infection. If it is not clear, as is often the case when the infection is a superficial incisional SSI, use the NHSN Principal Operative Procedure Category Selection Lists (found towards the end of this checklist) to select the operative procedure to which the SSI should be attributed. For example, if a patient develops SSI after a single trip to the OR in which both a COLO and SB were performed, and the source of the SSI is not apparent, assign the SSI to the COLO procedure.
7. **SSI following manipulation/accession of the operative site**: If during the post-operative period the surgical site has an invasive manipulation/accession for diagnostic or therapeutic purposes (e.g., needle aspiration), and following this manipulation/accession an SSI develops, the infection is not attributed to the operation. This reporting instruction does NOT apply to closed manipulation (e.g., closed reduction of a dislocated hip after an orthopedic procedure).

Invasive manipulation does not include wound packing, or changing of wound packing materials as part of operative care.

8. **Reporting instructions for specific post-operative infection scenarios:**

   As of 2014, an SSI that otherwise meets the NHSN definitions should be reported to NHSN without regard to postoperative accidents, falls, inappropriate showering or bathing practices, or other occurrences that may or may not be attributable to patients' intentional or unintentional postoperative actions. Also, SSI should also be reported regardless of the presence of certain skin conditions (e.g., dermatitis, blister, impetigo) that occur near an incision and regardless of the possible occurrence of a "seeding" event from an unrelated procedure (e.g., dental work). This revised instruction concerning various postoperative circumstances is necessary to reduce subjectivity and data collection burden associated with because the previously exempted scenarios.

NHSN Principal Operative Procedure Category Selection Lists: *(Last updated January 1, 2014)*

The following lists are derived from the operative procedures listed in the NHSN Operative Procedure Category Mappings to ICD-9-CM Codes and CPT Codes table. The categories with the highest risk of SSI are listed before those with lower risks

Priority	Code	Abdominal Operations
1	LTP	Liver transplant
2	COLO	Colon surgery
3	BILI	Bile duct, liver or pancreatic surgery
4	SB	Small bowel surgery
5	REC	Rectal surgery
6	KTP	Kidney transplant
7	GAST	Gastric surgery
8	AAA	Abdominal aortic aneurysm repair
9	HYST	Abdominal hysterectomy
10	CSEC	Cesarean section
11	XLAP	Laparotomy
12	APPY	Appendix surgery
13	HER	Herniorrhaphy
14	NEPH	Kidney surgery
15	VHYS	Vaginal Hysterectomy
16	SPLE	Spleen surgery
17	CHOL	Gall bladder surgery
18	OVRY	Ovarian surgery
Priority	**Code**	**Thoracic Operations**
1	HTP	Heart transplant
2	CBGB	Coronary artery bypass graft with donor incision(s)
3	CBGC	Coronary artery bypass graft, chest incision only
4	CARD	Cardiac surgery
5	THOR	Thoracic surgery
Priority	**Code**	**Neurosurgical (Brain/Spine) Operations**
1	VSHN	Ventricular shunt
2	RFUSN	Refusion of spine
3	CRAN	Craniotomy
4	FUSN	Spinal fusion
5	LAM	Laminectomy
Priority	**Code**	**Neck Operations**
1	NECK	Neck surgery
2	THYR	Thyroid and or parathyroid surgery

SURGICAL SITE INFECTION (SSI)

DENOMINATOR REPORTING INSTRUCTIONS: ***(Last updated January 1, 2014)***

1. **Closure type**: As of 2014, incisional closure is NO LONGER a part of the NHSN operative procedure definition; all otherwise eligible procedures are included in the denominator reporting, regardless of closure type. The closure technique is entered for each denominator for procedure. Note: See December 2013 NHSN newsletter for interim reporting guidance.

NOTE: Interim guidance (December 2013 NHSN newsletter) for reporting of wound closure is as follows:

Incisional Closure Type:

- **Primary Closure** is defined as closure of all tissue levels during the original surgery, regardless of the presence of wires, wicks, drains, or other devices or objects extruding through the incision. This category includes surgeries where the skin is closed by some means, including incisions that are described as being "loosely closed" at the skin level. Thus, if any portion of the incision is closed at the skin level, by any manner, a designation of primary closure should be assigned to the surgery.
- **Non-primary Closure** is defined as closure that is other than primary and includes surgeries in which the superficial layers are left completely open during the original surgery and therefore cannot be classified as having primary closure. For surgeries with non-primary closure, the deep tissue layers may be closed by some means (with the superficial layers left open), or the deep and superficial layers may both be left completely open. *The NHSN protocol includes numerous examples; but in short, anything not meeting the definition of primary closure is by default non-primary closure.*

Information about a patient's incisional closure type should be available in the operative report. However, we are aware that in many facilities the incisional closure type may not be a standard element in the perioperative record. The interim method for data entry by NHSN users who lack time or resources to capture this information in 2014 is as follows: continue to report the procedure denominators exactly as you were doing for 2013. Further, we ask that for each SSI identified, a thorough evaluation be conducted to determine if the linked procedure was a primary closure or non-primary closure and update the procedure record (as non-primary closure) if necessary. From feedback we have gathered, this is likely the method most similar to the current practice, which has not been accurately removing all non-primarily closed procedures, but will at least allow NHSN to identify the SSIs linked to primarily closed procedures. We anticipate that this will not cause any large shift in the 2014 data used for inter-facility comparison.

Note: We are aware that some clinicians disagree with the NHSN definition of primary closure, as relates to loosely or partially closed incisions in unusual scenarios (e.g., the skin is only approximated at a single point or several points in an otherwise open incision). We contemplated such scenarios when crafting the definition and it was not feasible to write a surveillance definition that could be standardly applied that would account for the potentially limitless variety of closure techniques under actual use in clinical practice. In essence, NHSN is not going to attempt to define "how closed is closed." NHSN has closely adapted the American College of Surgeons, NSQIP definition of primary closure. Please keep in mind that for risk adjustment purposes, the emergency status of the procedure, wound classification, and other patient factors will still be taken into account, as appropriate.

2. **Wound class**: A wound class is not an exclusion for denominator reporting. If the procedure meets the definition of an NHSN operative procedure it should be reported in the denominator data regardless of wound class. NHSN will use the wound class for risk adjustment, as appropriate.
3. **Different operative procedure categories performed during same trip to the OR:** If procedures in more than one NHSN operative procedure category are performed during the same trip to the operating room through the same or different incisions, a *Denominator for Procedure* form is reported for each NHSN operative procedure category being monitored. For example, if a CARD and CBGC are done through the same incision, a *Denominator for Procedure* form is reported for each. In another example, if following a motor vehicle accident, a patient has an open reduction of fracture (FX) and splenectomy (SPLE) performed during the same trip to the operating room and both procedure categories are being monitored, complete a *Denominator for Procedure* form for each.

> ***EXCEPTION:***
> If a patient has both a CBGC and CBGB during the same trip to the operating room, report only as a CBGB. Only report as a CBGC when there is a chest incision only. CBGB and CBGC are never reported for the same patient for the same trip to the operating room. The time from chest incision to chest primary closure is reported as the duration of the procedure.

4. **Duration of the procedure when more than one category of NHSN operative procedure is done through the same incision:** If more than one NHSN operative procedure category is performed through the same incision during the same trip to the operating room, record the combined duration of all procedures, which is the time from procedure/surgery start time to procedure/surgery finish time. For example, if a CBGC and a CARD are performed on a patient during the same trip to the operating room, the time from skin incision to primary closure is reported for both operative procedures.
5. **Same operative procedure category but different ICD-9-CM codes during same trip to the OR:** If procedures of different ICD-9-CM codes from the same NHSN operative procedure category are performed through the same incision, record only one procedure for that category. For example, a facility is performing surveillance for CARD procedures. A patient undergoes a replacement of both the mitral and tricuspid valves (35.23 and 35.27, both CARD) during the same trip to the operating room. Complete one CARD *Denominator for Procedure* form because ICD-9-CM codes 35.23 and 35.27 fall in the same operative procedure category [CARD] (see table titled "NHSN Operative Procedure Category Mappings to ICD-9-CM and CPT Codes" found on pages 9-3 through 9-7 of the July 2014 NHSN Patient Safety Manual – Procedure Associated Events component).
6. **Bilateral procedures:** For operative procedures that can be performed bilaterally during same trip to operating room (e.g., KPRO, HPRO, BRST), two separate *Denominator for Procedure* forms are completed. To document the duration of the procedures, indicate the procedure/surgery start time to procedure/surgery finish time for each procedure separately or, alternatively, take the total time for both procedures and split it evenly between the two.
7. **More than one operative procedure through same incision within 24 hours:** If a patient goes to the operating room more than once during the same admission and another procedure of the same or different NHSN procedure category is performed through the same incision within 24 hours of the end of the finish time of the original operative incision, report only one

Denominator for Procedure form for the original procedure, combining the durations for both procedures based on the procedure start times and finish times for both procedures. For example, a patient has a CBGB lasting 4 hours. He returns to the OR six hours later to correct a bleeding vessel (OTH). The second operation has duration of 1.5 hours. Record the operative procedure as one CBGB and the duration of operation as 5 hour 30 minutes. If the wound class has changed, report the higher wound class. If the ASA class has changed, report the higher ASA class. Do not report an 'OTH' record.

8. **Patient expires in the OR:** If a patient expires in the operating room, do not complete a *Denominator for Procedure* form. This operative procedure is excluded from the denominator.
9. **Laparoscopic Hysterectomy – HYST or VHYS:** When assigning the correct ICD-9-CM hysterectomy procedure code, a trained coder must determine what structures were detached and how they were detached based on the medical record documentation. The code assignment is based on the surgical technique or approach used for the detachment of those structures, not on the location of where the structures were physically removed from the patient's body. Therefore, a total laparoscopic HYST procedure will have detachment of the entire uterus and cervix from the surrounding supporting structures via the laparoscopic technique. A laparoscopically-assisted VHYS involves detachment of the uterus and upper supporting structures via laparoscope but the lower supporting structures and cervix are detached via vaginal incision.
10. **Incidental appendectomy – reporting instruction change:** An appendectomy (APPY) should be reported regardless of whether it is incidental.
11. **XLAP – reporting instruction change:** Any exploratory laparotomy (XLAP) should be reported regardless of whether it results in a procedure from another category being performed.

Patient Safety Component Protocol FAQs: ***(Last updated October 31, 2012)***

- **Robotic Surgeries:**
  Are robotic surgeries included in NHSN operative procedure categories?

  Yes, robotic surgeries are included in NHSN operative procedure categories. The procedure codes identified in Table 1 NHSN Operative Procedure Category Mapping to ICD-9_CM and CPT codes (found on pages 9-3 through 9-7 of the Procedure Associated Event component) are the most current final determination of the inclusion of a surgical procedure (http://www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf).

- **Pediatric Operative Procedures:**
  What kind of pediatric surgeries are followed in NHSN?

  NHSN Operative Procedure categories include procedures performed on patients of all ages. If a facility is monitoring SSI "in plan", it will need to monitor and report SSIs in ALL patients undergoing the NHSN Operative Procedure category, not just the pediatric patients. By stratifying by date of birth in the analysis features of NHSN, it is possible to analyze SSI trends in pediatric patients only.

- **Percutaneous Procedures:**
  The NHSN operative procedure category CARD includes ICD-9-CM code 37.25, cardiac biopsy .Should cardiac biopsies that are performed percutaneously be included in surveillance of SSIs in the NHSN operative procedures category of CARD?

  ICD-9-CM codes are developed by the ICD-9-CM Coordination and Maintenance Committee of the Centers for Medicare and Medicaid Services. Some include more than one specific surgical technique. Such is true for 37.25. Even though this ICD-9-CM code includes both open and percutaneously performed cardiac biopsies, procedures performed percutaneously do not meet the definition of an NHSN operative procedure because there is no incision. Therefore, such procedures should not be included in the denominators for CARD SSI rates, and any associated postoperative infections should not be reported as SSIs.

  NOTE: Such an infection may be a healthcare-associated infection (HAI), but it cannot be an SSI. Cardiac biopsies codes as ICD-9-CM code 37.25 but performed through an open incision should continue to be included in the surveillance of CARD SSIs.

- **C-Section:**
  Is a C-section a clean-contaminated wound class if the amniotic membranes were ruptured prior to surgery?

  Because C-sections involve entry into the genital tract, even uneventful C-sections are considered clean-contaminated operations. Uneventful C-section in the case of prolonged membrane rupture but without evidence of chorioamnionitis would be clean-contaminated surgical wound. If chorioamnionitis was encountered during a C-section, such a case would be classifies as dirty-infected surgical wound. There are no parameters associated with length of membrane rupture before delivery to determine wound class.

- **Non-NHSN Operative Procedures:**
  Can I follow operative procedures if the ICD-9codes are not listed in Table 1, Operative Procedures Category Mappings to ICD-9-CM Codes and CPT Codes in the SSI Chapter (http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSIcurrent.pdf)?

  Other surgical procedures may be monitored for SSI utilizing NHSN, however, this surveillance will need to be completed “off plan”. This means that the procedure will not appear in the facility’s NHSN monthly reporting plan and the data reported will not be utilized by NHSN for analysis purposes. Performing surveillance for these procedures will require the facility to create a custom procedure within NHSN. Guidance on how to do this is provided by clicking on the Help icon within NHSN and tying “custom procedure” in the search box.

- **Infection Meeting Criteria for an SSI As Well As an Infection at Another Site:**
  If a post-operative patient develops an infection which meets criteria for an SSI, but an infection was present in another site also, does this have to be reported as an SSI? An example is a patient status/post HPRO who has a UTI and develops a deep incisional SSI with the same organism causing a UTI.

  Yes, patients can have more than one infection at a time (i.e. an SSI and a CAUTI). The exception is a bloodstream infection (BSI). When a positive blood culture is found at the same time there is another infection present, be sure to confirm that the blood is not secondary to the other infection. Only primary BSIs are reported as BSIs to NHSN. Appendix 1 Secondary BSI Guide, found in the CLABSI Event chapter of the NHSN manual provides directions on

distinguishing between primary and secondary BSIs (http://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf).

- **Pin-Site Infections:**
  Are pin-site infections considered SSIs?

  No. Pin-site infections are not considered NHSN SSIs. However, depending on the symptoms present, they may meet the criteria for a Skin or Soft Tissue Infection (SST) if a facility monitors for these types of infections.

- **Laminectomy Procedure:**
  Could you please clarify whether laminectomies must be included in LAMI SSI surveillance if they are performed as "prep" for the spinal fusion?

  When a laminectomy is used solely as the approach for a spinal fusion procedure, a separate Denominator for Procedure record for the laminectomy should NOT be entered/imported into NHSN. This is true even when laminectomy is being monitored in the Monthly Reporting Plan for that month. This reflects a medical coding rule, not an NHSN protocol rule.

- **Joint Replacement Procedures:**
  What is the difference between total and partial joint replacement?

  A total joint replacement involves replacing both articulating surfaces of the joint. A partial includes replacing only one.

- **Primary vs. Revision:**
  What is the difference between primary and revision joint arthroplasties?

  A primary joint replacement is the initial replacement of any of the articulating surfaces in a joint. A revision joint replacement is any replacement of articulating surfaces after the primary replacement.

- **Anastomotic Leak:**
  Is an intraabdominal infection that develops secondary to an anastomotic leak a complication of surgery, or a Surgical Site Infection (SSI)?

  Both. An anastomotic leak may contribute to the development of an infection, but without surgery, there would not have been an anastomotic leak. If the patient meets the SSI criteria it must be reported as such.

- **Hematoma:**
  Is an "infected hematoma" in a postoperative wound an SSI?

  The fact that wounds can be labeled in various ways by different physicians is the reason that criteria rather than labels or diagnoses are used for determination of healthcare-associated infections in NHSN. If a wound described as an infected hematoma meets an SSI criterion, it must be so reported, even if the physician disagrees. Please check the criteria.

- **Dirty/Infected Surgical Procedures:**
  1) *Can a patient develop a surgical site infection per NHSN definitions following a dirty/infected procedure or would such an infection be considered present or incubating on admission or at the time of surgery? If so, must such an SSI be reported to NHSN for participation in the CMS Inpatient Prospective Payment System (IPPS) program?*

Yes, if the wound was closed primarily, a patient can develop an SSI following a dirty/infected procedure and the SSI must be reported to NHSN. A wound classification of dirty/infected assigned to such a case is the marker that an infection was incubating or present at the time of the operation, and this factor is taken into account through risk adjustment techniques. Essentially, more SSIs are expected to occur in such situations and this is taken into account. Further, because NHSN only includes operations which are closed primarily, and because there are surgical options other than primary closure available when infection or gross contamination of the operative wound is encountered (e.g., leave incision open, use a wound vac, etc.), subsequent infection of the operative incision or organ/space is counted as an HAI SSI when SSI criteria are met. The rational is that if the surgeon elects to close the wound before the patient leaves the OR, he/she considers the subsequent risk of continuing or new infection to be minimal. Should one occur, including it in the SSI count will help bring attention to it so that prevention strategies for future patients may be explored.

We realize that in today's climate of pay-for-reporting and soon to be pay-for-performance that this way of handling these situations has become challenging. Therefore, we have worked with our HICPAC surveillance working group to address this issue and will be presenting additional variables in 2014.

2) *If a postoperative patient develops an infection after the surgical site is accessed (e.g., breast implants are infused/enlarged; postoperative joint I aspirated, etc.) is this considered an SSI?*

If no symptoms of infection were present at the time of accession, an infection that develops after the accession would not be considered an SSI. Once a surgical site has been accessed in the postoperative period (i.e., the area of surgery underneath the skin is entered), a subsequent infection may be related to this accession, rather than the surgical procedure, and therefore no SSI would be reported. If, however, symptoms of infection were present at the time of accession, a subsequent infection may simply be extension of the already present SSI. Such cases may require case by case consideration.

- **Wound Class:**
  I am trying to enter a COLO procedure and clean is not listed on the drop down menu, why is it not listed as a choice?

  There are a few operative procedures that should never be entered as "CLEAN" cases.

  In our recent update we have removed the choice of clean from the drop down menu for a few procedure categories.

  You stated are trying to enter a COLO as clean and this one of the procedures that is not allowed to be entered as clean.. This is also true for APPY, BILI, CHOL, COLO, REC, SB and VHYS procedure categories.

  This information is found under the wound classification section of the NHSN SSI protocol on pages 8 and 9.

- **Falling After Operative Procedure:**
  If a patient falls upon a postoperative incision, which then opens and ultimately becomes infected within the SSI surveillance time period, is this reported as an SSI?

  There are several scenarios which may apply here. Please see page 9-16 of the NHSN Patient Safety Component Manual for specific guidance and examples (http://www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf).

- **Trauma:**
  Is a fall considered "trauma" when completing the Denominator for Procedure form for surgical site infection surveillance?

  Yes, trauma is defined in NHSN as "blunt or penetrating traumatic injury." Therefore, if the surgery was performed because of a fall, e.g., hip arthroplasty following a fall, then indicate "yes" for the trauma field.