National Healthcare Safety Network (NHSN)
Outpatient Procedure Component (OPC) Manual

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Please Note: The NHSN Outpatient Procedure Component Manual is updated annually based on subject matter expert review and user feedback. Over time, certain chapters may be retired or moved to another NHSN component. To avoid confusion, the chapters in the OPC manual do not shift to account for these changes.

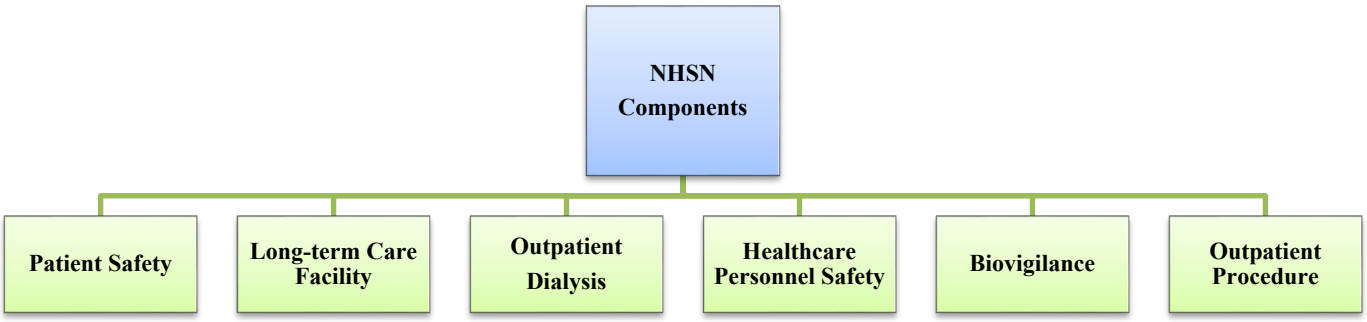
National Healthcare Safety Network (NHSN) Overview

The NHSN is a secure, Internet-based surveillance system that expands and integrates patient and healthcare personnel safety surveillance systems managed by the Division of Healthcare Quality Promotion (DHQP) at the Centers for Disease Control and Prevention. In addition, facilities that participate in certain reporting programs operated by the Centers for Medicare and Medicaid Services (CMS) can do so through use of NHSN. Furthermore, some U.S. states use NHSN as a means for healthcare facilities to submit data on healthcare-associated infections (HAIs) and transfusion-related adverse events mandated through their specific state legislation.

NHSN enables healthcare facilities to collect and use data about HAIs, adherence to clinical practices known to prevent HAIs, the incidence or prevalence of multidrug-resistant organisms within their organizations, trends and coverage of healthcare personnel safety and vaccination, and adverse events related to the transfusion of blood and blood products.

The NHSN includes six components: Patient Safety, Long-term Care Facility, Outpatient Dialysis, Healthcare Personnel Safety, Biovigilance, and Outpatient Procedure (Figure 1).

Figure 1: NHSN Components



The **Patient Safety Component** includes four modules that focus on events associated with medical devices, surgical procedures, antimicrobial agents used during healthcare, and multidrug resistant organisms.

- Device-associated Module:
  - Bloodstream Infection (CLABSI – Central line-associated bloodstream infection)
  - Central line insertion practices (CLIP) adherence
  - Urinary Tract Infection (CAUTI – Catheter-associated urinary tract infection)
  - Ventilator-associated events (VAE) (adult locations only)
  - Pneumonia (VAP – Ventilator-associated pneumonia) - in pediatric locations (in-plan* or off-plan*), or NICU and adult locations (off-plan* only)
- Procedure-associated Module:
  - Surgical site infection (SSI)
- Antimicrobial Use and Resistance Module (AUR)
- Multidrug-Resistant Organism and *Clostridium difficile* Infection (MDRO/CDI) Module

***Note:** "In-plan" surveillance means that the facility has committed to following the NHSN surveillance protocol, in its entirety, for that particular event, as shown in the facility's NHSN monthly reporting plan. "Off-plan" surveillance is surveillance that is done because a facility has decided to track a particular event for internal use. Data that are entered into NHSN "off-plan" are not included in NSHN annual reports or other NHSN publications. A facility makes no commitment to follow the NHSN protocol for "off-plan" events. Further, "off-plan" data cannot be uploaded into NHSN via Clinical Document Architecture (CDA) and must be manually entered. Instructions and standardized surveillance methods and definitions for each module of the Patient Safety Component are provided in this manual and on the NHSN website (www.cdc.gov/nhsn). Modules may be used singly or simultaneously.

The NHSN **Long-term Care Facility Component** provides long-term care facilities (LTCFs) with standardized surveillance methods and definitions for three modules: (1) Multidrug resistant organism (MDRO) and *Clostridium difficile* Infection (CDI) laboratory-identified (LabID) Events; (2) Urinary Tract Infections (UTI); and (3) Prevention Process Measures. The component is ideal for use by nursing homes, skilled nursing facilities, chronic care facilities, and assisted living and residential care facilities. LTCF surveillance protocols, training materials, data collection forms, instructions, and other supporting materials are provided on the Long-term Care Facility Component website: https://www.cdc.gov/nhsn/ltc/index.html.

Outpatient hemodialysis centers have several surveillance options tailored to their patients and setting in the **Dialysis Component**. The component consists of 3 modules: 1) Dialysis Event; (2) Prevention Process Measures; and (3) Dialysis Patient Influenza Vaccination. Facilities that treat hemodialysis outpatients should refer to the Dialysis Component instructions and standardized surveillance methods and definitions at www.cdc.gov/nhsn/dialysis/index.html.

There are two modules in the **Healthcare Personnel Safety (HPS) Component** of NHSN: the Healthcare Personnel Exposure Module and the Healthcare Personnel Vaccination Module. These modules may be used separately or simultaneously. Instructions and standardized surveillance methods and definitions for each module are provided in the NHSN Manual: HPS Component Protocol https://www.cdc.gov/nhsn/pdfs/hps-manual/vaccination/hps-flu-vaccine-protocol.pdf

The **NHSN Biovigilance Component**, Hemovigilance Module facilitates national surveillance of transfusion-related recipient adverse events. The Hemovigilance Module is designed for transfusion service staff to collect data on annual facility and transfusion service characteristics, individual reports on adverse transfusion reactions, errors or accidents associated with adverse reactions, and monthly counts of transfused or discarded components. The Hemovigilance Module surveillance protocol, training materials, data collection forms, instructions, and other supporting materials are provided on the Hemovigilance Module website: www.cdc.gov/nhsn/acute-care-hospital/bio-hemo/index.html.

The **Outpatient Procedure Component (OPC)** includes two modules that focus on adverse events associated with surgical procedures performed in Ambulatory Surgery Centers (ASCs). The two modules include Same Day Outcome Measures and Surgical Site Infections.

- Same Day Outcome Measures (OPC-SDOM) are a grouping of outpatient care quality indicators that represent a broad range of risks encountered by patients accessing care in various outpatient settings. The four individual outcome measures are:
  - Patient Burn
  - Patient Fall
  - Wrong Site, Wrong Side, Wrong Patient, Wrong Procedure, Wrong Implant
  - All-Cause Hospital Transfer/Admission

- Surgical Site Infection (OPC-SSI) - SSI surveillance for outpatient operative procedures using the Outpatient Procedure Component (OPC) replaces the use of the Patient Safety Component SSI event chapter for ASCs.

The OPC surveillance protocols, training materials, data collection forms, instructions, and other supporting materials are provided on the Outpatient Procedure Component website: https://www.cdc.gov/nhsn/ambulatory-surgery/index.html.

Surveillance Techniques

Some of the options in the following modules require active, patient-based, prospective surveillance of events and their corresponding denominator data by a trained Infection Preventionist (IP). This means that the IP shall seek out infections during a patient's stay by screening a variety of data sources, such as laboratory, pharmacy, admission/discharge/transfer, radiology/imaging, and pathology databases, as well as patient charts, including history and physical exam notes, nurses'/physicians' notes, temperature charts, etc. Others may be trained to screen data sources for these infections, but the IP must make the final determination. Laboratory-based surveillance should not be used alone, unless all possible criteria for identifying an infection are solely determined by laboratory evidence (for example, LabID event detection in the MDRO/CDI Module). Retrospective chart reviews should be used only when patients are discharged before all information can be gathered. NHSN forms should be used to collect all required data, using the NHSN definitions of each data field. To minimize the IP's data collection burden, others may be trained to collect the denominator data and process of care data (for example, central line insertion practices).

Procedure-Associated Module

Surgical site infection (SSI) monitoring is offered through this module. SSI surveillance requires active, patient-based, prospective surveillance techniques (see Surveillance Techniques above). To minimize IPs' workload of collecting denominator data, operating room data may be downloaded (see file specifications at: http://www.cdc.gov/nhsn/PDFs/ImportingProcedureData_current.pdf)

Both pre-discharge and post-discharge surveillance methods should be used to detect SSIs. Surveillance may include both inpatient and outpatient operative procedures. These methods include 1) direct examination of patients' wounds during hospitalization, or follow-up visits to either surgery clinics or physicians' offices, 2) review of medical records or surgery clinic patient records, 3) surgeon surveys by mail or telephone, and 4) patient surveys by mail or telephone (though patients may have a difficult time assessing their infections). Any combination of these methods is acceptable for use; however, CDC criteria for SSI must be applied.

Device-Associated Module

Medical instrumentation increases the risk of development of an HAI and most patients admitted for health care are exposed to some kind of medical device in the course of their treatment. Such devices include, but are not limited to, vascular and urinary catheters, and ventilators. NHSN enables facilities to monitor infectious complications associated with the use of these devices and also to monitor processes related to their use which might increase infection risk. Specifically, surveillance of central line-associated bloodstream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), ventilator-associated events (VAE), and/or ventilator-associated pneumonia (VAP) is possible using the NHSN. In addition, central line insertion practices (CLIP) can be monitored to inform facilities of the appropriateness of their processes and how they may relate to HAI development. See Dialysis Component for detailed instructions for Dialysis Event (DE) surveillance of hemodialysis outpatients (www.cdc.gov/nhsn/dialysis/index.html).

Device-associated denominator data should be collected at the same time each day, or by weekly sampling methods, in certain locations, for CLABSI and CAUTI surveillance (see the CLABSI and CAUTI protocols for guidance). When denominator data are available from electronic databases (for example, ventilator days from respiratory therapy), these sources may be used as long as the counts are not substantially different (+/- 5%) from manually-collected counts that have been validated for a minimum of three months. See the respective device-associated event protocols for detailed surveillance instructions.

Antimicrobial Use and Resistance (AUR) Module

The use of antimicrobial agents has a direct effect on antimicrobial resistance patterns of pathogens. The observed increase in multidrug resistance is in part due to inappropriate prescription of, as well as only partial completion of courses of antibiotics.

The AUR Module allows facilities to collect information on the amount of antimicrobials that are used for patient care within their systems, as well as to collect data on the prevalence of drug-resistant organisms in their inpatient and outpatient areas. Electronic capture and reporting of microbiology and pharmacy data are the only available options for reporting data into this module.

See the Antimicrobial Use and Resistance protocol for detailed surveillance instructions.

Multidrug-resistant Organism and *Clostridium difficile* Infection *(MDRO/CDI)* Module

The NHSN MDRO/CDI Module offers a means for facilities to meet criteria and metrics that are outlined in several organizational guidelines to control and measure the spread of MDROs and CDI within their healthcare system. The module has two separate and independent reporting options, Laboratory-identified (LabID) Event and Infection Surveillance that may be tailored to meet the needs of participating NHSN facilities.

In addition, the following process measures are available: (1) adherence to hand hygiene; (2) adherence to contact precautions when caring for patients infected or colonized with an MDRO or *C. difficile;* and (3) adherence to active surveillance testing (AST) of MRSA and/or VRE. Active surveillance testing outcome measures is also available in locations where AST adherence is being performed, and enables facilities to use the results of AST to monitor the incidence and prevalence of positive MRSA and/or VRE cultures. See the MDRO/CDI protocol for detailed surveillance instructions.

Outpatient Procedure Component Monthly Reporting Plan and Annual Facility Survey

Monthly Reporting Plan

The *Outpatient Procedure Component (OPC) Monthly Reporting Plan* form (CDC 57.401) is used by NHSN facilities to inform CDC which OPC modules are used during a given month. This allows CDC to select the data that should be included in the aggregate data analysis used for creating national benchmarks. Data entered into NHSN may represent either "in-plan" or "off-plan" surveillance. Each participating facility must identify and enter a monthly plan to indicate the module(s) used, if any, and the events, locations and/or procedures that will be monitored in-plan. The modules and locations selected for the month represent in-plan surveillance and indicate that the NHSN surveillance protocols will be used in their entirety, for that surveillance.

- Only in-plan data are included in NHSN annual reports or other NHSN publications.
- "Off-plan" surveillance is surveillance that is done because a facility has decided to track a particular event for internal use. A facility makes no commitment to follow the NHSN protocol for "off-plan" events and such data are not included NHSN annual reports or other NHSN publications.

There must be a plan completed for every month that data are entered into NHSN although a facility may choose "No NHSN Outpatient Reporting this month" as an option. The reporting plan should take into account reporting requirements (for example, local or state mandates) when applicable to the facility.

Instructions for completing the Outpatient Procedure Component Monthly Reporting Plan form can be found in the Table of Instructions.

Ambulatory Surgery Center (ASC) Annual Facility Survey

The *Outpatient Procedure Component (OPC) Annual Facility Survey* (CDC 57.400) is used by CDC to classify facilities for appropriate comparisons in aggregate data analyses and to learn more about common practices among ASCs. Participating facilities must complete the Annual Facility Survey at the time that they enroll or activate the OPC and at the beginning of each calendar year thereafter. Most survey questions are based on facility characteristics and practices during the previous calendar year. For example, if the facility is enrolling in NHSN for the first time in November of 2018, report information for January 2017-December 2017 on the first ASC Annual Facility Survey. In January 2019, complete a new survey with data from January 2018-December 2018.

The NHSN recommends that users collect all survey information using the paper form before attempting to enter data into the web application, as the survey will not save until all of the required questions are answered.

The *Instructions for Completion of ASC Annual Facility Survey* includes brief instructions for collection and entry of each data element on the form/web-page.

Same Day Outcome Measures (SDOM)

Introduction

The measures that are included in this grouping of care quality indicators represent a broad range of risks encountered by patients accessing care in various outpatient settings. The four measures reflect the potential outcome resulting from procedures performed in the Ambulatory Surgery Center (ASC) outpatient environment. These potential outcomes can occur on the same day (during or immediate following) a procedure performed in an ASC. Same Day Outcome Measures includes four individual measures, which are:

1. Patient Burn
2. Patient Fall
3. Wrong Site, Wrong Side, Wrong Patient, Wrong Procedure, Wrong Implant
4. All-Cause Hospital Transfer/Admission

This NHSN protocol is intended to be consistent with the measure specifications from the following:

- ASC Quality Reporting Specifications Manual Release Notes Version 7.0a, published by the Centers for Medicare & Medicaid Services (CMS) Quality Reporting.
- ASC Quality Measures: Implementation Guide Version 5.0, published by the Ambulatory Surgery Center Quality Collaboration.

Key Terms for SDOM

Term	Definition
Burn	Unintended tissue injury caused by any of the six recognized mechanisms: scalds, contact, fire, chemical, electrical or radiation, (for example, warming devices, prep solutions, electrosurgical unit or laser).
Discharge	Occurs when the patient leaves the confines of the ASC.
Encounter	Any patient visit to an ASC where the patient completes the registration process upon entry into the facility. Some ASCs may refer to this as an admission into the facility.
Fall	A sudden, uncontrolled, unintentional, downward displacement of the body to the ground or other object, excluding falls resulting from violent blows or other purposeful actions. (National Center for Patient Safety).
Hospital transfer/admission	Any transfer/admission from an ASC directly to an acute care hospital including hospital emergency room.
Wrong Event	Any procedure performed on a patient that is not consistent with the correctly documented informed consent for that patient.

SDOM Requirements

Setting(s)

Any ASC as defined in the Code of Federal Regulations 42 CFR § 416.2 is eligible to join NHSN and use this measure.

Surveillance for SDOM

Monitor all patient encounters for the following events:

- Burn prior to discharge from the ASC
- Fall within the ASC
- Wrong site, side, patient, procedure or implant while admitted to the ASC (Wrong Event)
- Transfer or admission to a hospital upon discharge from the ASC

Performance of SDOM surveillance requires monitoring for each of the individual measures (patient fall, patient burn, wrong event and transfer/admission to hospital) and should be indicated in the *NHSN Outpatient Procedure Component Monthly Reporting Plan* form (CDC 57.401).

Monitoring for Same Day Outcome Measures (SDOM) require active, patient-based, prospective surveillance. Surveillance for SDOMs starts at the beginning of the encounter and ends at discharge from the ASC. No post-discharge surveillance is required for these measures.

Methods for surveillance may vary based on resources within the facility. Examples of resources for data collection include outpatient facility medical records, incident/occurrence reports, or variance reports.

Reporting these measures using NHSN SDOM does not meet the reporting requirements for ASCs mandated through the CMS Ambulatory Surgical Center Quality Reporting (ASCQR) Program. Reporting this NHSN measure is optional.

SDOM Specifications

Patient Burn

There are several accounts in literature of patient burns in the surgical and procedural environment. The wide range of factors resulting in burns highlights a number of possible risks that must be addressed to prevent patient burns.

Many instances of burns are associated with electrosurgical equipment suggest that this is the most common causative agent. Recent reports demonstrate increased risk of burns may be related to newer devices that use higher currents at longer activation times. Although electrical burns may be the most predominant, burns from other mechanisms such as chemicals and direct have been reported.

Surgical fires are infrequent but they are life threatening and the outcome (such as burns) can be severe to both patient and surgical staff. Any area where surgery is performed and flammable agents such as medical gases and skin preparation agents are used pose a risk for surgical fires and subsequent patient burns.

Understanding that there are a number of causative agents related to patient burns in a surgical setting including ASCs, the term burn is very broad. This term covers burn from the various means by which a burn can occur – chemical, contact, electrical, fire, radiation or scalds. This allows stakeholders and partners to gain a more robust understanding of the incidence of burn events and further improve prevention strategies.

Measure Specifications:
This measure is used to assess the number of encounters (patients) who experience a burn prior to discharge from the ASC.

Numerator: ASC encounters (admissions) experiencing a burn prior to discharge
Exclusions: None

Denominator: All ASC encounters (admissions)
Exclusions: None

Patient Fall
The incidence of patient falls is currently unavailable, although in general the incidence of adverse events in ASCs is relatively low. The National Quality Forum (NQF) has endorsed "falls per 100,000 patient days" as a serious reportable event[1, 2]. And there is growing interest in public reporting of adverse events such as falls. Patients undergoing outpatient surgical procedures are at increased risk for falls when adjunct therapies such as anxiolytics, sedatives, and anesthetic agents are used.

Measure Specifications:
This measure is used to assess the number of encounters (patients) who experience a fall within the ASC.

Numerator: ASC encounters (admissions) experiencing a fall within the confines of the ASC
Exclusions: ASC encounters (admissions) experiencing a fall outside the ASC

Denominator: All ASC encounters (admissions)
Exclusions: Falls resulting from violent blows or other purposeful actions

Wrong Site, Wrong Side, Wrong Patient, Wrong Procedure, and Wrong Implant
(*collectively referred to as Wrong Event*)
The NQF has endorsed "surgery performed on the wrong body part," "surgery performed on the wrong patient," and "wrong surgical procedure performed on a patient" as serious reportable surgical events[1, 2]. This outcome measure serves as a proxy for adherence to The Joint Commission's "Universal Protocol" guideline. The goal for of the "Universal Protocol" guideline is to eliminate wrong site, wrong procedure, and wrong person surgery[1, 2]. The "Universal Protocol" is a consensus guideline that is endorsed by over 40 professional medical organizations and associations. The ASC Quality Collaboration added wrong implant to wrong site, wrong side, wrong patient, and wrong procedure to create a more complete "wrong" event measure.

Measure Specifications:
This measure is used to assess the number of encounters (patients) who experience a wrong event

Numerator: All ASC encounters (admissions) experiencing a wrong event
Exclusions: None

Denominator: All ASC encounters (admissions)
Exclusions: None

All-Cause Hospital Transfer/Admission
An unanticipated outcome after care is provided in an ASC, is a direct transfer or admission to a hospital from the ASCs. This unexpected event may result in additional cost and recovery time, which may pose increased burdens for the patient, family and payer.

At times unforeseen events or complications may result in the necessity of transfer or admission to a hospital. Such occurrences demonstrate good judgement and signifies good patient care but higher rates may be a signal that less than optimal patient and/or procedure selection by the ASC are occurring.

Measure Specifications:
This measure is used to assess the percentage of ASC encounters (patients) who are transferred or admitted to a hospital upon discharge from the ASC

Numerator: ASC encounters (admissions) requiring a hospital transfer or hospital admission upon discharge from the ASC
Exclusions: None

Denominator: All ASC encounters (admissions)
Exclusions: None

Reporting Instructions

1. Indicate on the *Outpatient Procedure Component Monthly Reporting Plan* form (CDC 57.401) that the ASC is participating in surveillance for the Same Day Outcome Measures. Selecting this measures means all four outcome measures will be monitored and reported.

2. For each patient that experiences a SDOM event during an ASC encounter, complete an *Outpatient Procedure Component Same Day Outcome Measures Event* form (CDC 57.402) and select the appropriate event by checking the corresponding box.
   a. If the same patient experiences more than one **different measure** during the same encounter all events should be recorded on the same event form. Example: a patient experiences a fall and a burn during the same encounter.
   b. If a patient experiences more than one of the **same measure** during the same encounter record only one event of that measure type for the encounter. Example: a patient has multiple wrong site procedures or multiple falls.

3. At the end of the reporting month specified in the Monthly Reporting Plan, enter the total number of ASC encounters (admissions) on the Outpatient Procedure Component Denominator for Same Day Outcome Measures form (CDC 57.403). Instructions for Completion of the Outpatient Procedure Component Denominator for the Same Day Outcome Measures Form (CDC 57.403).

4. If no events occur during an encounter, no Outpatient Procedure Component Same Day Outcome Measures Event form (CDC 57.402) should be completed.

See the following for assistance with completing forms for the OPC Same Day Outcome Measures:

- *Instructions for Completion of the Outpatient Procedure Component Monthly Reporting Plan Form (CDC 57.401)*
- *Instructions for Completion of Outpatient Procedure Component Same Day Outcome Measures (CDC 57.402)*
- *Instructions for Completion of the Outpatient Procedure Component Denominator for Same Day Outcome Measures Form (CDC 57.403)*

Data Analysis:

Descriptive analysis options of numerator and denominator data are available in the NHSN application, such as line listings, frequency tables, and bar and pie charts. SIRs, rates and run charts will be available at a later date. Guides on using NHSN analysis features are available from: www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.html.

References

1. Centers for Medicare & Medicaid Services (CMS). QualityNet: Ambulatory Surgical Center Quality Reporting Specifications Manual Version7.0a. Retrieved from QualityNet ASC Spec Manual on May 16, 2018.

2. Ambulatory Surgery Center Quality Collaboration (ASC QC). ASC Quality Collaboration Measures: Implementation Guide Version 5.0. Retrieved from ascquality.org on May 16, 2018.

Outpatient Procedure Surgical Site Infection (OPC-SSI) Surveillance

Introduction

With advances in surgical technology, patients are offered an incredible opportunity for restored health and function. The opposing force to technology advancements is increased risks of adverse and unintended outcomes such as surgical site infection (SSI)). The CDC healthcare-associated infection (HAI) prevalence survey found that there were an estimated 157,500 surgical site infections associated with inpatient surgeries in 2011 [(7)]. As these data demonstrate, the frequency of SSI are primarily based on the analysis of operative procedures performed in inpatient settings such as acute care hospitals. These data represent only a fraction of the operative procedures performed on an annual basis and does not reflect the continued trend of surgical services transitioning to the outpatient ambulatory surgery settings.

In 2015, there were nearly 5,500 Medicare-certified ambulatory surgery centers (ASCs), which represents over 16,000 operating rooms (ORs)[8]. This volume represents an average of 3.0 ORs per facility and an approximate 2-percent increase between 2014 and 2015[8]. Therefore-it may be safe to assume that the continued growth in outpatient ORs equates to an increase in the volume of surgical procedures performed in the outpatient ambulatory surgery arena. Although ambulatory surgery centers have been shown to have a lower SSI rate than inpatient surgery settings, the continued growth in these facilities is a signal for the need to monitor procedures

performed in the outpatient setting for adverse events such as SSIs. The OPC-SSI module will provide data for analyses to determine how operative procedures performed in ASCs contribute to the burden of SSIs. Data from this module can help identify factors associated with infections as well as targets for prevention strategies.

A successful surveillance program includes the use of epidemiologically-sound infection definitions and effective surveillance methods, stratification of SSI rates according to risk factors associated with SSI development, and data feedback[2,3.] Surveillance of SSI with feedback of appropriate data to surgeons has been shown to be an important component of strategies to reduce SSI risk[2,3,4,9].

Advances have been made in infection control practices, including improved operating room ventilation, sterilization methods, barriers, surgical technique, and availability of antimicrobial prophylaxis, yet SSIs remain a substantial cause of morbidity, prolonged hospitalization, and death. Continued efforts are needed to identity preventable causes and develop strategies for SSI prevention.

SSI surveillance for outpatient operative procedures using the Outpatient Procedure Component (OPC) **replaces** the use of the Patient Safety Component SSI event chapter in ambulatory surgery centers (ASCs). Surveillance for operative procedure(s) may focus on high risk and/or high volume procedures. In addition, facilities should use sound risk assessment practices as well as considerations for mandated reporting requirements to determine which operative procedure(s) to monitor. ASCs may voluntarily enroll in OPC-SSI. Federal, State or organizational mandates supersedes voluntary enrollment and individual ASCs must verify its SSI reporting requirements.

OPC-SSI Reporting Requirements

NHSN operative procedure categories are listings of operative procedures grouped and categorized around a specific description for the operative procedure category. The operative procedure categories that are included in OPC-SSI surveillance can be found in Table 1. The Current Procedural Terminology (CPT) operative procedure codes are listed with the accompanying operative procedure code descriptions at https://www.cdc.gov/nhsn/xls/opc/opc-cpt-pcm-nhsn.xlsx.

A facility may report “in-plan” or “off-plan”.

- In-plan surveillance – Facility has indicated in their *OPC Monthly Reporting Plan* (CDC 57.401) that the OPC-SSI protocol will be utilized, in its entirety for SSI surveillance. Only in-plan data are entered are included in NHSN annual reports or other NHSN publications.
- Off-plan surveillance – Facility has **not** indicated in their *OPC Monthly Reporting Plan* (CDC 57.401) that the OPC-SSI protocol will be utilized, in its entirety for SSI surveillance. Off-plan data are **not** included in NHSN annual reports or other NHSN

publications. A facility may choose to perform surgical site surveillance "off-plan" for any of the NHSN operative procedure categories.

Setting(s)

Any ASC as defined in the Code of Federal Regulations 42 CFR § 416.2 is eligible to join NHSN and use this protocol for surveillance of surgical patients receiving an eligible NHSN outpatient procedure (Table 1).

Targeted Surveillance for OPC-SSI

a) For each calendar month under surveillance, indicate in the *OPC Monthly Reporting Plan* the NHSN operative procedure categories in Table 1 that are under surveillance for SSI.
b) A facility may choose to monitor any or all of the NHSN operative procedure categories that are found in Table 1.
c) Perform surveillance for SSI following at least one NHSN operative procedure category (CPT Mapping) as indicated in the *OPC Monthly Reporting Plan* (CDC 57.401) and otherwise specified by mandates and other reporting requirements. This is considered "in-plan" reporting.
d) Collect SSI (numerator) and operative procedure category (denominator) **data on all procedures** included in the selected procedure categories.
e) A procedure must meet the NHSN definition of an operative procedure in order to be included in the surveillance. All procedures included in the NHSN monthly surveillance plan are followed for superficial, deep, and organ/space SSI events and the type of SSI reported must reflect the deepest tissue level where SSI criteria is met during the surveillance period.

Table 1. NHSN OPC Operative Procedure Categories

Procedure Category	Operative Procedure	Procedure Description
AMP	Limb amputation	Total or partial amputation or disarticulation of the upper or lower limbs, including digits
APPY	Appendix surgery	Operation of appendix
AVSD	AV shunt for dialysis	Arteriovenostomy for renal dialysis
BILI	Bile duct, liver or pancreatic surgery	Excision of bile ducts or operative procedures on the biliary tract, liver or pancreas (does not include operations on gall bladder only)
BRST	Breast surgery	Excision of lesion or tissue of breast including radical, modified, or quadrant resection, lumpectomy, incisional biopsy, or mammoplasty
CEA	Carotid endarterectomy	Endarterectomy on vessels of head and neck (includes carotid artery and jugular vein)
CHOL	Gallbladder surgery	Cholecystectomy and cholecystotomy
COLO	Colon surgery	Incision, resection, or anastomosis of the large intestine; includes large-to-small and small-to-large bowel anastomosis; see REC for rectal operations
FUSN	Spinal fusion	Immobilization of spinal column
FX	Open reduction of fracture	Open reduction of fracture or dislocation of long bones with our without internal or external fixation; does not include placement of joint prosthesis
GAST	Gastric surgery	Incision or excision of stomach; includes subtotal or total gastrectomy; does not include vagotomy and fundoplication
HER	Herniorrhaphy	Repair of inguinal, femoral, umbilical, or anterior abdominal wall hernia; does not include repair of diaphragmatic or hiatal hernia or hernias at other body sites
HPRO	Hip prosthesis	Arthroplasty of hip
HYST	Abdominal hysterectomy	Abdominal hysterectomy; includes that by laparoscope

Procedure Category	Operative Procedure	Procedure Description
KPRO	Knee prosthesis	Arthroplasty of knee
LAM	Laminectomy	Exploration or decompression of spinal cord through excision or incision into vertebral structures
NECK	Neck surgery	Major excision or incision of the larynx and radical neck dissection; does not include thyroid and parathyroid operations
NEPH	Kidney surgery	Resection or manipulation of the kidney with or without removal of related structures
OVRY	Ovarian surgery	Operations on ovary and related structures
PACE	Pacemaker surgery	Insertion, manipulation or replacement of pacemaker
PRST	Prostate surgery	Suprapubic, retropubic, radical, or perineal excision of the prostate; does not include transurethral resection of the prostate
PVBY	Peripheral vascular bypass surgery	Bypass operations on peripheral arteries and veins
REC	Rectal surgery	Operations on rectum
SB	Small bowel surgery	Incision or resection of the small intestine; does not include small-to-large bowel anastomosis
SPLE	Spleen surgery	Resection or manipulation of spleen
THOR	Thoracic surgery	Noncardiac, nonvascular thoracic surgery; includes pneumonectomy and hiatal hernia repair or diaphragmatic hernia repair (except through abdominal approach)
THYR	Thyroid and/or parathyroid surgery	Resection or manipulation of thyroid and/or parathyroid
VHYS	Vaginal hysterectomy	Vaginal hysterectomy; includes that by laparoscope
VSHN	Ventricular shunt	Ventricular shunt operations, including revision and removal of shunt
XLAP	Exploratory laparotomy	Abdominal operations not involving the gastrointestinal tract or biliary system; includes diaphragmatic hernia repair through abdominal approach

NHSN Operative Procedure Category Mappings to CPT Codes

Operative procedure codes are used in various health care settings as a way to communicate uniform information. This wide use of operative procedure codes allow NHSN to standardize the SSI surveillance process. Current Procedural Terminology (CPT) codes are the operative procedure codes used in OPC and are required for use within the application.

NHSN has mapped Current Procedural Terminology (CPT) codes to NHSN operative procedure categories to assist users in determining the correct operative procedures to report for SSI surveillance. The CPT mapping to NHSN operative procedure categories can be found in the "Supporting Materials" section of the OPC SSI Events webpage. The CPT mapping document includes a general definition for each NHSN operative procedure category as well as a description for each individual operative procedure code.

Key Terms for OPC-SSI

Attending Physician - should be 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).

Date of event (DOE) - For an OPC-SSI, the date of event is the date when the first element used to meet the OPC-SSI infection criterion occurs for the first time during the SSI surveillance period. The date of event must fall within the SSI surveillance period to meet SSI criteria. The type of SSI (superficial incisional, deep incisional, or organ/space) reported should reflect the deepest tissue layer involved in the infection during the surveillance period. Synonym: infection date.

> ***NOTE:***
> *All symptoms required to meet an SSI criteria usually occur within a 7-10 day timeframe with no more than 2-3 days between SSI criteria elements. The SSI criteria elements must be relational to each other, meaning you should ensure the elements all associate to the SSI and this can only happen if criteria elements occur in a relatively tight timeframe. Each case differs based on the individual criteria elements occurring and the type of SSI.*

NHSN Operative Procedure - is a procedure that

- is included in the NHSN CPT operative procedure category code mapping
  and
- takes place during an operation where at least one incision (including laparoscopic approach) is made through the skin or mucous membrane, or reoperation via an incision that was left open during a prior operative procedure
  and
  takes place in an operating room (OR), defined as a patient care area that met criteria for an operating room when it was constructed or renovated outlined by the Facilities

Guidelines Institute's (FGI)[6], American Institute of Architects' (AIA) or requirements of the State in which it operates. This may include an interventional radiology room, or a cardiac catheterization lab.

Surveillance Period - is the timeframe following an NHSN operative procedure for monitoring and identifying post-operative infections, see Table 2. The surveillance period is determined by the NHSN operative procedure category (for example, BRST-Breast surgery has a 90 day surveillance period and HYST-abdominal hysterectomy surgeries have a 30 day surveillance period).

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

30-day Surveillance			
Category	**Operative Procedure**	**Category**	**Operative Procedure**
AMP	Limb amputation	NECK	Neck surgery
APPY	Appendix surgery	NEPH	Kidney surgery
AVSD	Shunt for dialysis	OVRY	Ovarian surgery
BILI	Bile duct, liver or pancreatic surgery	PRST	Prostate surgery
CEA	Carotid endarterectomy	REC	Rectal surgery
CHOL	Gallbladder surgery	SB	Small bowel surgery
COLO	Colon surgery	SPLE	Spleen surgery
GAST	Gastric surgery	THOR	Thoracic surgery
HYST	Abdominal hysterectomy	THYR	Thyroid and/or parathyroid surgery
LAM	Laminectomy	VHYS	Vaginal hysterectomy
		XLAP	Exploratory Laparotomy
90-day Surveillance			
Category	**Operative Procedure**		
BRST	Breast surgery		
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 only followed for a 30-day period for all procedure types.
-Secondary incisional SSIs are only followed for a 30-day period regardless of the surveillance period for the primary site.

Table 3. Denominator for Procedure Details
These are required elements for reporting denominator operative procedures. The elements have been identified as risk factors. See the *Instructions for Completion of Outpatient Procedure Component (OPC) Denominator for Procedure Form (CDC 57.404)* for further details.

Element	Description
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[1]. 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 that do not have an ASA score assigned by an anesthesiologist.*
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 anti-diabetic agents. • A diagnosis of diabetes who are noncompliant with their diabetes medications. • Gestational diabetes. ***NOTE:*** *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.*
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)[5]:

Element	Description
	• Procedure/Surgery Start Time (PST): Time when the procedure is begun (*for example,* 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.
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. This does not include conscious sedation.
Height	The patient's most recent height documented in the medical record in feet (ft.) and inches (in.) or meters (m).
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 (specifically, open approach). Robotic assistance is considered equivalent to use of a scope for NHSN SSI surveillance. Also see *Instructions for Completion of Outpatient Procedure Component (OPC) Denominator for Procedure Form (CDC 57.404)* and reporting instructions for Numerator Data and Denominator Data within this chapter.
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 (for example, 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: 1. 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

Element	Description
	incisional wounds that follow nonpenetrating (blunt) trauma should be included in this category if they meet the criteria. *NOTE:* *Based on feedback from external experts in the field of surgery, NHSN surgical procedure categories APPY*- Appendix surgery, *BILI* - Bile duct, liver or pancreatic surgery, *CHOL* - Gallbladder surgery, *COLO* - Colon surgery, *REC* - Rectal surgery, *SB* - Small bowel surgery *and VHYS* - Vaginal hysterectomy *should never be recorded as clean. The rationale for this is due to the anatomy of the body and the usual approach required to reach the operative site. For these operative procedures clean wound class is not an option on the drop down menu within the application.* 2. 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. 3. Contaminated: Open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (for example, 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 (for example, dry gangrene) are included in this category. 4. 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.

NOTE:
Incisional closure method is NOT a part of the NHSN OPC-SSI Surveillance definition; all eligible procedures should be included in SSI surveillance, regardless of closure method. Both primarily closed procedures and those that are not closed primarily should be included in the denominator data for procedures in the facility's monthly reporting plan. Any SSI attributable to either primarily closed or non-primarily closed procedures should be reported.

Surgical Site Infection (SSI) Criteria

Table 4A: General OPC-SSI Criteria
Apply to all operative procedure categories except Breast Surgery (BRST). *Use Breast Surgery (BRST) - Surgical Site Infection Criteria for SSIs attributable to BRST.*

OPC General – Superficial Incisional SSI Must meet the following criteria:
Date of event for infection occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date) **AND** involves only skin and subcutaneous tissue of the incision **AND** patient has at least ***one*** of the following: a. purulent drainage from the superficial incision. b. organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue 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). c. superficial incision that is deliberately opened by a surgeon, attending physician or other designee and culture or non-culture based testing of the superficial incision or subcutaneous tissue 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 a superficial incisional SSI by the surgeon or attending physician or other designee. **Comments:** The two specific types of superficial incisional SSIs are: 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 (for example, the knee incision for KPRO procedure). 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 (for example, abdominal incision site for VSHN).

Reporting Instructions for OPC General - Superficial Incisional SSI

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

- Diagnosis/treatment of cellulitis (redness/warmth/swelling), by itself, does not meet criterion "d" for superficial incisional SSI. Conversely, an incision that is draining or that has organisms identified by culture or non-culture based testing is not considered a cellulitis.
- A stitch abscess alone (minimal inflammation and discharge confined to the points of suture penetration).
- A localized stab wound or pin site infection is not an SSI.

NOTE:

A laparoscopic trocar site for an NHSN operative procedure is not considered a stab wound.

OPC General - Deep Incisional SSI

Must meet the following criteria:

The date of event for infection occurs within 30 or 90 days after the NHSN operative procedure (where day 1 = the procedure date) according to the list in Table 2

AND

involves deep soft tissues of the incision (for example, fascial and muscle layers)

AND

patient has at least ***one*** of the following:

a. purulent drainage from the deep incision.

b. a deep incision that spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, attending physician or other designee

   and

   organism is identified from the deep soft tissues of the incision 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) or culture or non-culture based microbiologic testing method is not performed. A culture or non-culture based test from the deep soft tissues of the incision that has a negative finding does not meet this criterion.

   and

   patient has at least ***one*** of the following signs or symptoms: fever (>38°C); localized pain or tenderness.

c. an abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathologic exam, or imaging test.

Comments: The two specific types of deep incisional SSIs are:

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 (for example, the hip incision for a HPRO procedure).

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 (for example, abdominal incision site for VSHN).

OPC General - Organ/Space SSI
Must meet the following criteria:

Date of event for infection occurs within 30 or 90 days after the NHSN operative procedure (where day 1 = the procedure date) according to the list in Table 2
AND
infection involves any part of the body deeper than the fascial/muscle layers, that is opened or manipulated during the operative procedure
AND
patient has at least ***one*** of the following:

a. purulent drainage from a drain that is placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, and CT guided drainage).
b. organisms are identified from an aseptically-obtained fluid or tissue in the organ/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).
c. an abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test consistent with infection.

NOTE:
Meeting additional infection criteria found in Chapter 17, *CDC/NHSN Surveillance Definitions for Specific Types of Infections* is **NOT** required when reporting OPC General - Organ/Space SSIs.

Table 4B: Breast Surgery (BRST) Surgical Site Infection Criteria

The Breast Surgery (BRST) Surgical Site Infection instructions apply to surgical site infections (SSIs) during the 30-day (superficial SSI) and 90-day (deep and organ/space SSI) postoperative periods following BRST- Breast Surgery performed in Ambulatory Surgery Centers. *Use General OPC-SSI criteria for all operative procedures except breast surgery (BRST).*

OPC BRST - Superficial incisional SSI

Must meet the following criteria**:**

Date of event for infection occurs within 30 days after a BRST; where day 1 = the procedure date

AND

involves either the skin, subcutaneous tissue (for example, fatty tissue) or breast parenchyma (for example, milk ducts and glands that produce milk) at the incision

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 method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST).
c. superficial incision that is deliberately opened by a surgeon, attending physician or other designee and culture or non-culture based testing of the superficial incision or subcutaneous tissue is not performed.

   and

   patient has at least **one** of the following signs or symptoms: localized pain or tenderness; localized swelling; redness (erythema); or heat. A culture or non-culture based test that has a negative finding does not meet this criterion.
d. diagnosis of a superficial incisional SSI by the surgeon or attending physician or other designee.

Comments for OPC BRST – Superficial Incisional SSI

The two specific types of superficial incisional SSIs are:

1. Superficial incisional primary (SIP) – a superficial incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (for example, the breast incision for BRST procedure).
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 (for example, Transverse Rectus Abdominis Myocutaneous (TRAM) flap incision site for BRST).

OPC BRST - Deep incisional SSI
Must meet the following criteria:

Date of event for infection occurs within 90 days after a BRST; where day 1 = the procedure date

AND

involves deep soft tissues of the incision (for example, fascial and muscle layers)

AND

patient has at least one of the following:

a. purulent drainage from the deep incision.
b. a deep incision that spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, attending physician or other designee

   and

   organism is identified from the deep soft tissues of the incision 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) or culture or non-culture based microbiologic testing method is not performed. A culture or non-culture based test that has a negative finding does not meet this criterion.

   and

   patient has at least **one** of the following signs or symptoms: fever (>38°C); localized pain or tenderness.
c. an abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathologic exam.

Comments for OPC BRST – Deep Incisional SSI

The two specific types of deep incisional SSIs are:

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 (for example, the breast incision for BRST procedure).
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 (for example, Transverse Rectus Abdominis Myocutaneous (TRAM) flap incision site for BRST).

OPC BRST - Organ/Space SSI
Must meet the following criteria:

Date of event for infection occurs within 90 days a BRST; where day 1 = the procedure date

AND

infection involves any part of the body deeper than the fascial/muscle layers (subpectoral), that is opened or manipulated during the operative procedure

AND

patient has at least **one** of the following:

a. purulent drainage from a drain that is placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, and CT guided drainage).

b. organisms identified from affected breast tissue or fluid obtained by invasive procedure 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).

c. breast abscess or other evidence of infection on gross anatomic or histopathologic exam or imaging test consistent with breast infection.

NOTES:

- *Breast surgeries may involve a secondary operative incision. Specifically, procedures that include flaps. The flap site is the secondary operative incision. Secondary sites have a 30 day surveillance period. If the secondary site meets criteria for an SSI, it is reported as either a superficial incisional SSI at the secondary site or deep incisional infection at the incisional site.*
- *Accessing a breast expander after a breast surgery is considered an invasive procedure and any subsequent infection is <u>not</u> deemed an SSI attributable to the breast surgery.*
- *Meeting additional infection criteria found in Chapter 17, CDC/NHSN Surveillance Definitions for Specific Types of Infections is NOT required when reporting OPC BRST - Organ/Space SSIs.*

OPC-SSI Numerator (SSI Event) Reporting

Numerator Data

a) All patients having any of the procedures included in the selected NHSN operative procedure category(s) are monitored for SSI. The *Outpatient Procedure Component (OPC) Surgical Site Infection (SSI) Event Form (CDC 57.405)* is completed for each SSI.
b) If no SSI events are identified during the surveillance month, check the "Report No Events" field in the Missing OPC Events tab of the Incomplete/Missing List.
c) The *Instructions for the Completion of Outpatient Procedure Component Surgical Site Infection (OPC-SSI) Event Form (CDC 57.405)* form include brief instructions for collection and entry of each data element on the form. The OPC-SSI data collection form includes patient demographic information and information about the operative procedure, including the date and type of procedure. As well as information about the SSI including the date of SSI, specific criteria met for identifying the SSI and when/how the SSI was detected.
d) See the OPC tables of instructions for detailed information regarding the completion of the *OPC Monthly Reporting Plan Form* (CDC 57.401), *Outpatient Procedure Component (OPC) Denominator for Procedure Form* (CDC 57.404), and SSI information for the *Outpatient Procedure Component (OPC) Surgical Site Infection (SSI) Event Form (CDC 57.405).*

Table 5: Numerator Reporting Instructions

Numerator reporting instructions are guidelines for reporting SSI events. The instructions ensure consistent application of the general and breast surgery reporting criteria.

Topic	Reporting Instruction
1. Excluded organisms:	Well-known community associated (organisms belonging to the following genera: *Blastomyces, Histoplasma, Coccidioides, Paracoccidioides, Cryptococcus and Pneumocystis* and/or organisms associated with latent infections (for example, herpes, shingles, syphilis, or tuberculosis) are excluded from meeting SSI criteria.
2. Attributing SSI to an NHSN procedure **when there is evidence of infection** at the time of the primary surgery:	SSI surveillance does not take into account infections that are present at the operative site at the time of the operative procedure. When there is evidence of an infection at the operative site at the time of the operative procedure and if during the SSI surveillance period the patient meets an NHSN OPC-SSI criteria, an SSI should be attributed to the operative procedure. A procedure with a high wound class is included in denominator reporting and is eligible for SSI

Topic	Reporting Instruction
	surveillance; in many cases, wound class is included as a risk factor for SSI in the NHSN risk modeling.
3. **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. The date of event should be the date that the patient met criteria for the deepest level of infection. For example: • Report infection that involves the organ/space as an organ/space SSI, whether or not it also involves the superficial or deep incision levels. • Report infection that involves the superficial and deep incisional levels as a deep incisional SSI. • 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 date of event would be the date of the organ space SSI.
4. Attributing SSI to 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 where SSI criteria is met at any of the infected involved primary incision sites during the surveillance period. For example: • If one laparoscopic incision meets criteria for a superficial incisional SSI and another meets criteria for a deep incisional SSI, only report one deep incisional SSI. • If one or more laparoscopic incision sites meet 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. • If an operative procedure is limited to a single breast and involves multiple incisions in that breast that become infected, only report a single SSI. • In a colostomy formation or reversal (take down) procedure, the stoma and other abdominal incision

Topic	Reporting Instruction
	sites are considered primary incisions. If both the stoma and another abdominal incision site develop superficial incisional SSI, report only as one SSI (SIP).
5. Attributing SSI to NHSN procedures that have **secondary incision sites**:	Certain procedures can involve a secondary operative incision (for example, BRST, FUSN, PVBY, REC and VSHN). The surveillance period for all secondary operative incisions is 30 days, regardless of the required deep incisional or organ/space SSI surveillance period for the primary incision site(s) (Table 2). Procedures meeting this designation are reported as one (a single) operative procedure. For example: A tissue harvest site in a BRST procedure (TRAM flap) is considered the secondary operative incision. One BRST procedure is reported, and if the secondary incision becomes infected, report as either SIS or DIS as appropriate.
6. SSI **detected at another facility**:	It is required that if an SSI is detected at a facility other than the ASC where the procedure was originally preformed, details of the SSI event should be provided to the ASC so the SSI can be accurately reported to NHSN. When reporting the SSI, the ASC should indicate how the SSI was identified / detected in the "SSI Event Detected" section of the OPC-SSI form. An SSI event is attributed to the facility in which the NHSN operative procedure was performed. For example: • A patient had a fusion (FUSN) of the left sacroiliac joint preformed at an ASC. 35 days post-operative the patient was seen in the emergency department of a community hospital with signs and symptoms of infection at the surgical site. The community hospital contacted the ASC to report the patient's signs and symptoms of infection at the left sacroiliac joint. Upon meeting OPC-SSI criteria the ASC should select, "Report from another facility (inpatient, health department, emergency department, etc." in the SSI Event Detected" section of the OPC-SSI event form. • An ASC has a formal post-discharge surveillance process which includes post-operative phone calls to the

Topic	Reporting Instruction
	patient as well as surveys mailed to the surgeons. A surgeon returns a survey and notes a patient having had a breast surgery (BRST) was seen in his office with a superficial infection and was treated with an oral antibiotic. The ASC should select "Post-discharge surgeon survey" in the SSI Event Detected" section of the OPC-SSI event form.
7. SSI attribution after **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/laparoscopic sites 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 an incisional SSI, use the NHSN Principal Operative Procedure Category Selection Lists (Table 6) 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.
8. SSI following **invasive manipulation/accession** of the operative site:	An SSI will **NOT** be attributed if **ALL** criteria are met (all three must be present): • during the post-operative period the surgical site is without evidence of infection and, • 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) and, • an infection subsequently develops in a tissue level which was entered during the manipulation/accession. Tissue levels that are BELOW the deepest level of manipulation/accession will be eligible for SSI. For example, in a superficial debridement following a COLO procedure, where the muscle/fascia and organ/space are not entered, a subsequent organ/space SSI following the debridement may be an SSI attributable to the index COLO procedure.

Topic	Reporting Instruction
	This reporting instruction does NOT apply to closed manipulation (for example, 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 postoperative care.
9. SSI following **specific post-operative infection scenarios**:	An SSI that otherwise meets the NHSN definitions should be reported to NHSN without regard to post-operative accidents, falls, inappropriate showering or bathing practices, or other occurrences that may or may not be attributable to patients' intentional or unintentional postoperative actions. SSI should also be reported regardless of the presence of certain skin conditions (for example, dermatitis, blister, impetigo) that occur near an incision, and regardless of the possible occurrence of a "seeding" event from an unrelated procedure (for example, dental work). These instruction concerning various postoperative circumstances is necessary to reduce subjectivity and data collection burden associated with the previously exempted scenarios.

Table 6. NHSN Principal Operative Procedure Category Selection Lists
(The categories with the highest risk of SSI are listed before those with lower risks).

Priority	Code	Abdominal Operations
1	COLO	Colon surgery
2	BILI	Bile duct, liver or pancreatic surgery
3	SB	Small bowel surgery
4	REC	Rectal surgery
5	GAST	Gastric surgery
6	HYST	Abdominal hysterectomy
7	XLAP	Laparotomy
8	APPY	Appendix surgery
9	HER	Herniorrhaphy
10	NEPH	Kidney surgery
11	VHYS	Vaginal Hysterectomy
12	SPLE	Spleen surgery
13	CHOL	Gall bladder surgery
14	OVRY	Ovarian surgery
Priority	**Code**	**Neurosurgical (Brain/Spine) Operations**
1	VSHN	Ventricular shunt
2	FUSN	Spinal fusion
3	LAM	Laminectomy
Priority	**Code**	**Neck Operations**
1	NECK	Neck surgery
2	THYR	Thyroid and or parathyroid surgery

OPC-SSI Denominator for Procedure Reporting

Denominator Data

a) For each patient having at least one of the procedures included in the NHSN Operative Procedure category(s) for which SSI surveillance is being performed during the month, complete the *OPC Denominator for Procedure Form*. The data are collected individually for each operative procedure category performed during the month specified on the *OPC Monthly Reporting Plan*. The *Instructions for Completion of OPC Denominator for Procedure Form* include brief instructions for collection and entry of each data element on the form.

b) Conduct post-discharge surveillance according to a formal active surveillance process. See **Appendix A** for the Post-discharge Surveillance Toolkit.

c) The surveillance period for a superficial SSI is 30 days after the procedure for all procedure categories. The surveillance period for deep and organ/space SSI is either 30 or 90 days, depending on the procedure category, as instructed in Table 2**,** *Surveillance Periods for SSIs Following Selected NHSN Operative Procedure Categories*.
d) Complete the *OPC SSI Event* form for each patient meeting the NHSN criteria for SSI, as defined in Surgical Site Infection Criteria, Tables 4A (general procedures) & 4B (BRST procedures).

Table 7: Denominator Reporting Instructions
Denominator for procedure reporting instructions are guidelines for reporting data of each individual procedure that is to be counted (included) in the denominator of the selected procedure category. The instructions assist with maintaining data quality.

Topic	Reporting Instruction
1. Wound class:	A high 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.
2. 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, an *OPC Denominator for Procedure Form* is reported for each procedure performed in the NHSN operative procedure category being monitored. For example, if a patient has an open reduction of fracture (FX) and knee arthroplasty (KPRO) performed during the same trip to the operating room and both procedure categories are being monitored and are included in the Monthly Reporting Plan, complete an *OPC Denominator for Procedure Form* for each procedure.
3. **Duration** of the procedure when procedures from *more than one NHSN operative procedure category* is performed through the **same incision on the same trip to the OR**:	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 COLO and CHOL procedures are done through the same incision, the time from start time to finish time is reported for both operative procedures.

4. Duration of operative procedures if patient has *two different NHSN operative procedures* performed via **separate incisions on the same trip to the OR:**	Try to determine the correct duration for each separate procedure (if this is documented), otherwise, take the time for both procedures and split it evenly between the two.
5. Same NHSN operative procedure category via the **same incision/laparoscopic incision, but different CPT codes** during same trip to the OR:	If procedures of different CPT codes from the same NHSN operative procedure category are performed through the same incision/laparoscopic sites, record only one procedure for that category. For example, a facility is performing surveillance for Laminectomy procedures (LAM). A patient undergoes a lumbar fusion of a couple *contiguous vertebrae* via one incision during the same trip to the operating room. Complete one LAM *Outpatient Procedure Component (OPC) Denominator for Procedure Form (CDC 57.404)* because both procedures are in the LAM operative procedure category.
6. **Same NHSN operative procedure** category via **separate incisions** during same trip to the OR:	For operative procedures that can be performed via separate incisions during same trip to operating room (specifically the following, AMP, BRST, CEA, FUSN, FX, HER, HPRO, HYST, KPRO, LAM, NEPH, OVRY, PVBY), separate *Outpatient Procedure Component (OPC) Denominator for Procedure Forms (CDC 57.404)* 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 the procedures and split it evenly between procedures. ***NOTES:*** • *A COLO procedure with a colostomy formation is entered as one COLO procedure.* • *Laparoscopic hernia repairs are considered one procedure, regardless of the number of hernias that are repaired in that trip to the OR. In most cases there will be only one incision time documented for this procedure. If more than one time is documented, total the durations. Open (non-laparoscopic) hernia repairs are reported as one procedure for each hernia repaired via a separate incision, (specifically, if two incisions are made to repair two defects), then two procedures will be reported. It is anticipated that separate incision times will be recorded*

	for these procedures. If not, take the total time for both procedures and split it evenly between the two.
7. Patient expires in the OR:	If a patient expires in the operating room, do not complete an *Outpatient Procedure Component (OPC) Denominator for Procedure Form (CDC 57.404)*. This operative procedure is excluded from the denominator.
8. HYST or VHYS:	When assigning the correct CPT hysterectomy procedure codes, a medical record coder must determine what structures were detached and how they were detached based on the medical record documentation.

Data Analyses

Descriptive analysis options of numerator and denominator data are available in the NHSN application, such as line listings, frequency tables, and bar and pie charts. Standardized Infection Ratios (SIRs), SSI rates and run charts will be available at a later date.

Post-discharge Surveillance

When using OPC-SSI criteria for surveillance the method used for post-discharge SSI surveillance is a required element for reporting. NHSN requires that facilities to use a post-discharge process which is active and patient-based for identifying and detecting of SSIs events. An active surveillance method ensures that SSI events are associated with a particular NHSN operative procedure and is accurately attributed to the facility in which the procedure was performed. Post-discharge should include the full surveillance period for the given operative procedure category as listed in Table 2.

Active post-discharge surveillance

A process in which the facility has a formal and routine process of identifying, investigating and detecting infections during the defined surveillance period. Active post-discharge surveillance may include but is not limited to:

- post-discharge letters or phone calls to patients
- inter-facility notification of patient encounters or admission
- review of medical or surgical clinic patient records
- post-discharge surgeon survey with listing of operative procedures performed

Any combination of these strategies is acceptable for use with the goal being to identify all SSIs based on NHSN OPC-SSI criteria. See Appendix A for the NHSN Post-discharge

Surveillance Toolkit. To minimize the workload of the Infection Preventionist (IPs) of collecting denominator data, download of surgical data into NHSN will be made available.

Passive post-discharge surveillance

A process which may include incidental or unsolicited post-discharge notifications of infections by surgeons, patients, family members or another facility.

If the facility already has an active standardized SSI surveillance process in place that is successfully identifying patients with infections post-discharge and is obtaining information from surgeons about potential SSIs, the facility may continue to use that process as long as the requirements of OPC-SSI Protocol are met.

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Appendix A:

Post-discharge Surveillance Toolkit

This toolkit was developed by NHSN to assist facilities in implementing an effective post-discharge surgical site infection surveillance process.

Contents:
The toolkit contains samples of a: Sample Letter, Post-discharge SSI Worksheet and Procedure Line List by Surgeon, along with instructions and helpful suggestions**.**

NOTE: *If the facility already has an active standardized SSI surveillance process in place that is successfully identifying patients with infections post-discharge and is obtaining information from surgeons about potential SSIs, the facility may continue to use that process as long as the requirements of this Post-Discharge Surveillance Toolkit are met.*

Instructions:
Based on the NHSN OPC-SSI Protocol, operative procedures must be followed for either a 30- or 90-day surveillance period after the operation in order to identify a potential SSI (Table 2).

1. **Sample Letter** – introduces the receiving surgeon and office staff to your facility's post-discharge SSI surveillance program. It provides instructions and contact information if questions arise.

2. **Procedure Line List by Surgeon** - is line list that is generated at the end of every month (or 90-day period for select procedures). The line list will provide surgeons with a detailed list of each procedure they performed at the facility during the previous 30 (or 90) days.

3. **SSI Worksheet** – is used to allow surgeons or their designee to document whether any of their patients developed a suspected superficial, deep, or organ/space surgical site infection. This is a generic worksheet that can be used for any surgical procedure monitored by the facility.

The Procedure Line List and the Post-discharge SSI Worksheet can be sent to surgeons' offices at the end of every surveillance period (30 or 90 days). Using the Procedure Line List as a guide, surgeons will complete one Worksheet for each patient who developed an SSI. All completed Worksheets should be sent back to the appropriate ASC staff to confirm that the documented SSI(s) correctly meets NHSN criteria. If the SSI(s) is confirmed, the infections must be entered into NHSN.

Instructions for the office staff on how to complete the Post-discharge SSI Worksheets can be customized based on your facility's preferences.

IMPORTANT POINTS:

- Your facility must include either a Surgeon Code or Surgeon Name for each procedure entered in NHSN in order to generate the Procedure Line List by surgeon.
- The Procedure Line List and the SSI Worksheets should not be mailed until at least 30 or 90 days after the last surgical procedure so that the correct time period following the surgery has lapsed.

SAMPLE: LETTER

[Insert Name Ambulatory Surgery Center] [Insert Date]
Post-discharge Surgical Site Infection Surveillance

Dear Office Staff,

Our records show that [Surgeon's Name] performed surgical procedures at our facility during the [Insert Months & Year or surveillance period].

We are requesting your assistance with our post-discharge surgical site infection surveillance. Please review your records for each patient included on the line list.

- If a patient did not develop any surgical site infection check the "No Evidence of SSI box."
- If a patient developed any signs or symptoms of infection, please complete the enclosed "Post-discharge Surgical Site Infection Worksheet."

NOTE: *Please make enough copies of the blank Post-discharge Surgical Site Infection Worksheet so that one worksheet can be completed for each patient with an SSI.*

- Return this line list and any completed worksheets by [Insert Due Date]

The completed SSI worksheets and line list can be sent back via fax or mail. If you have any questions, please feel free to call.

Thank you for your assistance in ensuring our compliance with post-discharge SSI surveillance.

[Insert Name]
[Facility Name]
[Facility Address]
FAX: 000-000-0000
Phone: 000-000-0000

SAMPLE: LINELIST for [Surgeon's Name]
[Insert Name Ambulatory Surgery Center] [Insert Date]
Post-discharge Surgical Site Infection Surveillance

Patient Last Name	Patient First Name	Date of Birth	Gender	Procedure ID	Procedure Date	Procedure Category	Surgeon Code	No Evidence of SSI
Smith	Roger	10/20/1944	F	27467	06/30/2018	COLO	0103	
Greene	Rachel	07/27/1949	F	27486	06/16/2018	COLO	0103	
Blakeman	Mark	12/01/1927	M	27497	06/30/2018	COLO	0103	
Fields	Rebecca	01/15/1960	F	27525	06/31/2018	COLO	0103	
Hunter	Sean	09/23/1933	M	27531	06/24/2018	COLO	0103	
Smith	Mary	07/16/1970	F	35014	06/09/2018	HYST	0103	
Jones	SeQuisha	06/29/1972	F	35015	06/02/2018	HYST	0103	
Archin	Latoya	09/03/1967	F	35016	06/07/2018	HYST	0103	

SAMPLE: Post-discharge Worksheet for Suspected SSI

[Insert Name Ambulatory Surgery Center] [Insert Date]

Post-discharge Surgical Site Infection Surveillance

Patient Demographics:	
Patient Name (Last, First):	
Primary CPT Code of Procedure:	Date of Procedure:
Date SSI Identified:	
Was the SSI identified on admission to a hospital? Y N If Yes, name of facility: _____	

Select the infection type and associated criteria (if known) from the options below:

☐ **A. Superficial Incisional SSI:** Involves only the skin and subcutaneous tissue of the incision

Criteria met (check all that apply):

☐ Purulent drainage from the superficial incision

☐ Organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue[1]

☐ *Superficial incision that is deliberately opened by a surgeon, attending physician[2] or other designee and culture or non-culture based[1] microbiologic testing is not performed.

***If checked, please answer the following (check all that apply):**

- ○ Pain or tenderness
- ○ Localized swelling
- ○ Redness (erythema)
- ○ Heat

☐ Diagnosis of a superficial incisional SSI by the surgeon or attending[1] physician or other designee.

☐ **B. Deep Incisional SSI:** Involves deep soft tissues (for example, fascia and muscle layers)

Criteria met (check all that apply):

☐ Purulent drainage from the deep incision

☐ *Deep incision spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, attending physician[2] or other designee and organism is identified from specimen[1] or microbiologic testing not performed.

***If checked, please answer the following (check all that apply):**

- ○ Fever (>38°C)
- ○ Localized pain or tenderness

☐ Abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathologic exam, or imaging test

☐ **C. Organ/Space:** Involves any part of the body, (excluding skin incision, fascia, and muscle layers), that is opened or manipulated during the operative procedure
Criteria met (check all that apply): ☐ Purulent drainage from a drain that is placed into the organ/space ☐ Organisms isolated from an aseptically-obtained specimen of fluid or tissue in the organ/space[1] ☐ Abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test evidence consistent with infection
[1]Culture or non-culture based microbiologic testing method. [2]May be interpreted as surgeon(s), infectious disease, other physician on the case, emergency physician or physician's designee (nurse practitioner or physician's assistant).
Additional comments:
Signature: **Date:**