Reducing Surgical Site Infection (SSI)


**Superficial Incisional SSI**

**Denominator:** All Cases

**Numerator:** Infection occurs within 30 days of the procedure and involves only skin and subcutaneous tissue of the incision and patient has at least 1 of the following:

a. purulent drainage from the superficial incision

b. organisms isolated from an aseptically-obtained culture of fluid or tissue from the superficial incision

c. superficial incision that is deliberately opened by a surgeon and is culture-positive or not cultured and patient has at least one of the following signs or symptoms of infection: pain or tenderness; localized swelling; redness; or heat. A culture negative finding does not meet this criterion

d. diagnosis of superficial incisional SSI by the surgeon or attending physician or other designee

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**Deep Incisional SSI**

**Denominator:** All Cases

**Numerator:** Infection occurs within 30 days of the procedure and involves deep soft tissues of the incision (e.g., 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 by a surgeon, attending physician or other designee and is culture-positive or not cultured and patient has at least one of the following signs or symptoms: fever (>38°C); localized pain or tenderness. A culture-negative finding does not meet this criterion.

c. an abscess or other evidence of infection involving the deep incision is found on direct examination, during invasive procedure, or by histopathologic examination or imaging test.

d. diagnosis of a deep incisional SSI by a surgeon or attending physician or other designee

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**Organ/Space SSI**

**Denominator:** All Cases

**Numerator:** Infection occurs within 30 days of the procedure and infection 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 1 of the following:

a. purulent drainage from a drain that is placed into the organ/space

b. organisms isolated from an aseptically-obtained culture of fluid or tissue in the organ/space

c. an abscess or other evidence of infection involving the organ/space that is found on direct examination, during invasive procedure, or by histopathologic examination or imaging test.

d. diagnosis of an organ/space SSI by a surgeon or attending physician or other designee and meets at least one criterion for a specific organ/space infection site listed in *Table 1 - See MSQC Operational Manual*
Diagram of SSIs

CDC & Prevention’s NHSN classification for SSI  Source: Anderson, et al
Surgical Site Infections

- Between 2% - 5% surgical patients acquire SSI (between $160,000 and $300,000/year)
- 60% of SSIs have been estimated to be preventable
- Account for 20% of the HAIs in hospitalized patients
- Each SSI is associated with an additional 7-11 post-operative hospital days
- Patients with SSIs have a 2-11 times higher risk of death
- Accounts for $3.5 Billion to $10 billion annually in healthcare expenditures
- Most estimates do not account for re-hospitalization, outpatient treatment, post-discharge expenses, quality of life for the patient, or any long term disability costs

Anderson, et al

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4267723/
Who Knows Your Data?

Hospital Compare (medicare.gov)

CDC/NHSN (National Healthcare Safety Network)

Accountable Care Organizations (ACO)

HAC  Understanding the Hospital-Acquired Condition Reduction Program

Beginning in FY 2015, the Hospital-Acquired Condition (HAC) Reduction Program, mandated by the Affordable Care Act, requires the Centers for Medicare & Medicaid (CMS) to reduce hospital payments by 1 percent for hospitals that rank among the lowest-performing 25 percent with regard to HACs.

Hospital-Acquired Conditions are defined as: Conditions that patients acquire while receiving treatment for another condition in an acute care health setting.

On average, a single Surgical Site Infection (SSI) costs $18,902 - $22,667*, making this the 3rd most expensive Health Care-Associated Infection.

HCAHPS
- Timely and Effective Care
- Readmissions, Complications, and Deaths

HAC
- Hospital–Acquired Condition Reduction Program

VBP
- Decreaséd Reimbursement
  - SSI following colon and abdominal hysterectomy procedures affect measures within the VBP Outcome Domain (FY 2016)

ACO
- Decreased Shared Savings
  - Readmissions resulting from SSI affect ACO Quality Measure #8: Risk Standardized, All Condition Readmissions

Accountable Care Organization

SSI
- LOS and Cost
- Reimbursement
- Readmissions
- Complications

www.medicare.gov
- Quality of Care Information
  - HCAHPS
  - Timely and Effective Care
  - Readmissions, Complications, and Deaths

Hospital Compare

Hospital Value-Based Purchasing

*Zimlichman et al (2013)
Your Hospital’s SSI Rates (Insert Here)
Commitment from Leadership

Formation of Steering Committee

- Effective communication of plan
- Protocol, integrated into order sets

Action Plan with clear expectations

- Education of staff
- Mechanisms to hold staff accountable
- Continuous evaluation of efforts and outcomes
Assess Culture

Safety Culture is the way safety is perceived, valued and prioritized in an organization. It reflects the real commitment to safety at all levels in the organization. It has also been described as "how an organization behaves when no one is watching".

Source: http://www.skybrary.aero/index.php/Safety_Culture
Engage Physicians

Make physicians partners not customers

Identify what is important to them:
- Improved patient outcomes (evidence based: data-driven)
- Reduced difficulties & wasted time

Understand the existing culture (beliefs, norms, values)

Understand legal barriers & opportunities

Surgeon Champion/Project Lead

- Respected as a physician
- Excellent Communication skills
- Strong social & leadership skills
- Committed to the project (shows courage)

Use “Engaging” Improvement Methods

- Standardize what is “standardizable” - no more
- Generate light, not heat with data (use data sensibly)
- Make the right thing easy to do

Form an SSI Team

Core Membership (Leadership)

- Surgeon Champion
- MSQC - SCQR
- Hospital Administration Leadership
- Anesthesiology Physician Champion
- Quality Leadership
- Nursing Leadership

Integral Members (Managers & Staff)

- Pharmacy
- Infection Prevention
- Pre/Periop Nursing
- Inpatient Nursing
- Others as identified

Others as identified
Establish SSI Team Goals

State the Problem/Purpose
- Provide data to support the problem or purpose.
- Why is a team necessary?

Define the Scope of the Project
- Define inclusions (a specific procedure i.e. colectomy, or ALL surgical cases)
- Set time frame

Define the Goal Statement
- Specific
- Measurable
- Realistic

Develop the Action Plan
- Establish priorities - what are you going to do & how are you going to do it?
- Identify the steps in the process
- Identify process owners /key team members
- Develop Timeline

Assign Team Roles
- Champion(s)
- Facilitator
- Recorder
- Timekeeper

Adapted from NQF (2006) VTE Consensus Standards
**Optimal Preparation for Surgery:**

- Patient Education
  - Smoking cessation
  - Incentive spirometry
  - Progressive ambulation
  - Nutrition
  - Glycemic Control

**Advances in Anesthesia Management**

**Specific Quality Improvement protocols**

**Prevention of post operative complications** *
- Pneumonia  ($40,184)
- Wound infection  ($20,785)
- Sepsis  ($38,900)
MISSION: IMPOSSIBLE?

COMMON GOAL

SSI

SURGICAL Initiatives

ANESTHESIA Initiatives

HOSPITAL Initiatives

Delivering Excellence at a Value
Evaluate Progress

Cycling Quality Improvement

Steering Committee (SSI Team)

Plan  Do  Act  Study

Clinical Practice Pathway

QI Initiatives

Outcomes

Morbidity  Mortality  SSI rates  LOS  Readmissions  Postop ED visits

Adapted from IHI Process Improvement Model

Presurgical Preparation & Intervention
Intraoperative Efficiency
Targeted Post-op Intervention
Change is a process, not an event