

**LAC+USC MEDICAL CENTER
DEPARTMENT OF INFECTION PREVENTION AND CONTROL
POLICIES AND PROCEDURES**

Subject: Surgical Site Infection (SSI) Prevention	Original Issue Date: 7/2011	Effective Date: June 2022
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Departments Consulted: Surgical Services Perioperative Services Antimicrobial Stewardship	Reviewed & Approved By: Paul Holtom MD, Hospital Epidemiologist Noah Wald-Dickler MD, Associate Hospital Epidemiologist Chair and Vice-Chair, Infection Control Committee	Approved By: Brad Spellberg, MD Chief Medical Officer

PURPOSE

To assist LAC+USC Medical Center healthcare workers in implementing evidence-based strategies to minimize the risk and associated harms of hospital acquired surgical site infections (SSI) following surgical procedures in hospital inpatient settings.

POLICY

CMS and CA State Law mandate, and LAC+USC Medical Center has adopted, implementation of an organized process to reduce SSIs by following evidence-based best practices known as outlined in the Institute for Healthcare Improvement’s Surgical Site Infection Prevention Bundle (SSI Bundle). This policy outlines those practices.

PROCESS

Implement the SSI Bundle in all patients who are undergoing surgical procedures. The SSI Bundle is a set of interventions that, when implemented together, achieve significantly better outcomes and reduced rates of SSIs than when implemented individually in surgical patients.

Key components of the SSI Bundle include:

1. Guideline-based Perioperative Antibiotic Prophylaxis

The purpose of perioperative antibiotic prophylaxis is to supplement aseptic surgical technique in containing contamination of operative wounds. In numerous rigorous scientific studies dating to the mid-1900’s it has been clearly demonstrated that antibiotics given shortly before or at the time of surgical incision produce dramatic diminution in surgical wound organism burden, thus reducing the likelihood (severity) of surgical site infections. In close conjunction with LAC+USC’s Antimicrobial Stewardship Program, the following principles of antimicrobial prophylaxis have been implemented:

- Antibiotic prophylaxis must be targeted towards pathogens most likely to infect the wound
- Antibiotic prophylaxis must be of the narrowest spectrum required with avoidance of anti-MRSA and gram negative agents where not clinically indicated to reduce selection of drug-resistant organisms
- Specific situations in which non-standard, narrow spectrum preoperative prophylaxis may be warranted will be discussed and reviewed with Antimicrobial Stewardship staff including Infectious Disease physicians and pharmacists.
- Antibiotics should be administered within one hour prior to surgical incision
- Protocols to guide perioperative prophylactic antibiotic selection, dosing, and duration will be developed in conjunction with the LAC+USC Antimicrobial Stewardship Program based on evidence-based guidelines and local antibiogram trends
- Prophylactic antibiotics will be discontinued within 24 hours after surgery

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2. Appropriate Hair Removal

- Hair removal should not be performed with razors due to the resulting skin abrasions that permit entry of skin microbial flora into surgical wounds, increasing risk of SSI.
- Where hair must be removed around surgical site, clippers should be used rather than razors
- Staff will be educated about the evidence and techniques for appropriate hair removal methods
- Hair removal should be performed as close to the time of surgical incision as possible
- Patients will be educated regarding avoidance of self-shave preoperatively.

3. Perioperative Glucose Control for Cardiothoracic Surgery

Patients undergoing Cardiothoracic Surgical (CTS) procedures are 3 times more likely to develop an SSI with elevated blood glucose levels. Standard of care requires controlling postoperative blood glucose below 200mg/dL. Hyperglycemia is a significant risk factor for SSI. Thus, minimally for CTS procedures, but for other surgical procedures as indicated, the following will be implemented:

- Standardized glucose control protocols
- Assessment of hyperglycemia risk in all postoperative patients
- Blood glucose testing on all CTS patients in pre-, intra-, & post-operative settings
- Establishment and maintenance of perioperative glucose accountability

4. Establishment of postoperative normothermia

- Ensuring patients are warm, dry, and comfortable is a fundamental aspect of patient care. This is true whether the patient is experiencing hospitalization for surgery or medical treatment.
- Studies indicate that patients undergoing colorectal surgery have a decreased risk of SSI if they are not allowed to become hypothermic during the perioperative period
- If possible use warmed, forced-air blankets preoperatively, during surgery and in the postoperative period in the recovery room
- Use warmed IV fluids where feasible
- Increase the ambient temperature in the operating room in accordance with OR procedures
- Use warming blankets under patients on the operating table where possible

5. Surgical Skin Asepsis

Meticulous skin asepsis is important to reduce skin microbial count as low as possible to prevent endogenous sources of wound contamination. Preoperative showering and decolonization programs are designed to reduce microbial counts where feasible and may reduce surgery site infections and may be considered.

6. Postoperative Dressings

Postoperative surgical dressing management is an important part of SSI prevention. The type of dressing utilized, when and how they are applied intra-operatively, and postoperative wound care will be reviewed by individual surgical departments with assistance and consultation available from the Department of Infection Prevention and Control.

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SURVEILLANCE METHODOLOGY

Data for SSI rates and incidence for select surgical procedures, including their corresponding denominator data, are collected by the Department of Infection Prevention & Control (IPC) using prospective surveillance of all patients who have central lines. Infection Preventionists actively monitor CLABSI's and other hospital-acquired infections during patients' hospitalization and after discharge by screening a variety of data sources including microbiology reports, line and catheter count reports, and clinical documentation in the electronic medical record. SSIs are reviewed with surgical department and Units area leads.

REPORTING

SSI cases are reported to the state via the US Centers for Disease Control's (CDC) National Healthcare Safety Network (NHSN). NHSN is a voluntary, secure, internet-based surveillance system integrating patient and healthcare personnel safety surveillance systems managed by the CDC's Division of Healthcare Quality Promotion (DHQP).

As with other hospital-acquired infections, SSI's are identified and reported using the definitions provided by the NHSN.

Identified SSI cases are also compiled and reported on a monthly basis to the Infection Control Committee, an organized committee of the Attending Staff Association. Trends, including any surgical department-based patterns, are analyzed and targeted for specific intervention.

Monitor designated surgeries identified by CDPH for deep or organ space infection

REFERENCES

1. Senate Bill 739, California State Legislation Infection Prevention and Reporting
2. The Joint Commission Standard, NPSG.07.05.01
3. Association for Professional in Infection Control (APIC), Guide for the Prevention of Mediastinitis Surgical Site Infections Following Cardiac Surgery.
4. Centers for Disease Control and Prevention National Health Safety Network (CDC NHSN)
5. Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery. *Am J Health Syst Pharm* (2013).