

	<b>POLICIES &amp; PROCEDURES</b>  Number: <b>40-160</b>  Title: <b>Surgical Site Infections               - Prevention</b>
<b>Authorization:</b> [  ] SHR Infection Prevention & Control Committee [    ] Facility Board of Directors	Source: <b>Infection Prevention &amp; Control</b> Date Initiated: May, 2007 Date Reaffirmed: Date Revised: Scope: SHR Agencies & Affiliates

### **Introduction**

Infection prevention and control practices such as improved operating room ventilation, sterilization methods, barrier techniques, surgical practices and antimicrobial prophylaxis help reduce surgical site infections. Despite these improvements, surgical site infections (SSI) are the second most common type of adverse events occurring in hospitalized patients. Surgical site infections have been shown to increase mortality, readmission rate, length of stay and cost for patients who incur them. To reduce the risk of surgical site infections, systematic, realistic and evidence-based approaches are required.

### **Policy**

1. Surveillance for surgical site Class 1 (clean) and Class 2 (clean-contaminated) infections will be conducted to determine trends, evaluate the efficacy of preventative programs and help identify potential problems.
2. All health care workers providing surgical patient care will be educated in the epidemiology of and infection prevention and control procedures for preventing surgical site infections.
3. Surgeon-specific SSI rates will be reported.

### **Purpose**

1. To reduce the risk and incidence of surgical site infections by following evidence-based guidelines.

### **Procedure**

1. Pre-operative patient preparation
  - Treat all identified infections prior to surgery.
  - Encourage same-day surgery admission.
  - Adequately control serum blood glucose levels in all diabetic patients and particularly avoid hyperglycemia postoperatively.
  - Encourage tobacco cessation. At minimum, instruct patients to abstain from tobacco use for at least 30 days before elective operation.

- Ensure the practice of pre-operative bathing/showering with an antimicrobial product (chlorhexidine preferred) the evening before and the morning of surgery.
- Avoid hair removal at the operative site unless absolutely necessary; clip rather than shave.
- In the operating room (OR), the area around and including the operative site should be scrubbed for two minutes with an antimicrobial preoperative skin preparation applied from the center to the periphery. This area should be large enough to include the entire incision and an adjacent area large enough for the surgeon to work during the operation without contacting unprepared skin.
- For those operations requiring an incision and the use of the OR, the patient should be covered with sterile drapes in such a manner that no part of the patient is uncovered except the operative field and those parts necessary for anaesthesia to be administered and maintained.
- Encourage the establishment of postoperative normothermia for colorectal surgery patients.

## 2. Surgical team preparation

### 2.1 Hand/forearm antisepsis

- Keep nails short and do not wear artificial nails.
- Do not wear hand or arm jewelry.
- Clean underneath each fingernail prior to performing the first surgical scrub of the day.
- All members of the surgical team who will have contact with the sterile surgical field, sterile instruments or incisional wound will perform a 2 to 5 minute surgical scrub with an antimicrobial agent at the beginning of the surgical day. The scrub will include the hands and forearms up to the elbows.
- Between consecutive operations, decontamination of hands may be performed with the use of a hand sanitizer or a scrub of two minutes with an antimicrobial soap.
- Keep hands elevated and away from the body so that water runs from the tips of the fingers toward the elbows. Dry hands with sterile towels and don sterile gowns and gloves.

### 2.2 Surgical attire and drapes

- During surgery, all who enter the OR will wear a surgical mask that covers the nose and mouth, a cap or hood to fully cover hair on the head and face.
- OR gowns should be made of reusable or disposable fabrics that have been shown to be effective barriers to organisms, even when wet.
- The surgical team should wear sterile gloves. If a glove is punctured during the operations, it should be changed as promptly as safety permits.
- Do not wear shoe covers for the prevention of SSI.
- Change scrub suits that are visibly soiled, contaminated, and/or penetrated by blood or other potentially infectious materials.

## 3. Preparation and maintenance of OR environment.

- Maintain positive pressure ventilation in the OR with respect to the corridors and adjacent areas.

- Maintain a minimum of 15 air exchanges per hour, of which at least 3 should be fresh air. All inlets should be located as high above the floor as possible and remote from exhaust outlets of all types. All air, recirculated or fresh, should be filtered (at least 90% efficiency) before it enters the OR.
- All OR doors should be kept closed except as needed for passage of equipment, personnel, and the patient. The number of personnel allowed to enter the OR, especially after an operation has started, should be kept to a minimum.
- Routine microbiologic sampling of the air or environmental surfaces should not be done.
- Use of tacky or antiseptic mats at the entrance to the OR is not recommended for purpose of Infection Prevention & Control.
- When visible soiling or contamination with blood or other body fluids of surfaces or equipment occurs during an operation, use a hospital disinfectant to clean the affected areas before the next operation.
- Sterilize all surgical instruments according to published guidelines.
- Perform flash sterilization only for patient care items that will be used immediately (e.g. to reprocess an inadvertently dropped instruments). Do not use flash sterilization for reasons of convenience, as an alternative to purchasing additional instruments sets, or to save time.

#### 4. Prophylactic antibiotic use

- Administer a prophylactic antibiotic only when indicated, and selection should be consistent with guidelines based on efficacy against the most common pathogens causing SSI for a specific operation and published recommendations.
- Administer the initial dose of the prophylactic antibiotic by the intravenous route, timed to ensure that a bactericidal concentration of the drug is well established in serum and tissues when the incision is made.
- Preoperative doses should be given in the operating room (OR), just prior to the procedure (exceptions would be when 2 or more antibiotics **or** Vancomycin are indicated for prophylaxis)
- Intraoperative dosing is not routinely indicated unless it is a prolonged surgical procedure.
- Multiple studies have shown that postoperative doses are not routinely indicated for clean or clean-contaminated surgery. Discontinuation of prophylactic antibiotics should occur with 24 hours or three doses which are eight hours apart.

#### 5. Protection of patients from other infected patients or personnel

- Patients with potentially transmissible infections should be placed on additional precautions.
- Personnel with potentially transmissible conditions, for example, Herpes simplex infections of fingers and hands, group A streptococcal disease, or *S. aureus* skin lesions should be managed according to the Occupational Health and Safety Department policy on Infectious Disease exposure.
- Routine culturing of personnel should not be done.

#### 6. Postoperative incision care

- Primary closed incisions should be protected with a dressing for 24-48 hours postoperatively.
- Cleanse hands before and after dressing changes and any contact with the surgical site.
- When an incisional dressing must be changed, use sterile technique.

#### 7. Surveillance

- Use standardized definitions for identifying SSI among surgical inpatients and outpatients.
- Assign surgical wound classification at the completion of an operation. A surgical team member should make the assignment. Record as clean (I), clean-contaminated (II), contaminated (III), or dirty and infected (IV).
- Surveillance of post-operative SSI should be done and infection rates reported to the surgeons and other personnel/ committees as appropriate.
- Increases in wound infection rates should be investigated. If an outbreak is confirmed, appropriate epidemiologic studies should be initiated.

#### References:

1. Guideline for prevention of surgical site infection, 1999. AJIC 27;2:97-134.
2. Institute for Health Care Improvement, How-to-Guide: Prevent Surgical Site Infections, Safer Health Care Now! Campaign, 2006.
3. APIC Text of Infection Control and Epidemiology, 2<sup>nd</sup> edition, 2005: 23:1-10.
4. *Bugs and Drugs* Antimicrobial Reference Book, Blondel-Hill & Fryters.