Observation Checklist of Surgical Site Infection (SSI) Prevention Best Practices
# Observation Checklist of Surgical Site Infection (SSI) Prevention Best Practices

**Observation Date/Time:** __________________________ **Observer:** __________________________

**Type of Surgery Observed:** __________________________ **OR Room #:** __________________________

<table>
<thead>
<tr>
<th>Prevention Practice: Surgical Site Infection</th>
<th>Evidence Based Action to Mitigate Infection Risk</th>
<th>Method of Measurement</th>
<th>Assessment of SSI Prevention Practices</th>
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</thead>
<tbody>
<tr>
<td><strong>Normothermia</strong></td>
<td>Forced air warming (FAW) or other method used to maintain peri-operative normothermia ≥36°C^1-5</td>
<td>Patient has a FAW or other device in place upon entry to OR</td>
<td></td>
</tr>
<tr>
<td><strong>Nasal de-colonization</strong></td>
<td>Pre-op nasal MRSA/MSSA screening for orthopedic, cardiac and spine surgery2,3,6,7</td>
<td>Pre-op checklist – results are documented in EMR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For MRSA/MSSA pre-op nasal and skin decolonization protocol with either mupirocin ointment or nasal antiseptic (povidone iodine or alcohol) and daily bathing with chlorhexidine for 5 days prior to surgery for orthopedic, cardiac and spine cases for patients with + MRSA/MSSA test^6,7</td>
<td>Interview with pre-op staff and or observation of practice in pre-op if done day of surgery in pre-op surgery unit</td>
<td></td>
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<td></td>
<td>Universal pre-op nasal decolonization for orthopedic, cardiac and spine cases for patients regardless of pre-screening^8,9</td>
<td>Interview with pre-op staff and or observation of practice in pre-op if done day of surgery in pre-op surgery unit</td>
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<tr>
<td><strong>Oral Health</strong></td>
<td>Assess teeth and gum health for risks of secondary seeding of implant sites. (i.e. Orthopedic)^10</td>
<td>Observe in Pre-Op</td>
<td></td>
</tr>
<tr>
<td><strong>Blood Loss Prevention: Immunosuppressive Effect of Blood Transfusion</strong></td>
<td>Administration of Tranexamic acid (TXA) given in pre-op and postop (usually as a single pre-op dose)^11</td>
<td>Check the EMR for dose administration</td>
<td></td>
</tr>
<tr>
<td><strong>Hyperglycemia</strong></td>
<td>Patient blood glucose maintained less than 200 mg/dL in patients with and without diabetes for the perioperative period^2,12,13</td>
<td>Check the EMR for pre-op glucose result</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organizational policies may include A1c level vs BG. Typical A1c tight control range would be less than 7^12,13</td>
<td></td>
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</table>

**Pre-Operative Prevention Practices**

- **Normothermia**: Forced air warming (FAW) or other method used to maintain peri-operative normothermia ≥36°C^1-5. Meets Practice
- **Nasal de-colonization**: Pre-op nasal MRSA/MSSA screening for orthopedic, cardiac and spine surgery2,3,6,7. Does not meet practice
- **Oral Health**: Assess teeth and gum health for risks of secondary seeding of implant sites. (i.e. Orthopedic)^10. Comment or not applicable
- **Blood Loss Prevention**: Administration of Tranexamic acid (TXA) given in pre-op and postop (usually as a single pre-op dose)^11. Does not meet practice
- **Hyperglycemia**: Patient blood glucose maintained less than 200 mg/dL in patients with and without diabetes for the perioperative period^2,12,13. Does not meet practice

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**Intra-Operative Prevention Practices (Staff)**

**Proper OR Attire**
- Mask fully covers mouth and nose.¹⁴
- Attire worn in OR provides complete hair coverage – chest, arm, and head (Beards).¹²
- Long sleeves worn by both scrubbed and non-scrubbed team members.¹⁴
- Personal clothing is contained not visible within the scrub attire.¹⁴
- Attire is laundered in a health care-accredited facility.¹⁴
- Clean shoes are dedicated for use in OR or cloth booties are worn over outside shoes.¹⁴
- Jewelry is not worn or is covered.²,¹⁴,¹⁶
- Stethoscopes are not worn around neck and disinfected between cases.¹⁴
- Briefcases, backpacks, computers, phones, smart wristwatches, and other personal items are restricted or disinfected prior to entry. No items stored on floor.¹⁶

**Gloving**
- Surgeon and scrubbed staff double glove.²,¹⁵
- Surgeon changes sterile gloves prior to handling any implant.²,¹⁵
- Surgeon changes sterile gloves before closing incision.¹⁵

**Sterile Field Compromise**
- Items introduced onto sterile field are opened, dispensed, transferred while maintaining sterility.¹⁵
- Scrubbed team members don sterile gowns and gloves in a manner to prevent contamination of attire or instrument tables.¹⁶
- Conversations in the presence of a sterile field are kept to a minimum.¹⁵
- Scrubbed staff do not turn back to sterile field.¹⁵
- Hands above waist.¹⁵

Observe during case for compliance
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<tr>
<td>Intra-Operative Prevention Practices (Staff)</td>
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</tr>
<tr>
<td><strong>Sterile Field Compromise (cont.)</strong></td>
<td>Physical separation of sterile team from non-sterile team.(^\text{15})</td>
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<tr>
<td></td>
<td>Open sterile field is covered when not in use by either the two-cuffed drape method or with a drape designed for the purposes of covering a sterile field. Parts of the sterile field may also be covered during the procedure.(^\text{15})</td>
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<tr>
<td></td>
<td>Constant monitoring of the covered sterile field during unanticipated delays is not required.(^\text{15})</td>
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<tr>
<td><strong>Traffic Flow</strong></td>
<td>Interventions are in place to minimize traffic flow in and out of all procedures.(^\text{15})</td>
<td></td>
<td>Observe during case for compliance</td>
</tr>
<tr>
<td><strong>Anesthesia</strong></td>
<td>Anesthesia provider wears double gloves, removes outer gloves/sheathes, laryngoscope handle and blade after intubation to reduce contaminating immediate environment.(^\text{16})</td>
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<tr>
<td></td>
<td>Anesthesia cart appears clean and un-cluttered(^\text{17})</td>
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<tr>
<td></td>
<td>Anesthesia cart - hand sanitizer readily available &amp; in use routinely(^\text{16})</td>
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<tr>
<td></td>
<td>All medication vial tops are disinfected with alcohol before accessing, after popping off cover.(^\text{18})</td>
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<td></td>
<td>Skin prep prior to any local anesthetic.(^\text{18})</td>
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<tr>
<td></td>
<td>IV injection ports swabbed prior to access or port protector/disinfector cap used.(^\text{18})</td>
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</tr>
<tr>
<td><strong>Physical Environment – HVAC Controls</strong></td>
<td>Doors closed, traffic in and out of room kept to minimum during case.(^\text{15})</td>
<td>Observe and count # door openings or install door counter</td>
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<tr>
<td></td>
<td>Positive air pressure(^\text{18,19})</td>
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<td>Minimum of 20 air changes/hour(^\text{18,19})</td>
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<td>HEPA air filtration(^\text{18,19})</td>
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<td>Temperature 68 to 75°F(^\text{18,19})</td>
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<td>Humidity 20% to 60%(^\text{18,19})</td>
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<td></td>
<td>Documented HVAC metrics are available for review.(^\text{19})</td>
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<tr>
<td></td>
<td>Staff educated in how system works and their roles in maintaining proper air flow.(^\text{19})</td>
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<td></td>
<td></td>
<td></td>
<td>[Meets Practice][1] [Does not meet practice][1] [Comments (NA)][1]</td>
</tr>
</tbody>
</table>

**Intra-Operative Prevention Practices (Patient)**

**Hand Hygiene**
- Hand sanitizing performed by any non-scrubbed staff as they enter OR.[16]
- Hand sanitizer dispenser mounted at entrance door to operating room (inside or outside).[16]
- No artificial nails, no chipped nail polish, short natural nails for all members of surgical team.[16]

**Parenteral Antimicrobial Prophylaxis**
- Administer prophylactic antimicrobial agents only when indicated based on established guidelines. When antibiotics are recommended, administer within 60 minutes prior to incision. For vancomycin, administration period is up to 2 hours prior to incision.[2]

Prophylactic antibiotic dosing adjusted for weight of patient. For cefazolin, recommendations are to administer 2.0 g for patients weighing >60-80 kg and 3.0 g if >120 kg. For aminoglycosides, dosing is calculated using the patient’s ideal body weight plus 40% of the difference between the actual and ideal body weight. Vancomycin should be dosed at 15 mg/kg.[2,13]

**Parenteral Antimicrobial Prophylaxis Re-dosing**
- Re-dosing of prophylactic antibiotic for long cases > 3 hours.[2,13,21]

**CAUTI Prevention**
- Urinary drainage bag kept off the floor. Category 1.[22]
- If urinary catheter inserted prior to procedure, aseptic technique followed.[22]

**Hair Removal**
- If hair is removed in the operating room, it is performed prior to skin prep and in a manner that contains clipped hair with a clipper vacuum device.[23,25]

**Skin Preparation Type**
- Perform intraoperative skin prep with an alcohol based antiseptic agent unless contraindicated.[23]
- Povidone iodophor or PCMX skin prep product used for mucous membranes (e.g., genitalia).[23]
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--- | --- | --- | --- |
| Meets Practice | Does not meet practice | Comments (NA) |

### Intra-Operative Prevention Practices (Patient)

**Surgical Hand Scrub**
Pre-surgical hand scrub per protocol for scrubbed team members using antimicrobial solution plus brush OR brushless alcohol-based scrub product per manufacturer’s recommendations.\(^2,16\)

Observation is possible or review facility protocols.

**Reduced Core Body Temperature**
Forced air warming device or other method used to maintain intra-operative normothermia = \(\geq 36^\circ C\)\(^1,26\)

Check Anesthesia Record and EMR.

**Increased Oxygenation**
For patients with normal pulmonary function undergoing general anesthesia with endotracheal intubation, administer increased FiO2 intraoperatively and post-extubating in the immediate postoperative period. To optimize tissue oxygen delivery, maintain perioperative normothermia and adequate volume replacement.\(^2,27\)

Check Anesthesia Record and EMR.

**Safe Medication Administration**
Intra-capsular injection (total knee) comes sterile/prepared by pharmacy vs. prepared in OR to prevent contamination\(^29\)

Check Anesthesia Record and EMR.

**Wound Care (Intra-Op)**
Wound edge protector for C Section, Lap, Ortho, Abdominal, Biliary procedures\(^2\)

FDA approved sterile irrigation solutions used to remove contaminants prior to closing wound (normal saline, chlorhexidine 0.05% or diluted betadine)\(^1,3\)

Check OR Record and EMR.

**Wound Care**
Antimicrobial coated suture used (for any type of suture including barbed)\(^1-3\)

Suture used instead of staples\(^30,32\)

Skin glue (TSA) in addition to tape, staples or suture used to provide a sealed, sterile wound until skin starts to heal\(^33,34\)

Antiseptic post op wound, dressings applied (silver, PHMB (i.e. Antimicrobial Island Dressing), CHG) for high risk procedures including cardiac, orthopedic, breast, bariatric\(^35-38\)

Check OR Record, EMR and observe during case.
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### Intra-Operative Prevention Practices (Patient: Colon Cases/Bundle ONLY)

**Colon Prevention Bundle Element**

- **Wound Care (cont.):**
  - Negative pressure wound dressings for sternotomy, C section in obese women, ORIF of high-risk lower extremity fractures (tibial plateau, pilot, calcaneal)\(^{39}\)
  - Check OR Record, EMR and Observe during case

- **Colon Prevention Bundle Element:**
  - Mechanical bowel prep and oral antibiotics before colorectal procedures\(^{16}\)
  - Sterile fields and instrumentation used during procedures that involve both the abdominal and perineal areas should be kept separate.\(^{16}\)
  - Check, EMR and Observe during case
  - Barrier technique is used during bowel surgery\(^{16}\)
  - Surgeon uses separate sterile instrument tray for closing incision in colon surgeries.\(^{16}\)

### Intra-Operative Prevention Practices (Room Set-up, Instrumentation and Supply Storage)

**Storage of OR Supplies**

- Items are stored in restricted areas.\(^{42}\)
  - Items are removed from their external shipping containers prior to OR storage\(^{42}\)
  - Items labeled with an expiration date are not expired.\(^{42}\)
  - Items stored in the OR are in closed cabinets.\(^{42}\)
  - Items are stored to minimize dragging, sliding, or crushing.\(^{42}\)
  - Clean personnel scrubs stored in clean area in closed cabinetry.\(^{42}\)
  - Observed prior to or during case

**Instrumentation Processing**

- All containerized instrument sets weigh less than 25lbs.\(^{42}\)
  - Conduct an audit of Sterile Processing Dept
- No organic material (blood, hair, lint, tissue) or other debris is noted on instruments or in a set.\(^{42}\)
  - Observed during the opening of the case
- Paper plastic pouches are used for small, lightweight, low price profile item.\(^{42}\)
- Conduct an audit of Sterile Processing Department
- If the item is double packaged, sequentially size pouches are used. The sealed in pouch fits inside the other pouch without folding. The pouches are positioned so that the plastic faces plastic and paper faces paper.\(^{42}\)
- Paper plastic pouches are not placed for use within wrapped sets or containment devices.\(^{42}\)
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### Intra-Operative Prevention Practices (Room Set-up, Instrumentation and Supply Storage)

<table>
<thead>
<tr>
<th>Instrumentation Processing (cont.)</th>
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<tbody>
<tr>
<td></td>
<td>Chemical indicators are located on the outside and inside of every package and checked for proper reactions.</td>
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<tr>
<td></td>
<td>Wrapped packages are snug but not too tight</td>
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<tr>
<td></td>
<td>Rigid containers are regularly inspected by manufacturer’s representative according to manufacturer’s written IFU.</td>
<td>Conduct an audit of Sterile Processing Department</td>
<td></td>
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<tr>
<td></td>
<td>The integrity and proper alignment of the plate and filter or valves in rigid containers is inspected with each use in accordance the manufacturers’ written IFU. Filters do not have visible holes.</td>
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<tr>
<td></td>
<td>All gaskets in rigid containers are free of brakes, cracks, or cuts. Each gasket is properly secured and even at joint surfaces.</td>
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<td>The filter material in the rigid containers completely covers the perforated area, and the device holding the filter place.</td>
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<td>The latching mechanism is secure to the lid of the rigid container so that it cannot move when locked.</td>
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<td></td>
<td>Mechanical valves move freely. Rivets and screws are secure and show no signs of damage or corrosion.</td>
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<td></td>
<td>Items from offsite transportation are managed Properly</td>
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<td></td>
<td>Towels and gauze are labeled as lint free</td>
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<tr>
<td></td>
<td>Automated cart distribution systems/pneumatic systems follow IFU for cleaning</td>
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</tr>
<tr>
<td>Immediate Use Sterilization</td>
<td>The items are cleaned consistent with all devices process within the facility. Once cleaned, they are placed within a container intended for immediate use.</td>
<td></td>
<td>Observed prior to or during case</td>
</tr>
<tr>
<td>Instrument Contamination</td>
<td>Point of use cleaning of sterile instruments (wipe and flush lumens – cover with gauze soaked in sterile water or other means of preventing drying of bioburden (enzymatic gels/ spray))</td>
<td></td>
<td>Observe during case</td>
</tr>
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## Intra-Operative Prevention Practices (Room Set-up, Instrumentation and Supply Storage)

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<tr>
<td>Environmental Contamination Prevention</td>
<td>Non-sterile equipment such as C-Arm covered by a clean barrier; sterile handles for microscope, lights or other equipment touched by scrubbed team members.42</td>
<td>Observe in OR</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>Interventions are in place to minimize dust contamination when construction or remodeling is in and/or near operating room, sterile supply instruments or storage (i.e., barriers, traffic flow, particulate count).20</td>
<td></td>
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</tr>
</tbody>
</table>

## Post-Operative Prevention Practices (Patient)

### Post-operative Wound Care

- Aseptic dressing change - observe for signs of infection and document in health record including drainage and redness.44
- Frequent hand cleaning especially prior to touching/ changing dressing45
- Daily patient bathing/clean clothes and bed linen change46

### Discharge

- Discharge instructions include proper care of wound and limitations that may increase risk of infection. (i.e. wearing of unclean shoes after foot surgery).44
- Patients with implants educated on the need to maintain good oral care and potential risk of infections after undergoing dental procedures.47,48

## Post-Operative Prevention Practices (Equipment)

### Transporting of OR Items

- Unused items that previously have been packaged, sterilize, and issued to the OR are returned to the sterile storage area only if the integrity of the packaging has not been compromised and there is no evidence of contamination.41,42
- The reprocessing of single-use devices is performed according to FDA requirements.41,42
- Soiled items are immediately contained and transported to the decontamination area or soiled utility area, where cleaning procedures can be accomplished away from patient care.41,42
- Immediately after use, items are kept moist in the transport container by adding a towel moistened with water or a foam spray or gel products specifically intended for this use. Items are not transported in liquid.41,42
- During transport clean or sterile items are contained and segregated from contaminated items, trash, and food.41

<table>
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<tr>
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<th>Does not meet practice</th>
<th>Comments (NA)</th>
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References for SSI Prevention Best Practices

14. AORN Guideline for Surgical Attire, 2019
15. AORN Guideline for Sterile Technique Guideline, 2018
16. AORN Guideline for Hand Hygiene, 2022
17. AORN Guidelines for Environmental Cleaning, 2020
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26. AORN Guideline for Prevention of Hypothermia, 2019


41. ANSI/AAMI ST 79 Comprehensive guide to steam sterilization and sterility assurance in health care facilities, A5 2017


