Surgical Site Infection Prevention
Objectives

- Describe the signs associated with the development of surgical site infection.
- List two risk factors for developing SSI.
- Identify three measures for preventing SSI.
Importance of Preventing Surgical Site Infections

- In U.S., >40 million inpatient surgical procedures each year; 2-5% complicated by surgical site infection.
- SSIs are the second most common healthcare associated infection (HAI) (representing 24% of all HAI).
- Prolong hospital stay by 7.4 days.
- Cost $400-$2,600 per infection (TOTAL: $130-$845 million/year).
Preoperative Preparation

Educate the patient about what measures he/she can take to prevent surgical site infections.
Preoperative Patient Teaching

• Have patient **stop smoking**. Even 2 weeks helps.

• Have patient shower with **chlorhexidine the evening before and morning of operation.**
  (In the hospital use the chlorhexidine wipes if appropriate)

• Prevent hyperglycemia.

• Prevent hypothermia.

• Optimize oxygen tension.

• Don’t shave operative site.

• Antibiotics – right antibiotic, on time, for proper duration, dosed appropriately.
Fundamentals of Antibiotic Administration

Fundamentals of Antibiotic Administration should be administered within 1 hour of incision.
### Elective Surgical Procedures
Importance of Timing of Surgical Antimicrobial Prophylaxis

Temporal relationship between the administration of prophylactic antibiotics and rates of surgical-wound infection

<table>
<thead>
<tr>
<th>Time of Administration</th>
<th>No. of patients</th>
<th>No. (%) of infections</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early (2–24 hours before incision)</td>
<td>369</td>
<td>14 (3.8)</td>
<td>4.3*</td>
</tr>
<tr>
<td>Preoperative (0–2 hours before incision)</td>
<td>1,708</td>
<td>10 (0.59)</td>
<td>NA</td>
</tr>
<tr>
<td>Perioperative (≤3 hours after incision)</td>
<td>282</td>
<td>4 (1.4)</td>
<td>2.1†</td>
</tr>
<tr>
<td>Postoperative (&gt;3 hours after the incision, but &lt;24 hours after surgery)</td>
<td>488</td>
<td>16 (3.3)</td>
<td>5.8‡</td>
</tr>
</tbody>
</table>

* P = 0.001. † P = 0.23. ‡ P = 0.0001. NA = not applicable.

Elective Surgical Procedures

Hair Removal

Clipping hair just before case is best

<table>
<thead>
<tr>
<th>Hair Removal Method</th>
<th>Infection Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Razor</td>
<td>5.2 - 8.8%</td>
</tr>
<tr>
<td>AM Razor</td>
<td>6.4 - 10%</td>
</tr>
<tr>
<td>PM Clipper</td>
<td>4 - 7.5%</td>
</tr>
<tr>
<td>AM Clipper</td>
<td>1.8 - 3.2%</td>
</tr>
</tbody>
</table>

Source of SSI Pathogens

- The patient’s own normal flora (skin, GI).
- Operating Room environment.
- Hospital personnel (MDs/RNs/staff).
- A distant site or source of infection may seed the operative site. (highlights importance of patient exam patient prior to elective cases)
- Gross contamination of surgical dressing.
Surgical Attire

- Scrub suits.
- Cap/hoods.
- Shoe covers.
- Masks.
- Gloves.
- Gowns.
Intra-operative Prevention of SSI - Surgical Attire

- Head Covering – Wear a cap or hood to fully cover hair on the head and face.
- Hospital provided /laundered scrubs.
- Mask - Wear a surgical mask that fully covers the mouth and nose when entering the OR sterile hallway or OR room. Remove when surgery is complete and discard in trash.
- Shoe covers.
- Eye Shield - When splashing is anticipated.
Traffic Control

Restrict the number of people who are in the OR suite
SSI Prevention - Controlling OR Traffic

• Each additional person entering the OR adds skin flora burden in the space and increases the risk of contamination.

• Opening and closing of doors causes air currents to potentially bring in from outside the OR.
Ultimate Goal: Prevent Surgical Site Infections
Surgical Site Infection

Once a Surgical Site infection occurs:

1. Inform MD.

2. Document site changes such as: erythema, increased drainage, purulent drainage, dehiscence – include a good description (i.e. noted copious purulent green drainage and 2 cm of erythema surrounding the top 3rd of the surgical incision site.)

3. Inform Infection Control.

4. Patient may need to be placed on contact precautions depending on the situation.
Congratulations!

You have successfully completed this portion of this course and are ready to take the quiz.

Before you exit, you may review the content once more. Take the quiz and score at least 80% to successfully complete the quiz. After passing the quiz, provide us with your valuable feedback in the brief evaluation so that we may continue to improve our courses. The evaluation is not required for successful completion of this course.

Thank you!

HR Learning Management