Antibiotic Delivery Requirements
University of Washington Medical Center
Harborview Medical Center
Departments of Anesthesiology

Overview

Surgical wound infection is a common problem, representing 10-15% of adverse events in hospitals (figure 1).
 It has been shown to be a dangerous and expensive adverse event of operative care (figure 2).
The HMC and UMWC Anesthesia Services are being called upon to take ownership of the timing, selection & duration of prophylactic antibiotics.

The anesthesia team is requested to 1) Ensure the right dose of the right antibiotic is given at the right time; 2) Document administration accurately and legibly.

Reducing surgical wound infections

Surgical wound infection is preventable. Factors shown to be effective include…

1) Timing, selection & duration of prophylactic antibiotics
2) Appropriate site preparation – clipping not shaving
3) Optimized glucose control – check labs often
4) Perioperative normothermia – use warmers
5) Perioperative oxygenation – don't let anaerobes thrive

The Anesthesia Service will initially concentrate their efforts on Factor #1.

Timing of prophylactic antibiotics (figure 3)

For all perioperative antibiotics, except vancomycin…

- Give 0-60 minutes prior to incision

Vancomycin can be started 0-120 minutes prior to incision

- Give vancomycin in addition to other indicated antibiotics

Selection of prophylactic antibiotics

Select antibiotics from the standard list & coordinate your choice with surgeon preferences.

Table 1 (last updated 2/22/06)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Antibiotic</th>
<th>Dose</th>
<th>Route/Duration</th>
<th>Intra-Op Re-Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper GI tract/Pancreaticobiliary/OB</td>
<td>Cefazolin</td>
<td>2 gm</td>
<td>IVP 5 mins</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Colorectal</td>
<td>Cefotetan</td>
<td>2 gm</td>
<td>IVP 5 mins</td>
<td>3 hrs</td>
</tr>
<tr>
<td>GU</td>
<td>Ciprofloxacin</td>
<td>400 mg</td>
<td>IVPB 60 mins</td>
<td>6 hrs</td>
</tr>
<tr>
<td>GYN</td>
<td>Cefotetan</td>
<td>2 gm</td>
<td>IVP 5 mins</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Head &amp; Neck, Dental or Neurosurgery when sinus or mouth is entered</td>
<td>Ampicillin- sulbactam</td>
<td>3 gm</td>
<td>IVPB 30 mins</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Head &amp; Neck when no mouth or sinus is entered/ Ortho/Thoracic/Vascular/Neurosurgery/Burns-Plastic</td>
<td>Cefazolin</td>
<td>2 gm</td>
<td>IVP 5 mins</td>
<td>3 hrs</td>
</tr>
<tr>
<td>History of MRSA or positive MRSA screen</td>
<td>Vancomycin</td>
<td>1 gm</td>
<td>IVPB 60 mins</td>
<td>6 hrs</td>
</tr>
<tr>
<td>For Significant Penicillin Allergy (Anaphylaxis or Hives)</td>
<td>Levofloxacin + (Clindamycin or Metronidazole)</td>
<td>750 mg</td>
<td>IVPB 60 mins</td>
<td>No re-dose 6 hrs</td>
</tr>
<tr>
<td>GI/Colorectal/GYN/Head &amp; Neck</td>
<td>Clindamycin or Vancomycin</td>
<td>900 mg</td>
<td>IVPB 30 mins</td>
<td>6 hrs</td>
</tr>
<tr>
<td>Ortho/Thoracic/Vascular/Neurosurgery/OB/Burns-Plastic</td>
<td>Clindamycin or Vancomycin</td>
<td>1 gm</td>
<td>IVPB 30 mins</td>
<td>6 hrs</td>
</tr>
</tbody>
</table>

Duration of prophylactic antibiotics

Antibiotics must be re-dosed at regular intervals in longer cases – use timers and consult standard list for optimal re-dosing frequency (figure 3)⁵

Requested tasks for the Anesthesia Team

- Check the preoperative orders for antibiotic requests
  
  There is a standard order form in the chart that will have been filled out by the surgical team.

- Make sure the antibiotic selected is appropriate
  
  There is a card on the anesthesia cart reminding you of the appropriate antibiotic regimen for selected cases (see table 1 above). Confirm with the surgeons during pre-procedure visit (ppv)/time out.

- If orders are incomplete alert surgical team promptly

- Check for patient allergies

- Give the right dose of antibiotic at the right time
  
  At the HMC, most of the antibiotics you need will be stored in the anesthesia cart. At UWMC they will come from the OR pharmacy. A timer, for re-dosing reminders, will be on the cart too.

  - Give initial dose within 1 hour of estimated incision time
  
  - Re-dose at 3-6 hour intervals in long cases

ANTIBIOTIC DELIVERY REQUIREMENTS

- **Vancomycin** needs to be infused over one hour!
  - Avoid rapid infusion-hypotension and red man syndrome
  - Try to get infusion started early – but not too early
  - Give in addition to other antibiotics
- Chart what you have given on the anesthesia record

<table>
<thead>
<tr>
<th>Premed</th>
<th>Dose</th>
<th>Route</th>
<th>Start Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- If no antibiotics are necessary for the case, write “none” and put “99:99” as the time. This will avoid “false negatives” in the record.

<table>
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<th>Start Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotic</td>
<td><strong>NONE</strong></td>
<td>9 9 9 9</td>
<td></td>
</tr>
</tbody>
</table>

**Tracking Performance**

Performance reports will be generated for…

- Residents
- Nurse anesthetists
- Attendings

Surgeons will be given reports on their patients. The anesthesia department will track each provider. The hospital will monitor process and outcomes. Aggregated data will be transmitted to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the University HealthSystem Consortium (UHC). The data will be **publicly** available at [www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov).
Figure 1: Surgical wound infection represents 10-15% of adverse events in hospitals


Figure 2: Surgical wound infection is dangerous & expensive


Figure 3