The Division of Trauma and Surgical Critical Care employs aggressive infection reduction and antibiotic stewardship practices. Such practices have resulted in a dramatic reduction in multidrug resistant pathogens, a significant increase in the percentage of pathogens that are pan-sensitive, and a significant reduction in broad spectrum antibiotic use per patient day\(^1,2\).

**Components of Antibiotic Stewardship Program:**

**Antibiotic prophylaxis protocols**

- Perioperative abdominal trauma
- Orthopedic fractures
- Craniofacial trauma

**Therapeutic antibiotic protocols**

- Empiric Rx directed by unit specific infection data
- Indication specific antibiotic therapy
  - Pneumonia – early & late onset
  - Non-pneumonia – blood stream, surgical site, urinary tract
- De-escalation therapy
- Evidence based antibiotic treatment duration

**Guideline driven diagnosis of hospital infections**

- Quantitative BAL for diagnosis of VAP
- Targeted empiric therapy – only when suspected source identified

**Quarterly antibiotic rotation** – class elimination and maintenance of antibiotic heterogeneity

**Overall approach:** limit prophylactic exposure to appropriate indications with the narrowest appropriate spectrum and duration supported by literature, aggressively empirically cover likely pathogens for suspected infections, de-escalate therapy based on cultures, and limit therapy to evidence based durations. The Division maintains an antibiotic rotation program designed to eliminate an antibiotic class each quarter, while maintaining heterogeneous use of other classes.

**Trauma Antibiotic Rotation Schedule:**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Pneumonia (hospital day 1-3)</th>
<th>Pneumonia (hospital day (\geq 4)) (^a)</th>
<th>Non – pneumonia (^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(^{st}) quarter</td>
<td>Ceftriaxone</td>
<td>Levofoxacin</td>
<td>Piperacillin/tazobactam</td>
</tr>
<tr>
<td>2(^{nd}) quarter</td>
<td>Ampicillin/sulbactam</td>
<td>Doripenem</td>
<td>Cefepime / metronidazole</td>
</tr>
<tr>
<td>3(^{rd}) quarter</td>
<td>Levofoxacin</td>
<td>Cefepime</td>
<td>Doripenem</td>
</tr>
<tr>
<td>4(^{th}) quarter</td>
<td>Ertapenem</td>
<td>Piperacillin/tazobactam</td>
<td>Levofoxacin / metronidazole</td>
</tr>
</tbody>
</table>

\(^a\) Empiric Rx includes Vancomycin and Aminoglycoside until culture data is available

\(^b\) Vancomycin included except in secondary peritonitis. Fluconazole included for high risk patients & tertiary peritonitis

**Administration:** The Antibiotic Stewardship Program is under the direction of Addison May and the unit PharmD.

**References**


April 18, 2011
Addison May, MD