A Multidisciplinary Team working toward Zero Orthopedic Infection Rate

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Introduction

A multidisciplinary team was formed to address an increase in the infection rate in FY03 and implement control measures at New England Baptist Hospital.

Objective

• Administration established intent for zero tolerance for surgical site infections.
• The formation of a multidisciplinary task force was established to identify problems and implement corrective action plans and infection prevention measures.

Materials and Methods

The team included representatives from OR nursing, orthopedic surgeons, anesthesia, and managers from infection control, health care quality, central supply, facilities, and environmental services. The team evaluated operating room procedures, practices and facility design and prioritized action plans to institute infection control measures. In addition, throughout the five year period, reinforcement of hand hygiene was done with creative and highly visible marketing campaigns for staff and visitors.

Infection Control Interventions and Areas of Focus

FY2003
• Traffic control
• Surgical attire
• Operating room cleaning
• Processing of instruments
• Air handling system and laminar flow
• Surgical hand scrub

FY2004
• Surgical infection prevention (SIP)
• Surgical prophylaxis
• Warming patient
• Increased inspired oxygen
• Hair clipping
• Silver postoperative dressings for Spine Service

FY2005
• Evaluation of antibiotic sutures

FY2006
• MRSA/MSSA Eradication Program

FY2007
• Chlorhexidine prep, intraop, postop

FY2009
• Post-op antimicrobial dressings – done by nurses

Results

During fiscal years FY05 and FY06 an increase in secondary bacteremia following surgical site infections occurred:

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th># of SSI's</th>
<th># Secondary Bacteremias</th>
<th>% Bacteremic</th>
<th># of Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>65</td>
<td>3</td>
<td>5%</td>
<td>8837</td>
</tr>
<tr>
<td>2004</td>
<td>60</td>
<td>1</td>
<td>2%</td>
<td>9669</td>
</tr>
<tr>
<td>2005</td>
<td>49</td>
<td>8</td>
<td>16%</td>
<td>9216</td>
</tr>
<tr>
<td>2006</td>
<td>46</td>
<td>5</td>
<td>11%</td>
<td>8886</td>
</tr>
</tbody>
</table>

After the implementation of the MRSA and Staph aureus eradication program and the discontinuation of the local administration of depomedrol in 2007, the rate of secondary bacteremias decreased.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th># of SSI's</th>
<th># Secondary Bacteremias</th>
<th>% Bacteremic</th>
<th># of Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>37</td>
<td>0</td>
<td>0%</td>
<td>8884</td>
</tr>
</tbody>
</table>

Conclusions

The importance of a team approach to infection control in the operating room is key to a successful infection control and prevention program. Utilizing the infection control specialist and integrating infection control into surgical services is an effective way to foster communication, collaborative work and achieve low infection rates. A systematic approach that implemented prevention measures on a yearly basis allowed for analysis of the effect on infection rates.

References


Standardized infection ratios were calculated each year by risk index and benchmarked against CDC/NNIS data. These guided the team in risk analysis of the orthopedic population.

MRSA and Staph aureus Eradication Program

• From July 17, 2006 through April 30, 2009
• 17,053 patients screened
  4082 (24%) positive for Staph aureus
• Repeat nasal screens on MRSA patients revealed 78% eradication

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Inpatient surgeries</th>
<th>Surgical Infections</th>
<th>Infec. Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/01/05-07/19/06</td>
<td>5293*</td>
<td>24</td>
<td>0.46%</td>
</tr>
<tr>
<td>FY07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07/17/07-09/30/07</td>
<td>7019**</td>
<td>13</td>
<td>0.18%</td>
</tr>
<tr>
<td>FY08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/01/07-09/30/08</td>
<td>6323**</td>
<td>7</td>
<td>0.11%</td>
</tr>
<tr>
<td>FY09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/01/08-04/30/09</td>
<td>4817**</td>
<td>4</td>
<td>0.08%</td>
</tr>
</tbody>
</table>

• historical controls
• screened inpatient surgeries