Methicillin-Resistant Staphylococcus Aureus (MRSA) Surveillance in a Teaching Hospital: Quality and Cost Implications

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Scott & White Healthcare is a fully integrated health system — the largest multispecialty practice in Texas and the sixth largest group practice in the nation.

Situation Summary
Methicillin-resistant staph aureus (MRSA) is a strain of staph that’s resistant to the broad-spectrum antibiotics commonly used to treat it. MRSA can be fatal and is especially dangerous for infants, the elderly and patients with weakened immune systems. MRSA has become an increasing problem in hospitals throughout the United States, including at Scott & White Healthcare. Scott & White formed a team to determine if they could reduce hospital-based MRSA infections through a comprehensive inpatient screening program at two of their hospitals.

Barriers
In addition to convincing administration and other staff that screening was appropriate and wouldn’t “bust the budget,” proponents were concerned about getting patients to agree to be screened. This barrier was overcome through a combination of tactics, including an MRSA public awareness campaign, patient education materials and availability of Infection Control staff to answer patients’ questions. Less than one percent of patients refused the screening.

Process and Outcomes
Figure 1 (see page 12) shows Scott & White’s MRSA screening algorithm. The team determined that high test sensitivity and quick turnaround time were critical factors in successfully reducing incidence of infection. Only when all admission active surveillance was combined with a test instrument of 98 percent sensitivity and a reporting time of 15 hours or less was there capture of at least 85 percent of potential inpatient isolation days. This led to a greater than 70 percent reduction in MRSA infection, resulting in fewer patients with respiratory infections and ventilator-associated pneumonias.
Value Proposition

Through the surveillance program, Scott & White incurred laboratory screening expenses but also earned revenue and ultimately avoided costs associated with caring for patients with MRSA infections. The tables below summarize these elements.

| Total Estimated 2009 Program Expense | $717,494 |
| Total Estimated 2009 Gross Revenue | $1,776,017 |

### Estimated Cost Avoidance: Reduction in MRSA Hospital-Acquired Infections

<table>
<thead>
<tr>
<th>Year</th>
<th>Fewer MRSA cases</th>
<th>Cost avoidance</th>
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<tbody>
<tr>
<td>2007 – 2008</td>
<td>36 fewer cases</td>
<td>$916,056</td>
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<tr>
<td>2008 – 2009</td>
<td>40 fewer cases</td>
<td>$1,071,840</td>
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Total cost avoidance over two years.............$1,987,896

Conclusion

This project proved successful in preventing patients from contracting MRSA within the hospital, allowing Scott & White to avoid significant costs while modestly improving net operating income. Given these results, Scott & White plans to extend this program to all 12 of its hospitals.