
**Background**

Methicillin-resistant *Staphylococcus aureus* (MRSA) infections among hospitalized patients have been increasing nationally and are associated with higher morbidity and costs than methicillin-sensitive (MSSA) infections.1,2 MRSA infections are not reportable to Alaska public health authorities; therefore, the Alaska Hospital Discharge Data Set (HDDS) was used to examine hospitalizations associated with these infections. HDDS is a voluntary system that began in 2001 and includes 17 facilities, accounting for ~85% of Alaska hospitalizations.3

**Methods**

ICD-9 codes 038.11 (S. aureus septicemia), 041.11 (S. aureus not otherwise specified), and 482.41 (S. aureus pneumonia) were used to identify hospitalizations with discharge diagnoses of *S. aureus* infections from 2001–2006. Persons discharged with more than one of the above codes during a single hospitalization were only counted once. Those records were then searched for secondary code V09.0, indicating resistance to penicillins. Consistent with other similar studies, V09.0 was used here as an indicator of suspected MRSA infection.1,4

**Results**

From 2001–2006, 4,517 (13.8/1,000) discharged persons were coded as having had a *S. aureus* infection; of these, 1,717 (5.2/1,000) were coded V09.0 (i.e., suspected MRSA). Proportions of suspected MRSA infections increased over the 6-year period (Table). Rates of all *S. aureus* and suspected MRSA only infections increased from 10.4 to 17.1, and 2.1 to 8.6 per 1,000 discharges, respectively (Chi² for linearity p<0.03 and p<0.01, respectively) (Figure).

**Discussion**

During the study period, Alaska experienced statistically significant increases in rates of hospitalizations associated with both *S. aureus* infection and suspected MRSA infection. Additionally, the proportion of hospitalizations associated with *S. aureus* infections that were suspected to be MRSA increased by nearly 30% (from 20.5% to 50.3%). Similar trends have been seen elsewhere in the United States.1,2 This study also found that Alaska Natives were at increased risk for MRSA infections, a finding that has been documented in previous studies.4,5

We do not know how reliably providers use ICD-9 code V09.0, whether this use has changed over time, or whether any non-MRSA infections may have been misclassified in this analysis. Increased awareness of MRSA may have caused health care providers to increase their testing or coding for MRSA which, in turn, could lead to inaccurate conclusions. Additional limitations to HDDS data included incomplete ascertainment of discharges and missing data for several fields.

**Recommendations**

1. Health care providers should ensure that patients with MRSA infection and their caretakers receive education about how to decrease the risk of transmission to others.

2. Hospitalized patients with MRSA infections should be placed on contact precautions to reduce the risk of transmission to vulnerable hospitalized patients.3

3. For more information about MRSA, including a treatment algorithm, refer to the following CDC website: http://www.cdc.gov/mrsa/mrsa_initiative/skin_infection/mrsa_hcp.html

**References**


**Acknowledgments**

Data selected from the HDDS (obtained annually per agreement with ASHNNIA) were provided by Alice Rarig, MA, MPH, PhD, HDDS Manager, Health Planning and Systems Development, Health Care Services, with assistance from Charles Utermohle, PhD, Chronic Disease Prevention and Health Promotion, Division of Public Health, DHSS.

**Table. Staphylococcus aureus Hospitalizations by ICD-9 Code and Percent with Suspected Methicillin Resistance, Alaska, 2001-2006**

<table>
<thead>
<tr>
<th>Year</th>
<th>All discharges</th>
<th>S. aureus infection¹</th>
<th>% (#) suspected MRSA²</th>
<th>S. aureus septicemia</th>
<th>% (#) suspected MRSA</th>
<th>S. aureus pneumonia</th>
<th>% (#) suspected MRSA</th>
<th>S. aureus NOS³</th>
<th>% (#) suspected MRSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>51,350</td>
<td>52,448</td>
<td>54,093</td>
<td>66.5</td>
<td>30.8 (205)</td>
<td>36.4 (290)</td>
<td>46.3 (442)</td>
<td>50.3 (507)</td>
<td>38.7 (55)</td>
</tr>
<tr>
<td>2002</td>
<td>532</td>
<td>561</td>
<td>797</td>
<td>955</td>
<td>1,007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>12.1 (11)</td>
<td>22.1 (23)</td>
<td>16.2 (18)</td>
<td>25.0 (29)</td>
<td>33.5 (52)</td>
<td>38.7 (55)</td>
<td>38.7 (55)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>31.3 (25)</td>
<td>31.3 (25)</td>
<td>31.3 (25)</td>
<td>36.5 (27)</td>
<td></td>
<td></td>
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<tr>
<td>2005</td>
<td>36.5 (27)</td>
<td>31.3 (25)</td>
<td>36.5 (27)</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>2006</td>
<td>38.7 (55)</td>
<td>38.7 (55)</td>
<td>38.7 (55)</td>
<td></td>
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</tr>
</tbody>
</table>

1. Any hospitalization with ICD-9 codes 038.11 (S. aureus septicemia), 041.11 (S. aureus pneumonia), or 482.41 (S. aureus NOS) listed.

2. Any *S. aureus* hospitalization as defined above that also had ICD-9 code V09.0.

3. NOS=not otherwise specified.

(Contributed by Louisa Castrodale, DVLM, MPH, Section of Epidemiology.)