**Background**

- Invasive infections due to Group A Streptococcus (GAS), also known as Streptococcus pyogenes, cause significant morbidity and mortality, resulting in over 500,000 deaths per year worldwide.¹
- Postpartum women have a 20-fold increased incidence of GAS infection.²
- Incidence of postpartum GAS is 220 cases/year in US, with a case fatality rate of 3.5% and a 6-20 fold increased incidence of neonatal death.²⁻³
- GAS infections can occur in clusters; may be transmitted by an asymptomatic healthcare worker (HCW), potentially causing infections more than a year apart.²⁻⁴ Thus, any case of postpartum GAS warrants further investigation.⁵

**Methods**

- Clinical Epidemiology reviews all positive postpartum cultures and performs surgical site infection (SSI) surveillance on C-sections. Each case is followed for 30 days post-operatively.
- The first GAS SSI prompted our investigation.
- A postpartum invasive GAS infection is defined as isolation, during the postpartum period of GAS with an infection (e.g. endometritis) or isolation from a sterile site or a surgical wound within 7 days of discharge.⁵
- A retrospective review at a tertiary care medical center identified 5 postpartum GAS infections in 14 months.⁴
- Case investigation methodology:
  - Associated HCWs were screened with the first case.
  - Charts reviewed with a standardized collection form to identify risk factors for acquisition, treatment and clinical course.
  - Each patient was interviewed by an MD (PCP, Ob-Gyn or ID) regarding sick contacts or skin/soft tissue infections to assess for potential colonization risk.
  - Patients were screened at non-sterile sites to assess for colonization.
  - GAS strains were sent to Ohio Department of Health for comparison by pulsed field gel electrophoresis (PFGE).

**Results**

**Timeline of GAS Cultures**

<table>
<thead>
<tr>
<th>Patient</th>
<th>Days from Delivery to Positive Culture</th>
<th>Days from Discharge to Positive Culture</th>
<th>Gestational Age at Delivery</th>
<th>Delivery Method</th>
<th>Smoking Status</th>
<th>Endometritis</th>
<th>Primary Site of Infection</th>
<th>Comorbid Illnesses and Possible Risk Factor for GAS</th>
<th>Patient A</th>
<th>Patient B</th>
<th>Patient C</th>
<th>Patient D</th>
<th>Patient E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient A</td>
<td>2/28/15</td>
<td>0</td>
<td>28w 1d</td>
<td>C-section</td>
<td>Former</td>
<td>No</td>
<td>C-section wound infection</td>
<td>Chronic kidney disease</td>
<td>37 W</td>
<td>26 AA</td>
<td>39 W</td>
<td>31 AA</td>
<td>34 W</td>
</tr>
<tr>
<td>Patient B</td>
<td>5/20/15</td>
<td>6</td>
<td>36w 1d</td>
<td>Vaginal</td>
<td>Current</td>
<td>Yes</td>
<td>Vaginal Colonization</td>
<td>Sick contact with fever, sore throat</td>
<td>65.5</td>
<td>60.9</td>
<td>98.2</td>
<td>88.6</td>
<td>81.8</td>
</tr>
<tr>
<td>Patient C</td>
<td>7/26/15</td>
<td>17</td>
<td>39w 3d</td>
<td>C-section</td>
<td>Former</td>
<td>No</td>
<td>Vaginal Colonization</td>
<td>Congenital coagulopathy</td>
<td>10</td>
<td>1</td>
<td>20</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Patient D</td>
<td>7/27/15</td>
<td>4</td>
<td>38w 4d</td>
<td>C-section</td>
<td>Current</td>
<td>Yes</td>
<td>Vaginal Colonization</td>
<td>Clitoral piercing removed 1 day prior to C-section</td>
<td>38w 4d</td>
<td>40w 4d</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient E</td>
<td>3/3/16</td>
<td>1</td>
<td>40w 4d</td>
<td>C-section</td>
<td>Former</td>
<td>Yes</td>
<td>Vaginal Colonization</td>
<td>None</td>
<td>5/20/15</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusions**

- Patient A was suspicious for healthcare associated GAS, but our epidemiologic investigation did not reveal a source.
- Patients B, D and E also met CDC criteria for postpartum invasive GAS, but isolates were not associated with carriage by a shared HCW.
- Given the potential for significant morbidity caused by GAS, surveillance is ongoing by microbiology, clinical epidemiology, and Ob-Gyn.

**Acknowledgements**

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**References**