Statewide Reporting of Central Line-Associated Bloodstream Infections (CLABSIs)

Maryland Health Quality and Cost Council
September 24, 2010
HAI Advisory Committee

Partnership of Key Stakeholders

- Association of Professionals in Infection Control (APIC)-Baltimore Chapter
- CareFirst BlueCross BlueShield
- Department of Health and Mental Hygiene
  - Infectious Disease and Environmental Health Administration
  - Information Resources Management Administration
  - Office of Health Care Quality
- Delmarva Foundation for Medical Care
- Health Care Consumers
- Health Facilities Association of Maryland/Mid-Atlantic LifeSpan
- Maryland Association of Ambulatory Surgery Centers
- Maryland Hospital Association
- Maryland Patient Safety Center
- Society for Healthcare Epidemiology of America (SHEA)
What is a Central Line?

Flexible tubes placed by a needle into a large vein usually in the neck, upper chest, or groin that allow health care workers to administer medications or obtain blood samples for testing (i.e., for chemotherapy, IV antibiotics, or dialysis).

What is a Central Line-Associated Bloodstream Infection (CLABSI)?

Laboratory-confirmed primary bloodstream infections that are not secondary to another infection and that occur in Intensive Care Unit (ICU) or Neonatal Intensive Care Unit (NICU) patients in whom a central line or umbilical catheter was in place at the time of, or within 48 hours before, onset of the infection.
National Healthcare Safety Network (NSHN)

• CDC internet-based system used for surveillance and prevention of healthcare-associated infections
• Patient Safety Component
  – Device-associated Module (CLABSI, CLIP, VAP, CAUTI, DE)
  – Procedure-associated Module (Surgical Site Infection, Post-Procedure Pneumonia)
  – MDRO-Multi-drug resistant organism/Clostridium difficile-associated Disease Module
  – High Risk Inpatient Influenza Vaccination Module
• Over 3,000 health care facilities currently enrolled
• Maryland is one of 21 States using NHSN for mandatory public reporting
Maryland CLABSI Reporting Requirements

• Intensive Care Units
  – 45 of 46 acute care hospitals
  – 76 ICUs
  – 1,126 beds

• Neonatal Intensive Care Units
  – Level III-13 Hospitals
  – Level II/III – 2 Hospitals
  – 430 bassinets
Developing Displays for Public Reporting

• Center for Innovation in Quality Patient Care
  – Catherine Passaretti, M.D., Yair G. Rajwan, Dsc, I-Fong Sun
  – Literature review
  – Review HAI public reporting in other States
  – Develop alternate displays and evaluation tool

• Focus Groups
  – Obtain feedback from health care consumers and health care professionals on what information is important and useful to report on CLABSIs
Focus Group Composition

Consumer Focus Group
(13 members)

• Individuals with Personal Experiences with HAIs (5)
• Individuals with No HAI Personal Experience (2)
• Former Newspaper Health Reporter (1)
• MHCC Commissioner (1)
• IT Specialist (1)
• Health Care Safety Consultant (1)
• Senior Advocacy Representative (1)
• Quality/Patient Safety Expert with HAI Experience (1)

Health Care Professional Focus Group (7 members)

• Patient Safety Officer (1)
• Vice President, Quality and Patient Safety (1)
• Hospital Chief Medical Officer (1)
• Surgical Intensive Care Unit Nurse (1)
• Hospital CEO (1)
• Health Department M.D./Hospital Epidemiologist (1)
• Cardiac Anesthesiologist (1)
Evaluation of Reporting Dimensions

**Partition**
- Aggregate Hospital data
- Specific ICU data

**Comparison**
- NHSN (National)
- State

**Interpretation**
- **Star**
  - Filled in significantly better – Lower rate, half filled no difference – similar rate, not filled – significant worse – Higher rate
- **Colors**
  - Green if lower, Yellow no diff, Red if higher
- **Shapes**
  - Circle – Better than expected, Triangle – About the same as expected, Diamond – Worse than expected

**Visualization**
- Comparative Table
- Analysis Table
- Box Plot
- Heat Map

**Publication**
- Annually
- Semiannually
- Quarterly/Monthly
Focus Group Feedback: Highlights

• Consumer Feedback
  – Most important to have overall hospital CLABSI rate
  – Concern about confidence intervals and how to interpret small numbers of events
  – Need for “Pop-Up” boxes with clear definitions of terminology
  – Do not use the term “expected” – health care infections should not be expected!
  – Need to update regularly

• Health Care Professional Feedback
  – Focus on overall performance and meaningful level of aggregation beneath overall total
  – Report number of infections and central line days
  – Provide SIR confidence intervals at 95% with explanation of how to interpret
  – Need to update regularly and show changes in performance over time
## Maryland Hospitals CLABSI Data: ICUs,
July 1, 2009 to June 30, 2010
(Post Focus Group - Consumer’s Visualization Recommendation)

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Actual Number of Infections</th>
<th>Number of Infections Projected by National Experience</th>
<th>Ratio of Actual to Projected Infections (SIR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>1</td>
<td>5.7</td>
<td>0.18</td>
</tr>
<tr>
<td>Hospital B</td>
<td>1</td>
<td>5.4</td>
<td>0.19</td>
</tr>
<tr>
<td>Hospital C</td>
<td>4</td>
<td>5.8</td>
<td>0.69</td>
</tr>
<tr>
<td>Hospital D</td>
<td>5</td>
<td>6.2</td>
<td>0.81</td>
</tr>
<tr>
<td>Hospital E</td>
<td>6</td>
<td>6.3</td>
<td>0.95</td>
</tr>
<tr>
<td>Hospital F</td>
<td>6</td>
<td>6</td>
<td>1.00</td>
</tr>
<tr>
<td>Hospital G</td>
<td>6</td>
<td>5.4</td>
<td>1.11</td>
</tr>
<tr>
<td>Hospital H</td>
<td>8</td>
<td>6.1</td>
<td>1.31</td>
</tr>
<tr>
<td>Hospital I</td>
<td>11</td>
<td>6.2</td>
<td>1.77</td>
</tr>
<tr>
<td>Hospital J</td>
<td>11</td>
<td>6</td>
<td>1.83</td>
</tr>
<tr>
<td>Hospital K</td>
<td>12</td>
<td>5.7</td>
<td>2.11</td>
</tr>
<tr>
<td>Hospital L</td>
<td>15</td>
<td>5.9</td>
<td>2.54</td>
</tr>
</tbody>
</table>

- **Better than National Experience**
- **No Different than National Experience**
- **Worse than National Experience**
Confidence Intervals at 95%: a range of possible rates or ratios within which there is a 95% confidence that the true rate or ratio lies given the number of infections and central line days.

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>Actual Number of Infections</th>
<th>Number of Central Line Days</th>
<th>Raw Rates (# of Infections per 1,000 CLDs)</th>
<th>Number of Infections Projected by National Experience</th>
<th>Ratio of Actual to Projected Infections (SIR)</th>
<th>SIR Confidence Interval at 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>9.25</td>
<td>21931</td>
<td>0.41</td>
<td>0.01</td>
<td>0.68</td>
<td>0.04 - 2.18</td>
</tr>
<tr>
<td>Med/Surg ICU (Hospital with &lt;= 15 Beds)</td>
<td>5</td>
<td>20008</td>
<td>0.25</td>
<td>0.01</td>
<td>0.50</td>
<td>0.14 - 0.76</td>
</tr>
<tr>
<td>Med/Surg ICU (Hospital with &gt; 15 Beds)</td>
<td>14</td>
<td>27714</td>
<td>0.51</td>
<td>0.02</td>
<td>0.70</td>
<td>0.21 - 2.18</td>
</tr>
<tr>
<td>Medical ICU (MICU)</td>
<td>1</td>
<td>20000</td>
<td>0.05</td>
<td>0.01</td>
<td>0.10</td>
<td>0.04 - 0.37</td>
</tr>
<tr>
<td>Surgical ICU (SICU)</td>
<td>17</td>
<td>20002</td>
<td>0.85</td>
<td>0.01</td>
<td>1.43</td>
<td>1.17 - 1.94</td>
</tr>
</tbody>
</table>
Hospital Performance Evaluation Guide

- Healthcare-Associated Infections
- Hospital/Patient Guide — Consumer View
- Practitioner/Hospital Leader Guide — Health Care Professional View
Questions?

Maryland Hospital Performance Evaluation Guide
http://mhcc.maryland.gov/consumerinfo/hospitalguide/index.htm

HAI Advisory Committee and Healthcare-Associated Infections
http://mhcc.maryland.gov/healthcare_associated_infections/index.html

Pamela W. Barclay
Director, Center for Hospital Services
Maryland Health Care Commission
4160 Patterson Avenue
Baltimore, Maryland 21215
Telephone: 410-764-5982
FAX: 410-358-1311
Toll Free: 1-877-245-1762
TDD for Disabled-Maryland Relay Service: 1-800-735-2258