Central Line Infections: 
The Beginning of the End?

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Purpose

- **Hospital acquired infections** (HAI) are a major source of morbidity and mortality, particularly for ICU patients. A recent report estimated a four fold increase in mortality rate for ICU patients with HAI.¹

- In 2009, the annual estimated cost of HAI ranged from **28.4 to 33.8 billion dollars**.² As part of the Affordable Care Act, CMS introduced the **Hospital-Acquired Condition Reduction Program**. This program reduces payment to hospitals which have high rates of HAI and thereby incentivizes best practices for infection control.
Purpose

• Central line associated bloodstream infections (CLABSI) are a major source of potentially preventable HAI.
• A recent Consumer Report publication titled “Zero Tolerance for Deadly Hospital-Acquired infections” presented data gathered by the CDC’s National Health Safety Network. The data shows we have completely eliminated CLABSI in ICU patients at the Mount Sinai St Luke’s and Mount Sinai West campuses.³

• The goal of this presentation is to highlight the various steps taken at the institutional, departmental, and individual levels which we believe contributed to our success in completely eliminating CLABSI in ICU patients at our institution.

Infections rates for two hospital acquired infections from 2008 to 2014.³
Methods

- The CDC has established best practice guidelines for the elimination of CLABSI's. We identified quality improvement practices that were implemented to eliminate central line infections at Mount Sinai St Luke's and Mount Sinai West. Ensuring buy-in from all stakeholders was critical during the initial steps.

  - All inpatient peripheral inserted central catheter (PICC) lines are now placed by the interventional radiology (IR) department in a sterile interventional suite.
    - Prior to this time, PICC lines were placed at bedside by a PICC team.
  - Requests for central lines are now assessed for appropriateness based on clinical necessity.
  - Required use of antiseptic port protectors & chlorhexidine-impregnated sponges.
  - A PICC line sepsis team evaluates all catheter failures.
  - Daily central line audits ensure proper management of PICC lines.
  - An 11 day duration limit was placed reducing number of days an inpatient may have the same PICC line.
Results

- Data from CMS showed that Mount Sinai St. Luke’s-West demonstrated a decreasing trend in central line infections from 2011 to 2014.

<table>
<thead>
<tr>
<th>Year</th>
<th># of days ICU patients had central lines</th>
<th># of bloodstream infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>9,248</td>
<td>14</td>
</tr>
<tr>
<td>2012</td>
<td>8,990</td>
<td>17</td>
</tr>
<tr>
<td>2013</td>
<td>9,750</td>
<td>6</td>
</tr>
<tr>
<td>2014</td>
<td>6,945</td>
<td>5</td>
</tr>
<tr>
<td>2015</td>
<td>6,326</td>
<td>0</td>
</tr>
</tbody>
</table>

Highest scoring teaching hospitals from 2011 to 2015.
Conclusion

- We believe that the policy/logistical changes we have highlighted subsequently eliminated CLABSI at our institution.
- Achieving buy-in from all stakeholders, implementing a quality initiative to constantly monitor ways to prevent occurrence, and utilizing standard technique and audits for all procedures, have each played a crucial role.
- All hospitals should be able to follow similar steps to eliminate CLABSI.

References

1. 22nd European Congress of Clinical Microbiology and Infectious Diseases (ECCMID): Poster 1128 and abstract O312. Presented April 1, 2012.