Eliminating Healthcare Associated Infections: The View from the US CDC

CAPT Arjun Srinivasan, MD
Associate Director for HAI Prevention Programs
Division of Healthcare Quality Promotion

The findings and inclusions in this presentation do not necessarily reflect the views of CDC
What Does it Mean to “Eliminate” Infections?

• The maximal reduction of “the incidence of infection caused by a specific agent in a defined geographical area as a result of deliberate efforts; continued measures to prevent reestablishment of transmission are required.”

What Does That Mean for Healthcare Associated Infections?

- Zero preventable infections occur in healthcare settings.
- But how many infections are preventable?
- Probably a lot more than we ever thought.
How Many Healthcare Associated Infections are Preventable?

- SENIC study - 32%
  - 1970-76
  - Am J Epidemiol 1985;121:182

- We were all pretty satisfied with that for a long time.
Prevention of Central Line Associated Blood Stream Infections

FIGURE. Central line–associated bloodstream infection rate* in 66 intensive care units (ICUs), by ICU type and semiannual period — southwestern Pennsylvania, April 2001–March 2005

- All other unit types
- Medical/surgical units

* Pooled mean rate per 1,000 central line days.
† Includes cardiothoracic, coronary, surgical, neurosurgical, trauma, medical, burn, and pediatric ICUs.
§ p<0.001.

103 ICUs at 67 Michigan hospitals, 18 months

~ 70% prevented

Pronovost et al, NEJM 2006
**C. Difficile Rates per 100,000 Population UK**

Primary Care Organizations

68% Reduction
“Unacceptable”

• The growing awareness of the preventability of healthcare associated infections merged with increasing awareness of the burden and seriousness of the problem to create unprecedented pressure from many groups:
  – Patients and consumer advocates
  – State governments
  – Federal governments
US State Activities

• State legislatures responded first by starting to pass laws requiring hospitals to publicly report rates of healthcare associated infections.
Federal Activity

• 2005 Deficit Reduction Act -
  – Called on the Center for Medicare and Medicaid Services to stop paying for costs of HAIs

• 2008 Government Accountability Office investigation on HAIs.
  – Called for more activity and more coordination between federal agencies.
  – Led to establishment of federal task force on HAIs.
Federal Activity

• 2009 Congress mandates all states develop HAI prevention plans.
  – Provided funding through American Recovery and Reinvestment Act to help implement
  – From Department of Health and Human Services (HHS)
# HHS Action Plan for HAI Prevention

## National 5 Year Goals

<table>
<thead>
<tr>
<th>Metric</th>
<th>Source</th>
<th>National 5-Year Prevention Target</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bloodstream infections</td>
<td>NHSN</td>
<td>50% reduction</td>
<td>CDC</td>
</tr>
<tr>
<td>Adherence to central-line insertion practices</td>
<td>NHSN</td>
<td>100% adherence</td>
<td>CDC</td>
</tr>
<tr>
<td><em>Clostridium difficile</em> (hospitalizations)</td>
<td>NHDS HCUP</td>
<td>30% reduction</td>
<td>CDC/AHRQ</td>
</tr>
<tr>
<td>Clostridium difficile infections</td>
<td>NHSN</td>
<td>30% reduction</td>
<td>CDC</td>
</tr>
<tr>
<td>Urinary tract infections</td>
<td>NHSN</td>
<td>25% reduction</td>
<td>CDC</td>
</tr>
<tr>
<td>MRSA invasive infections (population)</td>
<td>EIP</td>
<td>50% reduction</td>
<td>CDC</td>
</tr>
<tr>
<td>MRSA bacteremia (hospital)</td>
<td>NHSN</td>
<td>25% reduction</td>
<td>CDC</td>
</tr>
<tr>
<td>Surgical site infections</td>
<td>NHSN</td>
<td>25% reduction</td>
<td>CDC</td>
</tr>
<tr>
<td>Surgical Care Improvement Project Measures</td>
<td>SCIP</td>
<td>95% adherence</td>
<td>CMS</td>
</tr>
</tbody>
</table>
Affordable Care Act

• Section 3001, (2)
• Calls for the establishment of “Value Based Purchasing” that will require hospitals to meet specified performance standards.
• For fiscal year 2013, the Secretary shall select measures that cover at least the following 5 conditions, including healthcare associated infections as measured by the HHS Action Plan to Prevent HAIs.
Implementing Healthcare Reform

• Data on HAIs would be reported to CDC’s National Healthcare Safety Network.
• Data would be publicly reported on the Hospital Compare website.
• Hospitals would initially have to report data in order to qualify for full federal payments.
• In a few years, hospital performance in HAI prevention would become part of payment calculations.
# Healthcare Facility HAI Reporting: Current and Proposed Requirements

<table>
<thead>
<tr>
<th>HAI Event</th>
<th>Facility Type</th>
<th>Reporting Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSI</td>
<td>Acute Care Hospitals Adult, Pediatric, and Neonatal ICUs</td>
<td>January 2011</td>
</tr>
<tr>
<td>CAUTI</td>
<td>Acute Care Hospitals Adult and Pediatric ICUs</td>
<td>January 2012</td>
</tr>
<tr>
<td>SSI</td>
<td>Acute Care Hospitals Colon and abdominal hysterectomy</td>
<td>January 2012</td>
</tr>
<tr>
<td>I.V. antimicrobial start (<em>proposed</em>)</td>
<td>Dialysis Facilities</td>
<td>January 2012</td>
</tr>
<tr>
<td>Positive blood culture (<em>proposed</em>)</td>
<td>Dialysis Facilities</td>
<td>January 2012</td>
</tr>
<tr>
<td>Signs of vascular access infection (<em>proposed</em>)</td>
<td>Dialysis Facilities</td>
<td>January 2012</td>
</tr>
<tr>
<td>CLABSI</td>
<td>Long Term Care Hospitals *</td>
<td>October 2012</td>
</tr>
<tr>
<td>CAUTI</td>
<td>Long Term Care Hospitals *</td>
<td>October 2012</td>
</tr>
<tr>
<td>CAUTI</td>
<td>Inpatient Rehabilitation Facilities</td>
<td>October 2012</td>
</tr>
<tr>
<td>MRSA Bacteremia</td>
<td>Acute Care Hospitals</td>
<td>January 2013</td>
</tr>
<tr>
<td><em>C. difficile</em> LabID Event</td>
<td>Acute Care Hospitals</td>
<td>January 2013</td>
</tr>
<tr>
<td>HCW Influenza Vaccination</td>
<td>Acute Care Hospitals</td>
<td>January 2013</td>
</tr>
<tr>
<td>SSI (<em>proposed</em>)</td>
<td>Outpatient Surgery/ASCs</td>
<td>January 2013</td>
</tr>
<tr>
<td>HCW Influenza Vaccination</td>
<td>Outpatient Surgery/ASCs</td>
<td>October 2013</td>
</tr>
</tbody>
</table>

* Long Term Care Hospitals are called **Long Term Acute Care Hospitals** in NHSN
What Has Happened?

- More people in hospitals now care very deeply and are well informed about HAIs.
- HAI prevention is much more front and center in healthcare facilities.
- Public health officials really recognize the importance and benefits of HAI prevention.
- Infection rates are going down.
  - Cause and effect?
Challenges

- Hospitals are feeling increasing pressure to eliminate HAIs
  - Staff under pressure not to classify some events as HAIs.
- HAIs requirements have not been accompanied by more resources for hospitals to comply.
Challenges

• CDC HAI definitions are surveillance, not clinical, definitions and were not developed for public reporting and hospital comparisons.
  – Hospitals question subjectivity and clinicians question clinical relevance of surveillance definitions
Addressing the Challenges

• CDC constantly working to improve definitions as more data is available.
  – Mucosal barrier injury blood stream infection
  – Ventilator associated events

• Exploring ways to reduce reporting burden and subjectivity by developing HAI detection algorithms that can be run against electronic medical record data.
What Will it Take to Eliminate HAIs?

• Universal implementation of strategies that have been proven to work.
  – Lots of proven infection control strategies have not been adopted in all facilities.

• Continued cultural change in healthcare:
  – Belief that more HAIs can be prevented
  – All healthcare providers have to be involved in efforts to prevent HAIs
  – Facility leadership has to support these efforts, verbally and financially.
What Will it Take to Eliminate HAIs?

• On-going research on:
  – More effective ways to implement current prevention approaches.
  – New prevention strategies for infections that we currently can’t prevent.
  – More efficient and reliable ways to monitor healthcare associated infections.
Conclusions

• Public reporting of healthcare associated infections is a reality and pay for performance for HAIs is about to be.
• There is still a lot to be learned about both preventing and monitoring HAIs.
• Eliminating healthcare associated infections is a realistic goal, but requires on-going effort.