“Progress Towards Eliminating Healthcare-Associated Infections”

November 27, 2012
Washington Marriott Hotel, Washington, D.C.
Welcome

Don Wright, MD, MPH
Office of the Assistant Secretary for Health (OASH)
Alice’s Story

Mary Brennan-Taylor
Consumers Union, Safe Patient Project
University of Buffalo School of Medicine, Dept. of Family Medicine
Who Was Alice?

• Vital, energetic and independent woman,
• Mother
• Grandmother
• Friend
She would rather die than ask a doctor or nurse if they had washed their hands.
Alice’s Story – “there is little more painful than losing someone to preventable medical error”.

“What’s happening to me?”

**Jul 12** - Alice has pain & swelling in right leg. Alice drives her car for the last time.

**Jul 13** - Alice Admitted to Hospital. Tests indicate Gout.

**Jul 17** - Alice Discharged to Rehab due to difficulty ambulating.

**Jul 28** - Mary met with staff to plan discharge to home.

**Jul 29** - Mary notices Alice is hallucinating. Complaints of nausea & signs of malaise.

**Aug 3** - Becomes incontinent, fearful with severely altered mental state. Admitted to Hospital for severe dehydration. MRSA detected.

**Aug 6** - Discharged from Hospital back to rehab. Severely disoriented & falls injuring back, hand and foot. Returned to Hospital ER for x-rays and returned to rehab.

**Aug 9** - Unable to eat, incontinent, severe abdominal & back pain. Mary asks if she has been tested for a UTI. Psychosis escalates during evening.

**Aug 10** - Mary tells that UTI test “lit up like a Christmas tree” indicating serious UTI. Alice taken by ambulance to hospital. Alice weighs 132 lbs.

**Aug 11** - Alice again severely dehydrated & now has MRSA & UTI. Paranoia and psychosis continues.

**Aug 13** - Mary told Alice’s medical issue was psychiatric & she should be discharged to Psych facility. Anti-psychotic med prescribed, Haldol (serious side effects including confusion, loss of appetite, difficulty walking and speaking, tremors, all of which Alice experienced while on the drug). Mary refuses transfer & requests emergency consult with UB Chief of Geriatrics.

**Aug 18** - UB Geriatrician determines that she is not delusional. He recommends removal of all adverse meds. In his opinion, damage done by medication cascade is likely irreparable due to her emaciated state.

**Aug 19** - Mary told by hospital that Alice’s white blood count is alarmingly high. Advised to sign a DNR. Alice is now suffering from C-Diff & Apnea begins.

**Aug 20** - Alice is 108 lbs. (down 24 lbs. in 10 days). Unable to eat or drink for days. Mary requests Hospice evaluation. Denied by Hospital MD.

**Aug 21** - Mary again requests Hospice assessment. Denied again. Mary takes request to admin & is granted. Hospice staff determine she is near death.

**Aug 22** - Discharged from hospital to Hospice House.

**Aug 24** - Upon arrival at Hospice, Alice had MRSA, UTI, C-Diff, & VRE (an often fatal infection).

**Aug 29** - Alice dies of Sepsis at Hospice - 6 weeks after it all began.
“A hard task, dying, when one loves life so much.”  Simone De Beauvoir
“Every life deserves a certain amount of dignity, no matter how poor or damaged the shell that carries it.”

Rick Bragg, *All Over But the Shoutin’*

Aug 22-

- When Alice was discharged from the hospital and taken to Hospice House.
- 5 weeks after the cascade of events began.
- 1 week before her death.
Certificate of Death (filed by Hospice) indicates

**Cause of Death was Sepsis**
“no plan of care was implemented by nursing to address isolation, the reason for the isolation or interventions implementing isolation.”
There is little more painful in life than losing a loved one to avoidable medical error.
National Action Plan to Prevent Healthcare-Associated Infections: Roadmap to Elimination

Don Wright, MD, MPH
Office of the Assistant Secretary for Health (OASH)
HAI Action Plan

- Phase Approach
  - Phase I: Acute Care Hospitals
  - Phase II: ASC, ESRD, HCP Flu Vaccination
  - Phase III: Long-Term Care Facilities
  - Phase IV: TBD

- Maintain as a “living document”
HAI Action Plan: Development

• Phase I: Acute Care Hospitals
  – 2008 Targets and Metrics Meeting convened
    • Developed Original 5-year Goals/Targets
    • End goal of December 31, 2013
  – 2009 HHS Action Plan To Prevent HAIs Released
    • Drafted according to working group structure of the HHS Steering Committee for the Prevention of HAIs
## HAI Action Plan: 2013 Goals

<table>
<thead>
<tr>
<th>Metric</th>
<th>Source</th>
<th>National 5-year Prevention Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Line-Associated Bloodstream Infections (CLABSI)</td>
<td>NHSN</td>
<td>50% reduction</td>
</tr>
<tr>
<td>Central Line Insertion Practices (CLIP) Adherence</td>
<td>NHSN</td>
<td>100% adherence</td>
</tr>
<tr>
<td><em>Clostridium difficile</em> (hospitalizations)</td>
<td>HCUP</td>
<td>30% reduction</td>
</tr>
<tr>
<td><em>Clostridium difficile</em> infections</td>
<td>NHSN</td>
<td>30% reduction</td>
</tr>
<tr>
<td>Catheter-Associated Urinary Tract Infections (CAUTIs)</td>
<td>NHSN</td>
<td>25% reduction</td>
</tr>
<tr>
<td>MRSA invasive infections (population)</td>
<td>EIP</td>
<td>50% reduction</td>
</tr>
<tr>
<td>MRSA bacteremia (hospital)</td>
<td>NHSN</td>
<td>25% reduction</td>
</tr>
<tr>
<td>Surgical site infections (SSIs)</td>
<td>NHSN</td>
<td>25% reduction</td>
</tr>
<tr>
<td>Surgical Care Improvement Process Measures Adherence (SCIP)</td>
<td>SCIP</td>
<td>95% adherence</td>
</tr>
<tr>
<td>Metric</td>
<td>National 5-year Prevention Target</td>
<td>On Track to Meet 2013 Targets?</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Bloodstream infections</td>
<td>50% reduction</td>
<td>✓</td>
</tr>
<tr>
<td>Adherence to central-line insertion practices</td>
<td>100% adherence</td>
<td>Data not yet available*</td>
</tr>
<tr>
<td><em>Clostridium difficile</em> (hospitalizations)</td>
<td>30% reduction</td>
<td>✗</td>
</tr>
<tr>
<td><em>Clostridium difficile</em> infections</td>
<td>30% reduction</td>
<td>Data not yet available*</td>
</tr>
<tr>
<td>Urinary tract infections</td>
<td>25% reduction</td>
<td>Data not yet available*</td>
</tr>
<tr>
<td>MRSA invasive infections (population)</td>
<td>50% reduction</td>
<td>✓</td>
</tr>
<tr>
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<td>25% reduction</td>
<td>Data not yet available*</td>
</tr>
<tr>
<td>Surgical site infections</td>
<td>25% reduction</td>
<td>✓</td>
</tr>
<tr>
<td>Surgical Care Improvement Project Measures</td>
<td>95% adherence</td>
<td>✓</td>
</tr>
</tbody>
</table>

*2009 or 2009-2010 is the baseline period.

¥ 2009 data presented at 2010 HAI Progress Meeting
## Measuring Progress: 2011

<table>
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<tr>
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<th>National 5-year Prevention Target</th>
<th>On Track to Meet 2013 Targets?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bloodstream infections</td>
<td>50% reduction</td>
<td>✓</td>
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<td>✓</td>
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</tr>
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<td>95% adherence</td>
<td>✓</td>
</tr>
</tbody>
</table>

*2009 or 2009-2010 is the baseline period.

Hi 2010 data announced Fall 2011
HAI Action Plan: Development

• Phase II: Outpatient Settings
  – 2010 Updated HAI Action Plan to include:
    • Ambulatory Surgical Centers,
    • End-Stage Renal Disease Facilities, and
    • Influenza Vaccination of Healthcare Personnel.
  – Each Chapter includes proposed measures and goals
  – Presented on September 24th at the 2010 HAI Progress Meeting in Arlington, VA
HAI Action Plan: Development

• Phase III: Long-Term Care Facilities
  – April 2011 Long-Term Care Facilities working group of the HHS Steering Committee convened to define the scope of Phase III
HAI Action Plan: LTCF Chapter Development

• Focus on nursing homes
• Highlights federal investments in regional, State, and local efforts
  – CMS Quality Improvement Organizations
  – Partnership for Patients
HAI Action Plan: Revision Timeline

• November 2011
  – Revised Phase I to reflect latest evidence on ICP and programmatic/policy advances, including federal investments and HAI programs like Partnership for Patients and the National Healthcare Quality Strategy
  – Updated the most recent data on the priority infection areas and measures in the HAI Action Plan, including progress towards achieving the five-year goals established in the original HAI Action Plan
  – New sections added including reducing HAIs in ASCs and ESRD facilities and a strategy to increase influenza vaccination of healthcare personnel
HAI Action Plan: Revision Timeline

• April 2012

• June 2012
  – HAI Steering Committee working groups began reviewing and revising each Chapter accordingly

• October – November 2012
  – Incorporating LTCF Chapter
  – Submit to HHS Steering Committee for Approval
  – Need Secretary’s clearance before releasing Final HAI Action Plan
HAI Action Plan: A “Living” Document

• Expand to other healthcare facilities or HAI patient safety area
  – Candidates: all outpatient settings, ambulatory care settings, physician offices, injection safety
  – HHS Steering Committee for the Prevention of HAIs must concur and approve expansion

• Retiring of CLIP measure

• Release revised HAI Action Plan late 2012
HAI Action Plan: Contacts

- Rani Jeeva, MPH, CPH
  Team Lead for HAI Prevention (OASH)
  Rani.Jeeva@hhs.gov

- Daniel Gallardo, MPH
  Health Policy Analyst (OASH)
  Daniel.Gallardo@hhs.gov
Plenary I: Measuring Progress Towards Achievement of Phase I Action Plan Goals: Acute Care Hospitals
Measuring Progress In Acute Care Hospitals: 
*Clostridium difficile* Hospitalizations

Claudia A. Steiner, M.D., M.P.H. 
Agency for Healthcare Research and Quality (AHRQ)
C. difficile Hospitalizations (HCUP)

- National 5-Year Prevention Target: 30% reduction in hospitalizations with C. difficile
- Measurement system: Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID)
  - An all-payer inpatient care database with ~38 million stays from ~ 4800 hospitals across 46 states (2010-2011)
  - Hospitals are stratified and discharge weights for each stratum are calculated and applied to achieve national estimates
  - Any listed C. difficile (ICD-9-CD 008.45)
- Baseline period: 2008
- Baseline measurement: Rate = 11.6 per 1000 hospitalizations
- CY 2010: Rate = 11.5 per 1000 hospitalizations
- Projected (CY 2011): Rate = 11.9 per 1000 hospitalizations
- Projected (CY 2012): Rate = 12.4 per 1000 hospitalizations
C. difficile Hospitalizations: Regional Projections

New England

![Graph showing C. difficile hospitalizations in New England from 2001 to 2012. The graph displays the rate per 1,000 discharges, with observed data and projected data indicated. The data shows an increasing trend from 2001 to 2007, followed by fluctuations and a slight decrease towards 2012.](image-url)
C. difficile Hospitalizations: Regional Projections

West South Central

![Graph showing the rate of C. difficile hospitalizations from 2001 to 2012, with observed and projected trends.]
Clostridium difficile Infections (CDI)

Paul Malpiedi, MPH
Centers for Disease Control and Prevention (CDC)
Standardized Infection Ratios

- The SIR is a measure that compares the number of infections reported to NHSN to the number of infections that would be predicted based on national baseline data.
Interpreting SIRs

• An SIR of 1 indicates that the same number of infections were reported as would be predicted given the baseline data

• An SIR greater than 1 indicates that more infections have been reported than what would be predicted given the baseline data (an increase)

• An SIR less than 1 indicates that fewer infections have been reported than what would be predicted given the baseline data (a decrease)
Hospital-Onset *C. difficile* Infections

- **Data source** – CDC’s National Healthcare Safety Network (NHSN)
- **Metric** – Standardized Infection Ratio (SIR)
- **5 year target** – 30% reduction in facility-wide inpatient healthcare facility-onset *C. difficile* LabID events (SIR = 0.70)
- **Baseline period** – 2010-11
## Hospital-Onset *C. difficile* Infections

<table>
<thead>
<tr>
<th></th>
<th>Baseline 2010-2011</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Half 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities reporting</td>
<td>846</td>
<td>1,050</td>
</tr>
<tr>
<td>States represented</td>
<td>40 (5 with mandates)</td>
<td>45 (6 with mandates)</td>
</tr>
<tr>
<td>Facility-wide patient days</td>
<td>62,262,776</td>
<td>21,908,528</td>
</tr>
<tr>
<td>Facility-wide admissions</td>
<td>13,102,078</td>
<td>4,882,118</td>
</tr>
<tr>
<td>Overall SIR</td>
<td>N/A</td>
<td>1.28* (28% increase)</td>
</tr>
</tbody>
</table>

*Data are preliminary from 1<sup>st</sup> half of 2012 only and do not fully account for change in testing practices*
Variables from Final Model to be included for Risk Adjustment in SIR Calculation

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
</tr>
<tr>
<td>Facility Bed Size</td>
<td>&gt; 245</td>
</tr>
<tr>
<td></td>
<td>101-245</td>
</tr>
<tr>
<td></td>
<td>≤ 100</td>
</tr>
<tr>
<td>Teaching Type</td>
<td>Major</td>
</tr>
<tr>
<td></td>
<td>Graduate</td>
</tr>
<tr>
<td></td>
<td>Limited &amp; Non</td>
</tr>
<tr>
<td>CDI Test Type</td>
<td>NAAT (PCR)</td>
</tr>
<tr>
<td></td>
<td>EIA</td>
</tr>
<tr>
<td></td>
<td>All Other</td>
</tr>
<tr>
<td>Prevalence</td>
<td>Continuous (no CO-HCFA)</td>
</tr>
</tbody>
</table>

Data Sources and Submission

- CDI test type, facility bed size, and teaching type are collected on the required Annual Facility Survey.
- The survey is completed after the end of each year for accuracy in describing a full year’s worth of data.
- Survey data for 2012 will be submitted by facilities January - March 2013.
- Due to reporting requirements from CMS, quarterly data are complete 4.5 months after the end of each quarter.
State Health Departments and *C. difficile* Prevention

- State health departments (SHDs) play a unique role in coordinating HAI prevention activities in their jurisdictions.

- Prevention collaboratives led by SHDs have shown reductions in HAI incidence during ARRA funding period.

- *C. difficile* - 8 SHDs funded by CDC through ACA to address CDI across different care settings (acute care, long term acute care, long term care).
Invasive Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections

Paul Malpiedi, MPH
Centers for Disease Control and Prevention (CDC)
Invasive MRSA Infections

- **Data source** – CDC’s Emerging Infections Program (EIP)
- **Metric** – Incidence rate per 100,000 population
- **5 year target** – 50% reduction in incidence of healthcare-associated invasive MRSA infections
- **Baseline period** – 2007-08
Invasive MRSA Infections

- Active, population-based surveillance since 2005
- 32 counties in 9 states, 19.2 million population
- National estimate adjusted for age, race, sex, use of dialysis

- Invasive MRSA infections identified from microbiology records, medical record review to determine if healthcare-associated
Invasive MRSA Infections

- **Case definition**: positive MRSA culture from normally sterile site in surveillance catchment resident, ≥30 days from any prior MRSA culture
  - **Healthcare-associated**:
    - **Hospital-onset**: culture obtained >3 days after admission
    - **Healthcare-associated Community-onset**: culture obtained prior to hospital day 3; along with history of surgery, hospitalization, dialysis, or LTCF in prior 12 months or presence of central venous catheter at the time of admission
  - **Community-associated**
Invasive MRSA Infections


- 5 year prevention target (2013) is 50% reduction
Invasive MRSA Infections


- Baseline (2007-2008)
- 2011

Accelerated prevention must include outpatients and post-discharge settings

- ~50% were discharged from acute care in previous 3 months
- ~25% were outpatient dialysis patients
Methicillin-resistant *Staphylococcus aureus* (MRSA) Bacteremia

Paul Malpiedi, MPH
Centers for Disease Control and Prevention (CDC)
Hospital-Onset MRSA Bacteremia

- **Data source** – CDC’s National Healthcare Safety Network (NHSN)

- **Metric** – Standardized Infection Ratio (SIR)

- **5 year target** – 25% reduction in facility-wide inpatient healthcare facility-onset MRSA blood LabID events (SIR = 0.75)

- **Baseline period** – 2010-11
Definitions

- **Laboratory-Identified (LabID) Event** – specimen collected for clinical decision making purposes from a patient having no previous like specimen identified from a laboratory result in the previous 14 days (for MDRO blood and *C. difficile*).

- **Facility-Wide Inpatient (FacWideIN)** – denominators of patient days and admissions are collected as the sums of all inpatient locations in the facility for a month (for CDI subtract counts from neonatal units).

- **Healthcare Facility-Onset (HO)** – LabID Event specimen collected > 3 days after admission to the facility (admission=day 1).
# Hospital-Onset MRSA Bacteremia

<table>
<thead>
<tr>
<th></th>
<th>Baseline 2010-2011</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Half 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities reporting</td>
<td>740</td>
<td>844</td>
</tr>
<tr>
<td>States represented</td>
<td>31 (6 with mandates)</td>
<td>39 (6 with mandates)</td>
</tr>
<tr>
<td>Facility-wide patient days</td>
<td>44,791,753</td>
<td>18,423,662</td>
</tr>
<tr>
<td>Facility-wide admissions</td>
<td>10,154,351</td>
<td>4,272,367</td>
</tr>
<tr>
<td>Overall SIR</td>
<td>N/A</td>
<td>0.952* (5% reduction)</td>
</tr>
</tbody>
</table>

*data are preliminary from 1<sup>st</sup> half of 2012 only and are incomplete for adjustment variables
Hospital-Onset MRSA Bacteremia

Variables from Final Model to be included for Risk Adjustment in SIR Calculation

<table>
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<td>Facility Bed Size</td>
<td>&gt; 400</td>
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<tr>
<td></td>
<td>≤ 400</td>
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<td>Teaching Type</td>
<td>Major</td>
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<tr>
<td></td>
<td>All Other</td>
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<tr>
<td>Prevalence</td>
<td>Continuous</td>
</tr>
</tbody>
</table>
Central Line-Associated Bloodstream Infections (CLABSI)

Paul Malpiedi, MPH
Centers for Disease Control and Prevention (CDC)
Central Line-Associated BSIs

- **Data source** – CDC’s National Healthcare Safety Network (NHSN)

- **Metric** – Standardized Infection Ratio (SIR)

- **5 year target** – 50% reduction in ICU and ward-located patients (SIR = 0.50)

- **Baseline period** – 2006-08
## Central Line-Associated BSIs

<table>
<thead>
<tr>
<th></th>
<th>Baseline 06-08</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilities reporting</strong></td>
<td>1,385</td>
<td>1,603</td>
<td>2,242</td>
<td>3,472</td>
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<tr>
<td><strong>States represented</strong></td>
<td>48</td>
<td>48</td>
<td>49 + DC</td>
<td>50 + DC + PR</td>
</tr>
<tr>
<td><strong>Locations reporting</strong></td>
<td>3,972</td>
<td>4,872</td>
<td>8,430</td>
<td>12,122</td>
</tr>
<tr>
<td><strong>% ICU locations</strong></td>
<td>62</td>
<td>62</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td><strong>Overall SIR</strong></td>
<td>N/A</td>
<td>0.85* (15% reduction)</td>
<td>0.68* (32% reduction)</td>
<td>0.59* (41% reduction)</td>
</tr>
</tbody>
</table>

*significantly less than 1.0
Central Line-Associated BSIs

SIR by Year and Location Grouping, CLABSI

Year
2008
2009
2010
2011

SIR
0.85
0.71
0.68
0.65
0.59
0.64
0.56

Location Grouping
Overall
ICU
Ward
Pathogen-Specific Pooled Mean CLABSI Incidence per 1,000 Central-Line Days among 7 ICU Types, NNIS (1990–2004) and NHSN (2006–2010)

- Gram negative rods
- S. aureus
- Candida spp.
- Enterococcus spp.
S. aureus now ½ as frequent as other pathogen groups;
during NHSN years, annual declines of other pathogen groups are smaller than for S. aureus CLABSI (17% annual decline)
• Gram-negative bacteria CLABSI annual decline 40% smaller (10% annual decline)
• Candida spp. CLABSI annual decline 40% smaller (10% annual decline)
• Enterococci spp. CLABSI annual decline 18% smaller (14% annual decline)

Further CLABSI prevention may need to incorporate strategies beyond best insertion practices
Catheter-Associated Urinary Tract Infection (CAUTI)

Paul Malpiedi, MPH
Centers for Disease Control and Prevention (CDC)
Catheter-Associated UTIs

- **Data source** – CDC’s National Healthcare Safety Network (NHSN)

- **Metric** – Standardized Infection Ratio (SIR)

- **5 year target** – 25% reduction in ICU and ward-located patients (SIR = 0.75)

- **Baseline period** – 2009
Catheter-Associated UTIs

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<tr>
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<th>Baseline 2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities reporting</td>
<td>639</td>
<td>981</td>
<td>1,807</td>
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<tr>
<td>States represented</td>
<td>43</td>
<td>47 + DC</td>
<td>50 + DC + PR</td>
</tr>
<tr>
<td>Locations reporting</td>
<td>2,642</td>
<td>3,939</td>
<td>6,402</td>
</tr>
<tr>
<td>% ICU locations</td>
<td>40</td>
<td>38</td>
<td>41</td>
</tr>
<tr>
<td>Overall SIR</td>
<td>N/A</td>
<td>0.94*</td>
<td>0.93*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6% reduction)</td>
<td>(7% reduction)</td>
</tr>
</tbody>
</table>

*significantly less than 1.0
Catheter-Associated UTIs

SIR by Year, US vs. Michigan

- Overall (US)
- Overall (Michigan)

- 981 facilities
- 1,807 facilities

- 24 facilities
- 34 facilities


SIR: 0.73, 0.94, 0.93, 0.58
Surgical Site Infections (SSI)

Paul Malpiedi, MPH
Centers for Disease Control and Prevention (CDC)
Surgical Site Infections

- **Data source** – CDC’s National Healthcare Safety Network (NHSN)

- **Metric** – Standardized Infection Ratio (SIR)

- **5 year target** – 25% reduction in SSIs following SCIP-like procedures on admission or readmission (SIR = 0.75)

- **Baseline period** – 2006-08
# Surgical Site Infections

<table>
<thead>
<tr>
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<th>Baseline 06-08</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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</thead>
<tbody>
<tr>
<td>Facilities reporting</td>
<td>801</td>
<td>946</td>
<td>1,385</td>
<td>2,130</td>
</tr>
<tr>
<td>States represented</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>Number of procedures</td>
<td>613,263</td>
<td>420,340</td>
<td>529,038</td>
<td>748,192</td>
</tr>
<tr>
<td>Overall SIR</td>
<td>N/A</td>
<td>0.98</td>
<td>0.92*</td>
<td>0.83*</td>
</tr>
</tbody>
</table>

*significantly less than 1.0

(2% reduction) (8% reduction) (17% reduction)
Role of SHDs in HAI Prevention

• State-based infrastructure for HAI prevention and response is extremely valuable
  – Identification of overperforming and underperforming facilities from NHSN data (allows for individual facility-level followup)
  – Prevention collaboratives within states and across continuum of care
  – Response to 2012 fungal meningitis outbreak
Comprehensive Use of NHSN Data

- **CDC National Annual Reports**
  - Device- and procedure-associated data summaries
  - State and national standardized infection ratio reports
  - HAI antimicrobial resistance data

- **CMS Facility/State/National Reports**
  - Preview reports for hospitals/hospital systems
  - Hospital Compare for public reporting
  - Hospital value-based purchasing for facility reimbursement

- **State and Local Health Departments**
  - Data required for public reporting

- **Quality Improvement Groups**
  - Quality improvement orgs (QIOs)
  - End-stage renal disease networks
  - Partnership for Patients Hospital Engagement Networks

- **Collaboratives**
  - Comprehensive unit-based safety program (CUSP)
  - State, regional, local initiatives

- **Research Groups**
  - Prevention of nosocomial infections and cost effectiveness (PNICE)
  - Preventing avoidable infections by adjusting payment (PAICAP)
Surgical Care Improvement Project (SCIP)

James (Jim) Poyer, MS, MBA
Centers for Medicare & Medicaid (CMS)
SCIP National Progress FY 2008 – 2011

- SCIP Inf 1: Abx within 1 Hr Before Incision (3Q2006)
- SCIP Inf 2: Received Prophylactic Abx Consistent with Recommendations (1Q2007)
- SCIP Inf 3: Prophylactic Abx Discontinued within 24 Hrs of Surgery End Time (3Q2006)
- SCIP Inf 4: Controlled 6 AM Postoperative Serum Glucose - Cardiac Surgery (1Q2008)
- SCIP Inf 6: Appropriate Hair Removal (1Q2008)
SCIP – Current Status

- CMS linking payment for SCIP Infection 1, 2, 3, 4 performance in Hospital Value Based Purchasing (VBP) starting with 7/1/2011 discharges
- CMS Quality Improvement Organizations continue to provide SCIP assistance to hospitals on measures included in Hospital VBP
- SCIP Infection 6 (Appropriate Hair Removal) was suspended effective with 1/1/2012 due to topped-out status
- National Quality Forum
  - SCIP Infection 4 – June 2012 modification to SCIP Infection 4 numerator inclusion from 6am to 24 hours following surgery
  - SCIP Infection 6 – Placed in reserve status due to close to 100% compliance
Contact Information

- James (Jim) Poyer, Director
  - CMS/CCSQ/QIG/DVIQR
  - James.poyer@cms.hhs.gov

- 410-786-2261
Questions and Answers
Plenary II: Measuring Progress Towards Achievement of Phase II & III Action Plan Goals
From VAP to VAE:
Establishing new definitions for Ventilator-Associated Events in Adults

Slides prepared by Mitchell M Levy, MD
Brown University

Presented by Suhail Raoof, MD
New York Methodist Hospital, NY

On behalf of the Critical Care Societies Collaborative (CCSC)
The Problem

- **Ventilator-associated pneumonia (VAP) is an important complication of mechanical ventilation**
  - But other bad things also happen to patients on ventilators

- **No valid, reliable definition for VAP**
  - Need more accurate diagnostics ...
  - Until those are available, how do we conduct surveillance and track prevention progress?

- **Commonly used definitions include subjective elements and are neither sensitive nor specific for VAP**
  - Not ideal in an era of public reporting of healthcare-associated infection (HAI) rates, comparisons among facilities, pay-for-performance programs

- **Need a new approach**
NHSN Pneumonia (PNEU) Surveillance Definitions, 2002 to Present

- **Combination of x-ray, signs/symptoms and laboratory criteria**
  - Three sets of criteria
  - Chest imaging findings are required
  - Signs and symptoms of pneumonia are required
  - Laboratory evidence is optional—but should be used if available

- **To be “ventilator-associated” —**
  - Endotracheal tube (ETT)/ventilator must have been in place at some time during the 48 hours preceding or at time of PNEU onset
  - **No required amount of time** that the ETT/ventilator must have been in place for a PNEU to count as a VAP

Limitations of Current VAP Definitions

- Current definitions (e.g., definitions used for surveillance in NHSN, Clinical Pulmonary Infection Score, European surveillance definitions, etc.) all use combinations of criteria:
  - Chest x-ray
    - Lack specificity for VAP
    - Interobserver variability
    - Not within purview of IP expertise
  - Clinical signs/symptoms
    - Lack sensitivity and specificity
    - Some are highly subjective
    - Documentation varies
  - Microbiological evidence
    - Lack sensitivity and specificity
    - Practices vary among providers
    - Controversy about best practices

References include but are not limited to the following:
VAP Incidence Rates—All Reporting Facilities*

Analysis updated since abstract submission. Numbers may vary.
Why are VAP incidence rates declining?

- Evidence-based prevention measures
- Other reasons—several ways to lower VAP rates without improving patient care (Klompas et al., AJIC 2012;40:408-10)
  - Strict interpretation of clinical signs included in surveillance definitions
  - Strict interpretation of chest x-ray findings included in surveillance definitions
  - Requirement for consensus approach to VAP determinations or physician approval of cases
  - Practice of transferring out those patients needing prolonged mechanical ventilation
  - Admission of uncomplicated, vented post-operative patients to unit
Goals for Modifying Current Definitions

- Achieve face validity/clinical credibility
- Improve reliability
- Reduce burden
Working Group Objectives

- Critically **review** CDC’s draft, streamlined VAP surveillance definition for use in adult patients;
- Suggest **modifications** to enhance reliability and credibility within the critical care community;
- Propose final **adult definition** algorithm that will be **implemented** for use in NHSN for the potential future purposes of public reporting, inter-facility comparisons, and pay-for-performance programs.
“Ventilator-Associated Events” Surveillance Definition Algorithm—Tiered Approach

- **Tiers 1 and 2: Definitions suitable for potential use in public reporting**
  - Objective, general measures of Ventilator-Associated Conditions (VAC) and Infection-Related Complications (IVAC)
  - Definitions similar to Tier 1 VAC definition evaluated by Klompas et al. identified events associated with longer duration of mechanical ventilation, longer ICU stay, and increased mortality—and were more efficient to apply than current VAP definitions *(PLoS One 2011;6:e18062, Crit Care Med 2012; in press)*

- **Tier 3: Internal use definitions**
  - *Possible VAP* and *Probable VAP*, incorporating laboratory evidence

***Note that this is NOT a clinical definition algorithm and is not intended for use in the management of patients.***
Patients Eligible for VAE Surveillance

- ≥18 years of age
- Inpatients of acute care hospitals, long term acute care hospitals, inpatient rehabilitation facilities
- NOTE: Patients on high frequency ventilation or extracorporeal life support are EXCLUDED from VAE surveillance.

- Patients who are receiving a conventional mode of mechanical ventilation while in the prone position, and patients who are receiving a conventional mode of mechanical ventilation while receiving nitric oxide therapy or epoprostenol therapy are INCLUDED.

- Patients on Airway Pressure Release Ventilation (APRV) or related modes are INCLUDED, but VAC will be determined by changes in FiO₂ only, since changes in PEEP as indicated in this surveillance algorithm may not be applicable to APRV.
VAE Definition Algorithm Summary

Patient on mechanical ventilation > 2 days

Baseline period of stability or improvement, followed by sustained period (>2 days) of worsening oxygenation

Ventilator-Associated Condition (VAC)

General evidence of infection/inflammation

Infection-Related Ventilator-Associated Complication (IVAC)

Positive results of microbiological testing

Possible or Probable VAP

• Respiratory status component

• Infection / inflammation component

• Additional evidence

No CXR needed!
VAE Definition Algorithm Summary

- **Respiratory status component**
  - Patient on mechanical ventilation > 2 days
    - Baseline period of stability or improvement, followed by sustained period of worsening oxygenation
    - **Ventilator-Associated Condition (VAC)**

- **Infection / inflammation component**
  - General evidence of infection/inflammation
    - **Infection-Related Ventilator-Associated Complication (IVAC)**

- **Additional evidence**
  - Positive results of microbiological testing
    - **Possible or Probable VAP**

- **FiO₂ or PEEP**
VAE Definition Algorithm Summary

- **Respiratory status component**
  - Patient on mechanical ventilation > 2 days
  - Baseline period of stability or improvement, followed by sustained period of worsening oxygenation

- **Infection / inflammation component**
  - Ventilator-Associated Condition (VAC)
    - General evidence of infection/inflammation
      - Infection-Related Ventilator-Associated Complication (IVAC)
        - Positive results of microbiological testing
          - Possible or Probable VAP

- **Additional evidence**
  - Temperature or WBC and New antimicrobial agent > 4 days
VAE Definition Algorithm Summary

- **Respiratory status component**
  - Patient on mechanical ventilation > 2 days
  - Baseline period of stability or improvement, followed by sustained period of worsening oxygenation
  - Ventilator-Associated Condition (VAC)

- **Infection / inflammation component**
  - General evidence of infection/inflammation
  - Infection-Related Ventilator-Associated Complication (IVAC)

- **Additional evidence**
  - Positive results of microbiological testing
  - Possible or Probable VAP

Purulent secretions and/or other positive laboratory evidence
VAE Definition Algorithm Summary

Ventilator-Associated Condition (VAC)

Infection-Related Ventilator-Associated Complication (IVAC)

Possible VAP or Probable VAP

Possible Future Public Reporting Definitions

Internal Quality Improvement
Patient has a baseline period of stability or improvement on the ventilator, defined by ≥ 2 calendar days of stable or decreasing daily minimum FiO₂ or PEEP values. The baseline period is defined as the two calendar days immediately preceding the first day of increased daily minimum PEEP or FiO₂.

AND

After a period of stability or improvement on the ventilator, the patient has at least one of the following indicators of worsening oxygenation:

1) Increase in daily minimum FiO₂ of ≥ 0.20 (20 points) over the daily minimum FiO₂ in the baseline period, sustained for ≥ 2 calendar days.

2) Increase in daily minimum PEEP values of ≥ 3 cmH₂O over the daily minimum PEEP in the baseline period, sustained for ≥ 2 calendar days.
Tier 2: IVAC

On or after calendar day 3 of mechanical ventilation and within 2 calendar days before or after the onset of worsening oxygenation, the patient meets both of the following criteria:

1) Temperature $> 38 \, ^\circ\text{C}$ or $< 36 \, ^\circ\text{C}$, OR white blood cell count $\geq 12,000 \, \text{cells/mm}^3$ or $\leq 4,000 \, \text{cells/mm}^3$.

AND

2) A new antimicrobial agent(s)* is started, and is continued for $\geq 4$ calendar days.

*See Appendix for eligible agents.
Tier 3: Possible VAP

On or after calendar day 3 of mechanical ventilation and within 2 calendar days before or after the onset of worsening oxygenation, ONE of the following criteria is met:

1) Purulent respiratory secretions (from one or more specimen collections)
   - Defined as secretions from the lungs, bronchi, or trachea that contain $\geq 25$ neutrophils and $\leq 10$ squamous epithelial cells per low power field [lpf, x100].
   - If the laboratory reports semi-quantitative results, those results must be equivalent to the above quantitative thresholds.

2) Positive culture (qualitative, semi-quantitative or quantitative) of sputum*, endotracheal aspirate*, bronchoalveolar lavage*, lung tissue, or protected specimen brushing*

*Excludes the following:
- Normal respiratory/oral flora, mixed respiratory/oral flora or equivalent
- *Candida* species or yeast not otherwise specified
- Coagulase-negative *Staphylococcus* species
- *Enterococcus* species
On or after calendar day 3 of mechanical ventilation and within 2 calendar days before or after the onset of worsening oxygenation, ONE of the following criteria is met:

1) Purulent respiratory secretions (from one or more sites, defined as for possible VAP)

AND one of the following (see Table 2):
- Positive culture of endotracheal aspirate*, $\geq 10^5$ CFU/ml or equivalent semi-quantitative result
- Positive culture of bronchoalveolar lavage*, $\geq 10^4$ CFU/ml or equivalent semi-quantitative result
- Positive culture of lung tissue, $\geq 10^4$ CFU/g or equivalent semi-quantitative result
- Positive culture of protected specimen brush*, $\geq 10^3$ CFU/ml or equivalent semi-quantitative result

*Same organism exclusions as noted for Possible VAP.

2) One of the following (without requirement for purulent respiratory secretions):
- Positive pleural fluid culture (where specimen was obtained during thoracentesis or initial placement of chest tube and NOT from an indwelling chest tube)
- Positive lung histopathology
- Positive diagnostic test for *Legionella* spp.
- Positive diagnostic test on respiratory secretions for influenza virus, respiratory syncytial virus, adenovirus, parainfluenza virus, rhinovirus, human metapneumovirus, coronavirus
When will VAE surveillance be available in NHSN, and what is happening to PNEU/VAP?

- VAE available January 2013.
- In 2013, current VAP protocol will still be used for neonatal and pediatric patients ONLY.
  - Pediatric and Neonatal VAE Surveillance Definition Working Group kick-off meeting held on September 6, 2012
- In 2013, the current PNEU definitions will still be available for off-plan surveillance of VAP in adults or non-ventilated PNEU in adults or children.
Education, Training and Implementation

- NHSN application anticipated to be ready to accept VAE reports in late January 2013
- Working group report
- Multiple email communications, presentations and webinars—ATS, APIC, IDWeek, CHEST, etc.
- First “official” VAE training during 3-day NHSN training session at CDC, October 2012
  - Recorded version will be posted at http://www.cdc.gov/nhsn/training/
- Surveillance protocol posted to the NHSN website:
- Worksheets and web-based VAE tool
Conclusions

- **VAE represents new approach**—focus on standardized methods, objectivity, reliability

- **VAE will identify broad range of events in patients on mechanical ventilation, not limited to VAP**
  - Requires thinking more broadly about prevention

- **Key knowledge gaps**
  - Preventability of events detected by VAE definition
  - Clinical correlates of IVAC, Possible and Probable VAP
  - Pediatric and neonatal VAE, other special populations?
  - Alternative modes of mechanical ventilation
  - Denominators
  - Risk adjustment or stratification
Ambulatory Surgical Centers
Workgroup Update

Amber Taylor, MPH
Office of the Assistant Secretary for Health (OASH)

Joe Perz, DrPH
Centers for Disease Control and Prevention (CDC)
Ambulatory Surgical Centers (ASCs)

- Currently, >5,300 ASCs are certified for Medicare participation
  - >54% increase since 2001
  - ~25% are accredited (e.g., AAAHC, AAAASF, or TJC)
  - Heterogeneous re specialties, size, staffing, ownership type, chain or hospital affiliation, electronic health records
- HAI prevention needs recognized following 2008 Las Vegas hepatitis C outbreak, CDC-CMS pilot survey and GAO Report
  - ASCs became a focus of the HHS HAI Action Plan, Phase 2
- ASCs are surveyed to measure compliance with CMS Conditions for Coverage (CfCs)
  - 2008: expanded infection control requirements
  - 2009: infection control worksheet and 3-year cycle implemented
- 2007: >6 million ASC procedures were paid for by Medicare at a cost of nearly $3 billion
  - >70% of claims are for endoscopy or eye procedures (e.g., cataract removal) and epidural/paraspinal injections

http://www.hhs.gov/ash/initiatives/hai/tier2_ambulatory.html
ASC Chapter Overview and Milestones

- Ambulatory surgical centers (ASCs) were selected as a focus area for Phase 2 of the HAI Action Plan

- HHS interagency workgroup was formed, including:
  - Centers for Medicare and Medicaid Services (CMS)
  - Centers for Disease Control and Prevention (CDC)
  - Agency for Healthcare Research and Quality (AHRQ)
  - Indian Health Service (IHS)

- Evolution of the ASC Chapter as part of the HAI Action Plan:
  - Initially released in Sept 2010, with subsequent revisions in response to stakeholder comments
  - Revision posted April 2012 with another round of comments/revisions
  - Stakeholder input via series of five meetings hosted between 2010-2012
    - May 2012 Data Summit: data sources and surveillance methods
  - Final ASC chapter has now been published
ASC Action Plan

Next Steps, Priority Areas, and Recommended Actions

- Unmet needs pertaining to HAI prevention in ASCs fall into three main categories:
  - Proactive HAI prevention at the clinic level
  - Sustain and expand improvements in oversight and monitoring
  - Develop meaningful HAI surveillance and reporting procedures
ASC Action Plan: Measurable Goals

By December 31, 2013, HHS, with stakeholder input, will:

1-1. Develop plan for ongoing collection, electronic transmission, and analysis of process measure data that are collected using the Infection Control Worksheet as part of ASC inspections

2-1. Identify existing quality measures (e.g., serious reportable events, SCIP measures) that have been NQF-endorsed and are applicable to ASCs;

2-2. Identify areas where additional quality measures are needed for ASCs; and;

2-3. Establish a timeline and methods for adoption and implementation of select measures within ASCs
ASC Action Plan: Measurable Goals (cont.)

By December 31, 2013, HHS, with stakeholder input, will:

3-1. Identify a set of ASC procedures for which HAI definitions and methods should be developed; and,

3-2. Establish a multi-year plan and phased approach to support their routine surveillance in a resource-efficient manner that can be implemented consistently across facility types; and,

3-3. Identify requirements and standards for ASCs to report notifiable diseases and potential outbreaks.
Thank You

http://www.hhs.gov/ash/initiatives/hai/tier2_ambulatory.html
Increasing Flu Vaccination of Healthcare Personnel
Workgroup Update

Jennifer Gordon, PhD
Office of the Assistant Secretary for Health
Health Care-Associated Influenza Infections – Who is at the greatest risk?
Influenza and Healthcare Personnel (HCP)

• Estimated that on average >200,000 people are hospitalized with influenza infections annually

• HCP are at a higher risk of influenza infection than other healthy adults Kuster PLoS ONE (2011); 6 (10).

• Prevention of HAI requires ongoing adherence to prevention strategies that optimize protection of both patients and HCP.
Influenza Infection Prevention Plans

- Hand / Cough Etiquette
- Respiratory droplet precautions
- Screening/Isolation of ill patients
- Appropriate management of ill HCP
- Environmental infection prevention
- Use of Personal Protective Equipment
- Use of Antiviral medication
Influenza and Healthcare Personnel (HCP)

- Asymptomatic/mildly symptomatic HCP may continue to work while ill, exposing patients and co-workers

  - Elder (1996) – 71/120 HCP testing positive for influenza could not recall having influenza and 32/120 HCP could not recall any respiratory infection

- Several studies indicate vaccinating HCP has a protective effect for patients, notably in LTCF (Dolan, 2012; LeMaitre, 2009; Hayward, 2006; Carman, 2000; Potter, 1997)

  - However current data is limited and additional research on patient impacts is needed

  - Vaccination is our most effective intervention; promoting vaccination is important for ensuring the well-being of both patients and HCP.

- HCP as role models for patients
Influenza Vaccination of HCP is a priority

• ACIP Recommendation – last updated Nov 2011

• WHO recommendations
  • Countries worldwide recommend vaccination of HCP (Music, 2011).

• Healthy People Goals for annual influenza vaccine coverage in HCP
  HP2010 - 60% - Achieved in 2009-2010 season
  HP2020 – 90%

• HAI Action Plan Interim 2015 Goal – 75%
Vaccination Coverage in HCP
1996-2012

* NHIS Methodology used to estimate influenza vaccination coverage among healthcare personnel changed during the 2005-06 season

Sources: Internet Panel Surveys - MMWR 2012;61(38);
National Health Interview Survey (NHIS) - Lu et al. CDC unpublished and http://www.cdc.gov/flu/pdf/professionals/nhis89_08fluvaxtrendtab.pdf;
Differences continue to exist among work settings and occupations

Healthcare Setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>76.9%</td>
</tr>
<tr>
<td>LTCF</td>
<td>52.4%</td>
</tr>
<tr>
<td>Physicians</td>
<td>67.7%</td>
</tr>
<tr>
<td>Offices</td>
<td>61.5%</td>
</tr>
</tbody>
</table>

Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Physicians</td>
<td>85.6%</td>
</tr>
<tr>
<td>Nurses</td>
<td>77.9%</td>
</tr>
<tr>
<td>Other HCP</td>
<td>62.8%</td>
</tr>
</tbody>
</table>

† Other healthcare settings include dental offices, pharmacies, nonhospital laboratories, medical-related schools, emergency technician sites, and home medical-care sites

*Other HCP includes dentists, nurse practitioners or physician’s assistants, allied health professionals, technicians or technologists, assistants or aides, administrative support staff members or managers, and nonclinical support staff members (such as food service workers, housekeeping staff members, maintenance staff members, janitors, and laundry workers)

Adapted from CDC MMWR 2012; 61(38).
Improving vaccination rates for HCP – Evidence-based Strategies

• Strong Leadership and Commitment

• Education and Campaigns for HCPs and Patients

• Improved Access

• Measurement and Feedback

• Mandatory Policies
# Measuring Progress

**NQF Measure #0431**

**Influenza Vaccination Coverage among HCP**

<table>
<thead>
<tr>
<th>CDC-sponsored measure</th>
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</thead>
<tbody>
<tr>
<td>Standardized methodology for reporting within a single facility and for comparison across facilities</td>
</tr>
</tbody>
</table>

Includes HCP working in the healthcare facility for at least 30 working days (October 1-March 31)

## Vaccination calculated for three HCP groups

- Employees
- Licensed Independent Practitioners
- Adult students/ trainees and volunteers

## Numerator for all three HCP groups

- HCP receiving vax at healthcare facility
- Documentation that vax was received at another site
- Valid medical contraindication
- Offered but declined
- Unknown vax status
HCP Vaccination as a Quality Measure: CMS Mandatory Reporting Requirements

**Acute Care Hospitals** - Final rule published August 2011

- Data collected via CDC’s National Healthcare Safety Network (NHSN)
- Data collection starting **January 1, 2013** for FY2015 payment determination
- **Fail to report data = 2% reduction in annual payment increase from CMS**
- 2013-2014 season – data will be made available on hospitalcompare.hhs.gov website

**Ambulatory Surgical Centers** - Final rule published November 2011

**Long Term Care Hospitals** - Final rule published August 2012
Collaborations for Shared Solutions

• Continue to enhance interagency collaborations and engage stakeholders in the initiative to improve HCP vaccination
  • HHS WG led by OASH
  • LTCF stakeholder workshop conducted in September, 2011

• Continue to develop, synthesize, and improve tools for raising vaccination coverage
  • Evaluate laws related to HCP influenza vaccination requirements
  • Develop and disseminate tool kit for LTCF

• Develop, implement, and improve measures and standards for influenza vaccination of HCP
Thank You!

Healthcare providers make a difference. The Flu ends with U.
End-Stage Renal Disease Facilities
Workgroup Update

Amber Taylor, MPH
Office of the Assistant Secretary for Health (OASH)

Marjory Cannon, MD
Centers for Medicare & Medicaid Services (CMS)
Prevention Priorities

- Prevention of Intravascular Infections
- Prevention of Bloodborne Pathogen Transmission
- Prevention of Influenza and Pneumococcal Disease
- Prevention Priority Implementation Bundles
- Education and Training
<table>
<thead>
<tr>
<th>Metric</th>
<th>Proposed Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>All BSIs stratified by access type</td>
<td>Pooled mean $\leq 5.0$; Relative Improvement Rate (RIR)$\geq 40%$</td>
</tr>
<tr>
<td>Access-related BSIs stratified by access type</td>
<td>RIR $\geq 50%$</td>
</tr>
<tr>
<td>Seasonal influenza vaccination for ESRD Patients</td>
<td>$\geq 90%$</td>
</tr>
<tr>
<td>Facilities reporting to NHSN</td>
<td>$\geq 90%$</td>
</tr>
<tr>
<td>Any central venous catheter (CVC) use in patients on hemodialysis</td>
<td>Absolute target $\leq 20%$ or RIR $\geq 20%$</td>
</tr>
<tr>
<td>Screening for Hepatitis C antibody</td>
<td>$\geq 70%$</td>
</tr>
<tr>
<td>Hepatitis B vaccine coverage in ESRD patients</td>
<td>$\geq 90%$</td>
</tr>
</tbody>
</table>
Challenges

• Federal Level - Enhancing communications and collaboration strategies between state survey agencies and ESRD Networks
• State level - Increasing communication between state health departments and ESRD networks especially where it concerns outbreak response
• Facility provider level—transitions of care, resources, prophylactic antibiotic use, tracking blood cultures, data reporting
• Patient Level – Increase patient involvement
Future Directions

• Antimicrobial Resistance
• Prevention through access care
• Viral hepatitis epidemiology
• Role of environment
• Engineering solutions and processes
• New medication and devices
• Reducing ESRDs
• Expansion of Emerging Infections Program
Long-Term Care Facilities
Workgroup Update

Deb Nichols, MD, MPH
Office of the Assistant Secretary for Health (OASH)
HAIs in LTCFs Working Group

• Develop a chapter of the National Action Plan on the Prevention of Healthcare-Associated Infections that focuses on long-term care facilities (LTCFs)

• Focus of the chapter is limited to NFs and SNFs initially (collectively considered “nursing homes”)

LTCF Action Plan Chapter timeline

- Working Group Begins  Spring, 2011
- Federal Clearance  Summer, 2012
- Public Comment  7/23/12-8/22/12
- Revision in Response to Federal and Public Comments  Fall 2012
- Secretarial Approval  Pending Late 2012
The Burden Estimate

765,000 - 2.8 million Infections/Year
Priority Areas

1. National Healthcare Safety Network (NHSN) Enrollment
2. *Clostridium difficile* Infections (CDI)
3. Resident Influenza and Pneumococcal Vaccination
4. Healthcare Personnel Influenza Vaccination
5. Urinary Tract Infections (UTI)
Metrics with Targets

- National Healthcare Safety Network Enrollment
- Resident Influenza and Pneumococcal Vaccination
- Healthcare Personnel Influenza Vaccination
Promoting NHSN Enrollment by LTCFs

- National data sources for tracking infections in LTCFs have been limited
- The recently released NHSN LTCF Component was designed for use and application by LTCF providers
- Promoting enrollment and use of this new system will:
  - Standardize surveillance definitions and activity
  - Provide data for national benchmarks
  - Provide trends in infection rates to assess success of prevention activities
Priority Area 1: Promoting NHSN Enrollment

• **Metric 1:** # certified nursing homes enrolled into the NHSN LTC Component / # certified nursing homes in the US
  - **Baseline:** No current enrollment

• **Goal:** 5% of certified nursing homes (currently 15,735) enroll in NHSN over the 5 years following launch of the component
Preventing Lower Respiratory Tract Infections

- Lower Respiratory Tract Infections (LRTI) are a leading cause of hospitalization and death in adults older than 65 years
  - Includes severe Influenza infections and bacterial pneumonia
  - Outbreaks can occur among LTCF residents due to communal living environment, and shared care-givers
- Influenza
  - 90% of influenza related deaths occur in in persons 65 and older
  - Greater vaccination coverage in both residents and healthcare personnel has been shown to reduce healthcare-associated influenza and influenza related mortality
- Bacterial Pneumonia
  - Most commonly caused by *Streptococcus pneumoniae*
  - Pneumococcal vaccination has been shown to reduce bacteriemia and death from *S. pneumoniae* in the elderly
Priority Area 3: Vaccination for residents against influenza and pneumococcus

- **Metric 3a (Influenza):** # residents receiving influenza vaccine during the current or most current influenza season / # residents eligible for the influenza vaccine
  - *Baseline:* 81.7% for long-stay residents & 60.1% for short-stay residents according to the MDS 3.0

- **Metric 3b (Pneumococcus):** # residents receiving pneumococcal vaccine or up-to-date with their pneumococcal vaccination / # residents eligible for pneumococcal vaccine
  - *Baseline:* 79.8% for long-stay residents & 61.2% for short-stay residents according to the MDS 3.0

- **Goal:** 85% vaccination coverage of eligible residents for both seasonal influenza and pneumococcus
Priority Area 4: Healthcare Personnel Influenza Vaccination

• **Metric 4:** Proportion of Healthcare Personnel who work in long-term care who received the seasonal influenza vaccine
  – *Baseline:* 36.2% coverage according to the National Health Interview Survey (NHIS) for the 2007-2008 season
  – Preliminary (non-NHIS) data for 2010-11 has 64.4% coverage

• **Goal:** 75% of HCPs in LTC receiving the seasonal influenza vaccination by 2015 based on NHIS survey data.
  – Aligns with previous HCP Influenza Vaccination goals outlined in Phase 2 of Action Plan
Metrics without Targets

- *Clostridium difficile* Infections (CDI)
- UTI, CAUTI and Catheter Care Processes
Reducing *C. difficile* Infections

- *Clostridium difficile* infections (CDI) are the most common cause of acute diarrhea among nursing home residents
  - Estimated that over half of all healthcare-associated CDI will manifest in NHs
- CDI causes more severe and often relapsing infections in people >65, resulting in frequent hospitalizations and deaths
- Multiple prevention strategies including hand hygiene, environmental disinfection and antibiotic stewardship can impact transmission and infections with *C. difficile*
Priority Area 2: *Clostridium difficile* Infections

- **Metric 2:** Incident NH-onset CDI Lab-ID events/ 10,000 resident days
  - Incident lab events are defined as no previous positive or prior positive >8 weeks
  - Only those events occurring >3 calendar days after resident admission are considered NH-onset
  - **Baseline:** No current established national baseline

- **Goal:** Pilot implementation of reporting to NHSN, evaluate variability in measure, and obtain consensus on measurable 5-year target
Reducing Urinary Tract Infections

• Urinary Tract Infections (UTI) are the most frequently reported and treated HAI in LTC
  • Leading cause of 30-day hospital readmissions from SNFs
  • Often a source for more serious infections such as blood stream infections and sepsis

• Catheter-Associated UTI (CA-UTI) events comprise a smaller proportion of all UTI events diagnosed in LTC
  • Baseline catheter utilization is lower (~5%) in nursing homes compared to acute care settings
  • More urinary catheter exposure seen in the residents recently transferred from hospitals compared to longer term residents

• High rates of asymptomatic bacteriuria (ASB) in LTCF residents leads to greater use of antibiotics
  • 23% to 50% in non-catheterized NH residents
  • 100% among residents with long-term catheters
  • Treatment has lead to an overuse of antibiotics with subsequent negative outcomes including antibiotic resistance and C. difficile infections
Priority Area 5: Urinary Tract Infections

- **Metric 5a:** Non-Catheter Associated Symptomatic UTIs
  - **Metric:** Non-catheter associated symptomatic UTI incidence rate: #events/1,000 resident days
  - **Baseline:** No current established national baseline

- **Metric 5b:** Catheter-Associated Urinary Tract Infections
  - **Metric:** Catheter associated symptomatic UTI incidence rate: #events/1,000 resident days
  - **Baseline:** No current established national baseline

- **Metric 5c:** Catheter Utilization Ratio
  - **Metric:** Catheter utilization ratio: catheter days/resident days
  - **Baseline:** No current established national baseline

- **Goal:** Pilot reporting to NHSN, evaluate variability, and obtain consensus on measurable 5-year target
Next Steps

- NHSN Release to LTC Community
- Infection surveillance
- Education
- Addressing hospitalizations and rehospitalizations
- More research needed across the LTC spectrum
- Antibiotic Stewardship
Questions and Answers
Introduction to Breakout Group Discussion

Rani Jeeva, MPH, CPH
Office of the Assistant Secretary for Health (OASH)
Small Group Discussion: Step-By-Step

**Two Breakout Sessions**

- **HAI Action Plan-specific goals and targets**
  - 12:45 PM – 1:45 AM (60 Minutes)

<table>
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- **Broad HAI Prevention Goals**
  - 1:55 PM – 2:55 PM (60 Minutes)

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Small Group Discussion

• \( \leq 10 \) Participants Per Table
  – SGD Preference Roster

• Discussion Capture by Table Facilitator(s)
  – Self Identified Facilitators

• Feedback Templates
  – For Each SGD
  – During both breakout sessions
  – Breakout Session #2 Topics description handout
  – Used for Report Out
  – Hand in all templates
Tips for a Successful Small Group Discussion

- Become acquainted with one another
- Take Initiative to Participate
- Breakdown the question into parts
- Equal Opportunity to Speak
- Be a good and patient listener
- Capture key themes or messages
## Breakout Session #1: How Do We Sustain and Accelerate Progress Towards the National Priority Areas for Elimination of Healthcare-Associated Infections in Acute Care Hospitals?

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## Breakout Session #2: What Should Be Done To Sustain and Accelerate Progress Towards The Goals of the National Action Plan to Prevent Healthcare-Associated Infections?

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“Progress Towards Eliminating Healthcare-Associated Infections”

November 27, 2012
Washington Marriott Hotel, Washington, D.C.
Breakout Sessions: Report Outs

Rani Jeeva, MPH, CPH
Office of the Assistant Secretary for Health (OASH)
# Healthcare-Associated Infection (HAI)

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Plenary III: The Road to Achieving the HAI Action Plan Goals
Welcome

Don Wright, MD, MPH
Office of the Assistant Secretary for Health (OASH)
Post Meeting

Power Point Presentations
• One flash drive per participants at the end of the meeting

Post-Meeting Evaluation Form
• Electronic Survey
• Website Link Sent via E-mail

HAI Progress Summary Report/ Feedback
• Collected and included in meeting summary

Information on HAI Initiative and Activities
www.hhs.gov/ash/initiatives/hai/index.html

Questions: ohq@hhs.gov
HAI: Agency Priority Goal

Marjory (Marge) Cannon, M.D.
Centers for Medicare & Medicaid Services (CMS)
GPRA Goals

• Government Performance and Results Act (GPRA) requires agencies to have strategic plans and goals, commit to performance improvement and tie resources to results

• GPRA Modernization Act of 2010 mandates a more comprehensive and integrated approach to performance improvement
GPRA Modernization Act of 2010

In 2010, there was an update to GPRA:

• The GPRA Modernization Act of 2010 mandates that Agency (HHS) commit to a few priority initiatives (APGs) where significant, accelerated change can be achieved in two years without additional resources

• Six (6) agency-wide priorities for 2012-2013. Among these is the Priority Goal to Improve Patient Safety by Reducing Healthcare Associated Infections in Hospitals - CLABSI and CAUTI.

• Two-year goal: October 1, 2011 – September 30, 2013
Improve Patient Safety: By September 30, 2013, reduce the national rate of healthcare-associated infections (HAIs) by demonstrating significant, quantitative and measurable reductions in hospital-acquired central line-associated bloodstream infections (CLABSI) and catheter-associated urinary tract infections (CAUTI).

Lead OPDIV: CMS
Partner OPDIVs: AHRQ, CDC, OASH
Strategies to Goal

• Our confidence level remains **moderately high** that we will meet our Sept 30, 2013 target for several reasons:

  • **Milestones:** We have met our goal milestones to date including our current Q4 milestone: release of final results from AHRQ’s national CUSP for CLABSI program

  • **Identifying resources needs:** We identify areas where resources are needed by tracking and monitoring results at the facility, state and national level

  • **Collaboration:** Collaboration is one of the cornerstones of this goal allowing for sharing of evidence-based prevention practices and sustained results on a broad scale

  • **Data:** Data validation efforts help to ensure that HAI data is accurate and trustworthy. We also highlight emerging electronic technologies as they relate to advances in HAI reporting
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HAI APG: Collaborative Effort

• The HAI Agency Priority Goal is to reduce CLABSI and CAUTI in hospitals nationwide represents a collaborative effort across the department to achieve its aims.

• CMS, CDC, OASH and AHRQ all have initiatives designed to promote spread and synergy around 9/30/13 goal: reducing CLABSIs by 25% and CAUTIs by 20% in our nation’s hospitals.

• HHS-wide collaboration is key to producing national HAI reduction programs that:
  • Enhance patient and provider outreach while avoiding confusion and program “fatigue”
  • Avoid duplication of effort
  • Provide synergy around the goal and promote sustainable goals and outcomes.
Strategies to Goal Contributing Programs

- National Action Plan to Prevent Healthcare Associated Infections: Roadmap to Elimination (OASH)
- Quality Improvement Organizations 10th Statement of Work (CMS)
- Partnership for Patients (CMS)
- Healthcare-Associated Infections Program (CDC)
- National Healthcare Safety Network (CDC)
- Comprehensive Unit-based Safety Program (AHRQ)
- Healthcare Associated Infections Research and Implementation Projects in AHRQ’s Patient Safety Portfolio (AHRQ)
Strategies to Goal

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Key Discussion Points: Data

• National standardized infection ratio (SIR) figures for CLABSI and CAUTI to be reported biannually for this goal. The CDC-led National Healthcare Safety Network (NHSN) is the data source.

• CLABSI target=25% reduction in SIR (goal SIR 0.50 by 9/30/13)
• CAUTI target=20% reduction in SIR (goal SIR 0.75 by 9/30/13)  
  (Baseline = 2010 SIR data)

• Through data monitoring including CDC-release of state-level SIR figures, we work to link program resources to areas that may need them most.

• The Medicare Patient Safety Monitoring System (MPSMS), now led by AHRQ, is being used to compare broad trends in CLABSI and CAUTI.
Key Discussion Points: Progress to goal to date

• Midway targets have been set for this goal

• September 2012* CLABSI goal is 12.5% reduction in national SIR from baseline = 0.60

• September 2012* CAUTI goal is 10% reduction in national SIR from baseline = 0.85

• National CLABSI and CAUTI data has been reported through March 2012 and is 0.561 and 0.953 respectively

*There is a 6-month data lag for this goal so September 2012 data will be available for public reporting March 2013.
Key Discussion Points: Progress to Date

• CLABSI reductions are ahead of target goal with a SIR of 0.561 as of March 2012

• The absence of reduction in CAUTI SIR as of March 2012 reveals the need for CAUTI prevention efforts

• Increased reporting of CAUTI discharges as a result of CMS’ Hospital IQR program which began during this reporting period may be a contributing factor
Strategies to Goal

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Alice’s Story

Mary Brennan-Taylor
Consumers Union, Safe Patient Project
University of Buffalo School of Medicine, Dept. of Family Medicine
Thank you & Safe Travels