Upcoming NHSN HAI Reports

Presented by Members of CDC’s Division of Healthcare Quality Promotion

**This webinar is being recorded and will begin at approximately 2:10pm EST. We apologize for the delay.**

December 19, 2017
Welcome!

Housekeeping
- All participants will be muted for the duration of the webinar
- You can use the chat box to ask questions at any time throughout the presentation
- Questions will be answered at the end of the webinar
- A copy of these slides were sent out on Monday, Dec 18th. Slides will be posted on NHSN webpage.
- Webinar is being recorded and will be posted on NHSN webpage. Posting details will be distributed.

Agenda
- Present an overview of three upcoming HAI reports
  - Various speakers, including analysts on the NHSN Methods and Analytics Team, and the Associate Director of Science for DHQP
- CDC’s communication plan, timelines, and website updates
2015 National and State HAI Data Report

Rebecca Konnor
The 2015 HAI Data Report

- The scope of work for the 2015 report is different from previous reports
- The 2015 report uses the new 2015 baseline and risk adjustment calculations
- Report structure mimics the pattern of the rebaseline work. The report is produced by facility type:
  - Acute Care Hospitals (ACHs)
  - Critical Access Hospitals (CAHs)
  - Inpatient Rehabilitation Facilities (IRFs)
  - Long Term Acute Care Hospitals (LTACHs)
- Includes SIR data by nation and States, as well as national standardized utilization ratios (SUR)
- The report includes the HAIs for which we currently have a baseline
- No comparisons made between previous year data and current year data
List of HAI Measures Included in the 2015 HAI Data Report

<table>
<thead>
<tr>
<th>HAI Type</th>
<th>ACH</th>
<th>CAH</th>
<th>IRF</th>
<th>LTACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI (by location)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CLABSI (by location)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CDIFF (Facwidein)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MRSA (Facwidein)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SSI-All procedures for adults and pediatrics.</td>
<td>☐</td>
<td>✓</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Complex A/R Model only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*SSI-adult procedures only, Top voluminous</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>procedures/SCIP. Complex A/R Model only.</td>
<td></td>
<td></td>
<td>COLO</td>
<td>COLO</td>
</tr>
<tr>
<td>VAE (by location)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IVAC Plus (by location) National SURs</td>
<td>✓</td>
<td>✓</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>CLABSI, CAUTI, VAE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*The SCIP procedures plus 5 of the most reported procedures nationally. **There isn’t a model for Critical Access Hospital (CAH) for IVAC Plus Model.
2015 HAI Data Report Format

- Fact sheets (by facility type)
  - Summary of data presented in the detailed technical tables
  - National
  - State

- Detailed technical tables include:
  - Excel data tables detailing the national and state data for the various HAIs
  - There are five detailed technical excel documents for the 2015 report, one each for the four major facility types, and one for national SURs
The National Factsheet: *(front)*

**Acute Care Hospitals**

<table>
<thead>
<tr>
<th>Infection Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSIs</td>
<td>Central Line-Associated Bloodstream Infections</td>
</tr>
<tr>
<td>CAUTIs</td>
<td>Catheter-Associated Urinary Tract Infections</td>
</tr>
<tr>
<td>SSIs</td>
<td>Surgical Site Infections</td>
</tr>
<tr>
<td>C. DIFFICILE EVENTS</td>
<td>Healthcare-Associated C. difficile Infections</td>
</tr>
<tr>
<td>VAEs</td>
<td>Ventilator-Associated Events</td>
</tr>
<tr>
<td>MRSA BACTEREMIA</td>
<td>Methicillin-Resistant Staphylococcus aureus Infections</td>
</tr>
</tbody>
</table>

**Data Source:** CDC 2015 National Healthcare Safety Network- Nationwide Inpatient Sample (NHSN) Data.
## Acute Care Hospitals

<table>
<thead>
<tr>
<th>HAI Type</th>
<th>#Hospitals Reporting</th>
<th>2015 SIR Distribution</th>
<th>2015 NRL SIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSI</td>
<td>3,550</td>
<td>0.000</td>
<td>0.868</td>
</tr>
<tr>
<td>CAUTI</td>
<td>3,686</td>
<td>0.000</td>
<td>0.872</td>
</tr>
<tr>
<td>VAE</td>
<td>1,826</td>
<td>0.000</td>
<td>0.791</td>
</tr>
<tr>
<td>SSI, Abdominal Hysterectomy</td>
<td>3,029</td>
<td>0.000</td>
<td>0.777</td>
</tr>
<tr>
<td>SSI, Colon Surgery</td>
<td>3,140</td>
<td>0.000</td>
<td>0.823</td>
</tr>
<tr>
<td>C. difficile Events</td>
<td>3,634</td>
<td>0.000</td>
<td>0.926</td>
</tr>
<tr>
<td>MRSA Bacteremia</td>
<td>2,616</td>
<td>0.000</td>
<td>0.827</td>
</tr>
</tbody>
</table>

*The number of hospitals that reported to HAIW and are included in the SIR calculation. This number may vary across HAI types; for example, some hospitals do not use central lines, urinary catheters, or ventilators, or do not perform certain abdominal procedures.*

*These data represent the distribution of all hospital SIRs for each HAI type. The highest facility SIR is represented by the "worst" and the highest facility SIR is the "worst." The number represents the middle of the distribution; half of all facilities fall below (and above) this SIR value. Contributions are only calculated when at least 10 hospitals had enough data to calculate an SIR.*

For additional data points, refer to the technical data tables at [www.cdc.gov/hai/progress-report/](http://www.cdc.gov/hai/progress-report/).

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**Learn How Your Hospital Is Performing:**

[www.mostlic.com/hospitalcompare](http://www.mostlic.com/hospitalcompare)

**For Additional Information:**

- ASHHR: [www.ashhr.org](http://www.ashhr.org)
- Preventing HAI: [www.cdc.gov/hai](http://www.cdc.gov/hai)
- For more information on the 2015 baseline and the [baseline report](https://www.cdc.gov/choice/2015/baseline/index.html) for the new SIR tool: [www.cdc.gov/hai/profsa/index.html](http://www.cdc.gov/hai/profsa/index.html)
The State Factsheet: (front) Acute Care Hospitals

- Sections for CLABSI, CAUTI, VAE, SSI (COLO/HYST), MRSA bacteremia LabID, CDI LabID
### Acute Care Hospitals

<table>
<thead>
<tr>
<th>HA Type</th>
<th># ACS Reporting</th>
<th>2015 SR Distribution</th>
<th>2015 State SR</th>
<th>2015 NAP SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI</td>
<td>334</td>
<td>0.000</td>
<td>1.240</td>
<td>1.120</td>
</tr>
<tr>
<td>VAE</td>
<td>160</td>
<td>0.000</td>
<td>2.075</td>
<td>0.769</td>
</tr>
<tr>
<td>SSI Abdominal Hysterectomy</td>
<td>298</td>
<td>—</td>
<td>1.066</td>
<td>1.003</td>
</tr>
<tr>
<td>SSI Colon Surgery</td>
<td>304</td>
<td>0.000</td>
<td>2.383</td>
<td>1.067</td>
</tr>
<tr>
<td>C. difficile Events</td>
<td>336</td>
<td>0.000</td>
<td>1.837</td>
<td>1.161</td>
</tr>
<tr>
<td>MRSA Bacteremia</td>
<td>335</td>
<td>0.000</td>
<td>1.992</td>
<td>0.980</td>
</tr>
</tbody>
</table>

1. These data measure the distribution of all hospital SIRs for each HA type. The lowest facility SIR is represented by the "minimum," the median represents the middle of the distribution; half of all facilities fall below and above this SIR value. Classifications are only calculated when at least 10 hospitals had enough data to calculate an SIR.

2. For additional data points, refer to the technical data tables at www.cdc.gov/nhsn/pdfs/report/.
Early Preparations for 2016 HAI Progress Report

Scott Decker
Analyses have started for the 2016 HAI Progress Report
Scope is similar to 2015 report; SIRs and SURs stratified by facility type and HAI type
2016 State Mandate and Validation survey is coming soon!
  – The survey will collect information about state reporting requirements and data validation practices that were in place for specific HAIs and facility types during 2016
  – Survey Monkey will be used
  – Survey will be sent to states on January 10th, 2018
    • Please complete the survey by February 2nd, 2018 (~ 3 weeks)
  – A full PDF of the survey with instructions will be distributed to states in advance
  – Responses can be edited prior to deadline. Please only edit and submit one survey per state.
The survey will be sent to you by DHQP’s State Support Unit: HAIAR@cdc.gov
New Report: National 2015 SIRs Using Historical Baselines

Lindsey Weiner
Purpose

- This report calculates national 2015 SIRs under original national baselines for acute care hospitals:
  - CLABSI
  - CAUTI
  - SSI: COLO and HYST
  - MRSA Bacteremia and \textit{C. difficile} LabID

- Discussion of NHSN protocol changes in 2015 that impacted national data

- Statistical comparisons between 2014 and 2015 national SIRs

Executive Data Summary

- Executive summary & HAI-specific sections

<table>
<thead>
<tr>
<th>HAI Type</th>
<th># Hospitals</th>
<th># Reported Infections</th>
<th># Predicted Infections</th>
<th>2015 SIR</th>
<th>Percent Change (%) from 2014</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter-associated Urinary Tract Infection (CAUTI)</td>
<td>4,165</td>
<td>27,029</td>
<td>47,497.17</td>
<td>0.569*</td>
<td>43.0% decrease</td>
<td>*</td>
</tr>
<tr>
<td>Central Line-associated Bloodstream Infection (CLABSI)</td>
<td>3,935</td>
<td>27,313</td>
<td>45,279.51</td>
<td>0.603*</td>
<td>21.8% increase</td>
<td>*</td>
</tr>
<tr>
<td>Surgical Site Infection (SSI)-Abdominal Hysterectomy</td>
<td>3,248</td>
<td>2,091</td>
<td>2,479.48</td>
<td>0.843*</td>
<td>no significant change</td>
<td>*</td>
</tr>
<tr>
<td>Surgical Site Infection (SSI) - Colon Surgery</td>
<td>3,395</td>
<td>9,280</td>
<td>9,201.82</td>
<td>1.008</td>
<td>3.3% increase</td>
<td>*</td>
</tr>
<tr>
<td>MRSA Bacteremia LabID Event</td>
<td>4,035</td>
<td>8,898</td>
<td>9,329.72</td>
<td>0.954*</td>
<td>9.9% increase</td>
<td>*</td>
</tr>
<tr>
<td><em>C. difficile</em> LabID Event</td>
<td>4,127</td>
<td>101,610</td>
<td>109,862.78</td>
<td>0.925*</td>
<td>no significant change</td>
<td>*</td>
</tr>
</tbody>
</table>
Example: CAUTI

- The 2015 national CAUTI SIR = 0.569
  - 43% significant decline in SIR compared to 2009 baseline
  - *And*, a 43% significant decrease compared to 2014 SIR

- CAUTI definition changes in 2015:
  - Exclude cultures in which all organisms were non-bacterial (e.g., yeast)
  - Exclude SUTIs with colony counts < 100,000 CFU/ml

- This report reviews changes in yeast reporting patterns

- Separate analysis removed yeasts from all CAUTI data to allow for a better comparison of CAUTI SIRs between 2014 – 2015
  - 17.1% decline in 2015 compared to 2014

Dr. Cliff McDonald
A Story of Progress

- High-level assessment, NHSN plus other data, several years
- To bridge understanding over 2014 to 2015: early look at 2016
  - Both historical and 2015 baselines
- Infections: CLABSI, CAUTI, SSI, CDI, and MRSA bacteremia
- Sections
  - Prevention highlights: topline messages
  - Background: HHS Action Plan goals, changes in SIR over time
  - Additional prevention data
    - EIP, Prevalence survey
  - Next steps
    - Major area(s) for increased or new focus
    - Example prevention resources, TAP strategy
Central Line-Associated Bloodstream Infection (CLABSI)

Prevention Highlights

- Hospitals have made significant progress in preventing CLABSI s nationally, there has been a roughly 50% drop in CLABSI s between 2008 and 2016 (Figures 1 and 2).

![Figure 1. Temporal changes in CLABSI SIR in US hospitals using 2006-8 baseline, NHSN 2006-2016](image)

- This progress reflects outstanding collaborative efforts among healthcare providers, supported by national prevention efforts led by CDC, state health departments, the Agency for Healthcare Research and Quality (AHRQ) Comprehensive Unit Based Safety Program (CUSP), and Centers for Medicare and Medicaid Services (CMS) Quality Improvement Networks and Organizations and Hospital Engagement Networks.
Combined with declining non-yeast CAUTI SIRs, which change in relation to the number of CAUTIs per urinary catheter days, declines in the device (i.e. urinary catheter) use ratio (Figure 8: measured as urinary catheter days per patient days) highlight the net benefit to patients afforded by both safer and reduced urinary catheter use. Reducing unnecessary urinary catheter use is a key prevention strategy for CAUTI.

Measurement Background

- The HAI Action Plan reduction target was a 5-year 25% reduction in SIR from the baseline to 2013 with the new metric set (with a 2015 baseline) for another 25% reduction by 2020 (https://health.gov/hcq/prevent-hai-measures.asp).

- In 2015 there was a marked (i.e. 43%) decline from 2014 in the SIR calculated using the 2009 baseline (Figure 7). This decrease was caused by changes in the surveillance protocol as described in the report entitled “National 2015 Standardized Infection Ratios (SIRs) Calculated Using Historical Baselines”(link).
C. difficile

- Crude rates of healthcare-associated CDI are decreasing (Figure 20), which largely reflects declines in nursing home-onset infections (data not shown), along with some declines in hospital-onset CDI.

- An assessment of CDI events reported to NHSN demonstrates that nearly 70% of reported events had their onset in the community in 2015 (Figure 21). Although a subset of community-onset events are used for risk adjustment, hospital-onset events are the outcome measured by the SIR.
Surgical Site Infections

Additional Prevention Data

- Data from CDC’s hospital HAI point prevalence surveys show significant reductions in overall SSI (i.e. not limited to 10 SCIP procedures or SSI following a specific procedure) prevalence between 2011 and 2015 (Magill S et al. IDWeek 2017).

Next Steps

- Building upon the historic and possibly ongoing impact of implementing general (i.e. SCIP) strategies to prevent SSIs broadly, future declines in SSI will require collaborative efforts with the surgical community to develop innovative prevention strategies directed at specific procedures.

- Resources to prevent SSIs include:
  - Resources for patients and links to strategies
  - Recent guidelines
Timeline and Communication Strategies
Where Can You Find the Reports?

- All reports will be available on the CDC NHSN website in January 2018
  - Web link: [www.cdc.gov/hai/surveillance](http://www.cdc.gov/hai/surveillance)
- GovD notification will be sent when reports are available; sign up here: [https://www.cdc.gov/Other/emailupdates/](https://www.cdc.gov/Other/emailupdates/)
- Notifications from NHSN: blast emails and/or quarterly newsletter
- DHQP will send follow-up email to HAI/AR Coordinators when reports are posted
- States with specific questions about the reports or their NHSN data should contact the NHSN helpdesk: [nhsn@cdc.gov](mailto:nhsn@cdc.gov)
  - Use subject line: “NHSN HAI Progress Report”
Q&A

Send us your questions via Chat Box