Reducing CAUTI by Decreasing Inappropriate Catheter Utilization
HAIs

- Central Line-Associated Bloodstream Infections (CLABSI)
- Catheter-Associated Urinary Tract Infections (CAUTI)
- Clostridium difficile Infections (CDI)
- Ventilator-Associated Events (VAE)
Objectives for today’s webinar

- Identify best practices for appropriate urinary catheter utilization
- Identify at least one or two points from the hospital presentations that can be applied in your hospital
- Understand benefits of Targeted Assessment for Prevention (TAP)
Reducing CAUTIs by decreasing urinary catheter utilization

- Follow utilization protocols for appropriate indication
- Identify high urinary catheter utilization units
- Implement Nurse Driven Urinary Catheter Removal Protocol – or at least have a daily/shift checklist for necessity of UC continuation
Q&A

- If you have any questions for our first two speakers, please type them into the chat or Q&A boxes on the right side of your screen.
Targeted Assessment for Prevention (TAP)

What is TAP?

- The TAP strategy is a method developed by the CDC to use data for action to prevent healthcare-associated infections or HAIs.
- The TAP strategy is used to identify excess infections in specific units within a facility so that gaps in infection prevention can be addressed in the targeted locations.

Targeted Assessment for Prevention (TAP)

How does TAP work?

- The TAP report uses a metric called the Cumulative Attributable Difference or CAD
- The CAD is the number of excess infections within units or facilities
- The TAP report ranks units by the CAD to help prioritize prevention efforts where they will have the most impact
- The CAD represents the number of HAIs that must be prevented to achieve a specific goal in HAI reduction
Targeted Assessment for Prevention (TAP)

- Where is TAP?
  - TAP reports are available for the following HAIs in the Analysis section of the NHSN
    - CAUTI
    - CLABSI
    - CDI
NHSN TAP Reports

How to run a TAP report?

- Log into the NHSN under the Patient Safety component
- Click on each of the following in order:
  1. Analysis
  2. Generate New Datasets
  3. Output Options
  4. TAP Reports
  5. Acute Care Hospitals
  6. CDC Defined Output
- The list of available TAP reports will display
NHSN TAP Reports

What does running a TAP report look like?

For the most up-to-date reports, click 'Generate Data Sets' first. This may take a few minutes.

Click 'Run' Next to HAI
NHSN TAP Reports

What does running a TAP report look like?

1. CMS Reports
2. TAP Reports
3. Acute Care Hospitals (ACHs)
4. CDC Defined Output
5. CLABSI
6. CAUTI
7. CDI

Click ‘Run’ Next to HAI
## NHSN TAP Reports

What does the TAP report look like?

- Unit Level Report

```
<table>
<thead>
<tr>
<th>FACILITY</th>
<th>LOCATION</th>
<th>TOTAL NO. PATHOGENS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EC</td>
</tr>
<tr>
<td>1 001</td>
<td>1073</td>
<td>31</td>
</tr>
<tr>
<td>1 11001</td>
<td>IN:ACUTE:CC:S</td>
<td>10</td>
</tr>
<tr>
<td>3 1004</td>
<td>IN:ACUTE:CC:M_PED</td>
<td>5</td>
</tr>
<tr>
<td>4 10011</td>
<td>IN:ACUTE:STEP</td>
<td>5</td>
</tr>
<tr>
<td>5 1012</td>
<td>IN:ACUTE:WARD:M</td>
<td>3</td>
</tr>
<tr>
<td>6 1002</td>
<td>IN:ACUTE:CC:M</td>
<td>6</td>
</tr>
<tr>
<td>2 002</td>
<td>POD</td>
<td>19</td>
</tr>
<tr>
<td>2 NSTU</td>
<td>IN:ACUTE:CC:NS</td>
<td>46</td>
</tr>
<tr>
<td>3 nb</td>
<td>IN:ACUTE:WARD:REHA</td>
<td>3</td>
</tr>
<tr>
<td>3 003</td>
<td>ICU</td>
<td>19</td>
</tr>
<tr>
<td>4 004</td>
<td>ICU OSB</td>
<td>36</td>
</tr>
</tbody>
</table>
```

**Notes:**
- EC: Enterococcus
- YS: Yeast
- PA: Pseudomonas
- KPO: Klebsiella pneumoniae
- FS: Staphylococcus aureus
- PM: MRSA
- ES: Extended-Spectrum β-Lactamase (ESBL)

---

**Unit Level Report**

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<tr>
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### NHSN TAP Reports

#### Facility stats

<table>
<thead>
<tr>
<th>FACILITY RANK</th>
<th>ORGID</th>
<th>LOCATION RANK</th>
<th>LOCATION</th>
<th>CDC LOCATION TYPE</th>
<th>EVENT</th>
<th>DEVICE DAYS</th>
<th>DU</th>
<th>CAD</th>
<th>SIR</th>
<th>TOTAL NO. PATHOGENS</th>
</tr>
</thead>
</table>
| Rank according to CAD
|          |       |               |          |                  |       |             |    |     |     |                     |
| 1          | 001   | 1            | 1073     | IN:ACUTE:CC:B    | 14    | 1783        | 48%| 6.2 | 1.78| 16 (31, 6, 25, 13, 0, 0, 0) |
|            |       |              | 11001    | IN:ACUTE:CC:S    | 10    | 1443        | 64%| 6.2 | 2.66| 10 (30, 10, 0, 10, 0, 0, 0) |
| 3          |       | 4            | 10011    | IN:ACUTE:STEP    | 5     | 964         | 13%| 3.2 | 2.72| 5 (20, 80, 0, 0, 0, 0, 0) |
|            |       | 5            | 1012     | IN:ACUTE:WARD:M  | 3     | 533         | 6% | 2   | 2.96| 4 (50, 0, 25, 0, 0, 0, 0) |
| 6          |       | 6            | 1002     | IN:ACUTE:CC:M    | 6     | 1941        | 78%| 1.5 | 1.34| 6 (0, 50, 17, 0, 17, 0, 0) |
| 2          | 002   | 1            | POD      | IN:ACUTE:CC:MS   | 24    | 5358        | 80%| 11.7| 1.94| 26 (19, 31, 12, 12, 4, 4, 0) |
|            |       | 2            | NSTU     | IN:ACUTE:CC:NS   | 46    | 8540        | 65%| 8.4 | 1.22| 52 (31, 10, 19, 15, 0, 0, 0) |
|            |       | 3            | N-REHA   | IN:ACUTE:WARD:REHA | 3 | 394 | 4% | 1.5 | 2.00 | 3 (0, 0, 33, 67, 0, 0, 0) |
| 3          | 003   | 1            | ICU      | IN:ACUTE:CC:MS   | 19    | 4666        | 74%| 13.4| 3.39| 21 (19, 48, 0, 10, 5, 0, 0) |
|            |       | 2            | NCCU     | IN:ACUTE:CC:NS   | 7     | 1214        | 64%| 1.7 | 1.31| 7 (29, 0, 29, 0, 14, 0, 0) |

#### Unit specific stats

- Rank according to CAD
- Observed HAI count
- Device Utilization Ratio
- Count of specific pathogens
## NHSN TAP Reports

What does the TAP report look like?

- **Facility Level Report**

<table>
<thead>
<tr>
<th>FACILITY RANK</th>
<th>ORGID</th>
<th>STATE</th>
<th>BEDS</th>
<th>NO. LOCATION (ICU, NON-ICU)</th>
<th>CAUTIS (ICU, NON-ICU)</th>
<th>DEVICE DAYS (ICU, NON-ICU)</th>
<th>DU% (ICU, NON-ICU)</th>
<th>CAD (ICU, NON-ICU)</th>
<th>SIR (ICU, NON-ICU)</th>
<th>ICU: TOTAL NO. PATHOGENS (% EC, YS, PA, KPO, FS, PM, ES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>001</td>
<td>AA</td>
<td>325</td>
<td>6(4,2)</td>
<td>42(34,8)</td>
<td>6851(5364,1497)</td>
<td>25(56,9)</td>
<td>22.9(17.8,5.2)</td>
<td>2.2(2.1,2.8)</td>
<td>37 (24, 14, 16, 8, 11, 0, 0)</td>
</tr>
<tr>
<td>2</td>
<td>002</td>
<td>AA</td>
<td>566</td>
<td>3(2,1)</td>
<td>73(70,3)</td>
<td>14292(13888,394)</td>
<td>48(70,4)</td>
<td>21.6(20.1,1.5)</td>
<td>1.4(1.4,2)</td>
<td>78 (27, 17, 10, 17, 12, 1, 0)</td>
</tr>
<tr>
<td>3</td>
<td>003</td>
<td>AA</td>
<td>471</td>
<td>3(2,1)</td>
<td>28(26,2)</td>
<td>8255(5880,375)</td>
<td>51(72,9)</td>
<td>15.6(15.1,0.6)</td>
<td>2.3(2.4,1.4)</td>
<td>28 (21, 36, 7, 7, 7, 0, 0)</td>
</tr>
<tr>
<td>4</td>
<td>004</td>
<td>AA</td>
<td>340</td>
<td>1(1,0)</td>
<td>36(36,1)</td>
<td>6760(6760,1)</td>
<td>64(84,1)</td>
<td>13(13,1)</td>
<td>1.6(1.6,1)</td>
<td>36 (36, 36, 8, 8, 0, 0, 0)</td>
</tr>
<tr>
<td>5</td>
<td>005</td>
<td>AA</td>
<td>646</td>
<td>4(4,0)</td>
<td>45(45,1)</td>
<td>11569(11569,1)</td>
<td>71(71,1)</td>
<td>12.2(12.2,1)</td>
<td>1.4(1.4,1)</td>
<td>45 (22, 31, 4, 9, 2, 2, 16)</td>
</tr>
</tbody>
</table>

**Facility Rank according to CAD**

**Count of locations by ICU and non-ICU**
CAD – Cumulative Attributable Difference

- How is the CAD calculated?

  CAD = Observed HAIs – Expected HAIs

  - A positive CAD indicates there are more HAIs than expected (excess infections)
  - A negative CAD indicates there are fewer HAIs than expected

![Cumulative Attributable Difference (CAD)](image)
CAD – Cumulative Attributable Difference

- How is the CAD used in conjunction with the SIR to set a HAI reduction goal?
  - To set a reduction goal, the number of expected HAIs in the CAD equation is multiplied by the Target SIR.
  - *Remember:* \( \text{CAD} = \text{Observed HAIs} - \text{Expected HAIs} \)
  - So the above equation finds the CAD for a Target SIR = 1.
    \[
    \text{CAD} = \text{Observed HAIs} - (\text{Expected HAIs} \times 1)
    \]
  - To set a reduction goal for a Target SIR = 0.75, for example, the equation would be:
    \[
    \text{CAD} = \text{Observed HAIs} - (\text{Expected HAIs} \times 0.75)
    \]
What happens when a HAI reduction goal is set? These two examples demonstrate how using the SIR to set a reduction goal effects the number of HAIs that need to be prevented to reach the established goal.

**CAD = Observed HAIs – (Expected HAIs x SIR_{Target})**

<table>
<thead>
<tr>
<th>IF:</th>
<th>THEN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target SIR (goal) = 1</td>
<td>Expected infections = 4</td>
</tr>
<tr>
<td><strong>THEN:</strong></td>
<td><strong>CAD = 9 – (4 x 1) = 5 excess infections</strong></td>
</tr>
<tr>
<td>(which is the same as observed - expected since you are multiplying by 1)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IF:</th>
<th>THEN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target SIR (goal) = 0.75</td>
<td>Expected infections = 4</td>
</tr>
<tr>
<td><strong>THEN:</strong></td>
<td><strong>CAD = 9 – (4 x 0.75) = 6 excess infections</strong></td>
</tr>
<tr>
<td>(as expected, a lower Target SIR results in higher excess infections)</td>
<td></td>
</tr>
</tbody>
</table>
CAD & SIR Working Together to Set HAI Reduction Goal: Setting a Target SIR

- Where to start setting a HAI reduction goal (target SIR)?
  - You may already know how many HAIs you’ve reported
  - And you may know where you want to set your target SIR
  - But where can you find the expected number of HAIs?
CAD & SIR Working Together to Set HAI Reduction Goal: Setting a Target SIR

- Run the SIR report in the NHSN
  - The expected number of HAIs can be found in the SIR report in the NHSN
  - Running the SIR report is very similar to running the TAP report
Setting a Target SIR

- How to run the SIR report?
  - Log into the NHSN under the Patient Safety component
  - Click on each of the following in order:
    1. Analysis
    2. Generate New Datasets
    3. Output Options
    4. CMS Reports
    5. Acute Care Hospitals
    6. CDC Defined Output
  - The list of available SIR reports will display
Setting a Target SIR

- What does running a SIR report look like?

For the most up-to-date reports, click 'Generate Data Sets' first. This may take a few minutes.
Setting a Target SIR

- What does a SIR report look like?
  - Below is an example of a report by OrgID and Location
  - infCount = Observed number of HAIs
  - numExp = Expected number of HAIs

<table>
<thead>
<tr>
<th>orgid</th>
<th>location</th>
<th>summaryYQ</th>
<th>months</th>
<th>infcount</th>
<th>numExp</th>
<th>numddays</th>
<th>SIR</th>
<th>SIR_pval</th>
<th>SIR95CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000</td>
<td>ICU</td>
<td>2010Q1</td>
<td>3</td>
<td>3</td>
<td>2.408</td>
<td>926</td>
<td>1.246</td>
<td>0.6551</td>
<td>0.317, 3.391</td>
</tr>
<tr>
<td>00000</td>
<td>WARD</td>
<td>2010Q2</td>
<td>3</td>
<td>1</td>
<td>0.546</td>
<td>273</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>00000</td>
<td>PEDS</td>
<td>2010Q3</td>
<td>3</td>
<td>0</td>
<td>0.34</td>
<td>170</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>
Setting a Target SIR

- What information does a SIR report provide?

Each report contains the following tables for CAUTI and CLABSI:

<table>
<thead>
<tr>
<th>SIR Data for - By OrgID</th>
<th>SIR Data for - Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIR Data for - By OrgID - ICUs and NICUs only (NICUs for CLABSI only)</td>
<td>SIR Data for - Overall, by Location Type</td>
</tr>
<tr>
<td>SIR Data for - By OrgID/Location Type</td>
<td>SIR Data for - Overall, by CDC Location Code</td>
</tr>
<tr>
<td>SIR Data for - By OrgID/CDC Location Code</td>
<td></td>
</tr>
<tr>
<td>SIR Data for - By OrgID/Location</td>
<td></td>
</tr>
</tbody>
</table>

The CDI report is the same except there are no Location or Location Types

Each report contains your reported number of infections (infcount), predicted number of infections (numExp) and SIR.
CAD Calculator: Setting a Target SIR and Finding the CAD

- **What is a CAD calculator?**
  - Calculates the number of excess HAIs for a given SIR
  - Uses information available from the NSHN
  - Useful tool for setting a target SIR
  - *Coming soon for participants in the Reducing HAIs in Hospitals project*

![CAD Calculator Diagram]

**Cumulative Attributable Difference (CAD) Calculator**

*Determine your number of excess infections*

<table>
<thead>
<tr>
<th>Step</th>
<th>Instructions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Enter your Reported Infections:</td>
<td>3</td>
</tr>
<tr>
<td>Step 2</td>
<td>Set your target SIR:</td>
<td>0.5</td>
</tr>
<tr>
<td>Step 3</td>
<td>Enter either your SIR: - OR - your Predicted No. of Infections:</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**View your Cumulative Attributable Difference**

Number of Excess Infections (CAD) = 1.750

*You need to prevent 2 infections to reach target SIR of 0.5*
CAD Calculator: Setting a Target SIR and Finding the CAD

How does the CAD calculator work?

1) Enter the number of reported infections
2) Enter a target SIR
3) Enter either the expected number of HAIs or the current SIR

Results:

* The number of excess infections is calculated
* The number of HAIs that need to be prevented to achieve the desired target SIR will also display

Cumulative Attributable Difference (CAD) Calculator

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enter your Reported Infections:</td>
<td>3</td>
</tr>
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<td>Set your target SIR:</td>
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<tr>
<td>3</td>
<td>Enter either your SIR:/or your Predicted No. of Infections:</td>
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</tr>
</tbody>
</table>

View your Cumulative Attributable Difference

Number of Excess Infections (CAD) = 1.750

You need to prevent 2 infections to reach target SIR of 0.5
CAUTI Initial Facility Assessment Tool

- Survey based on TAP Report
  - Identify problem areas
  - Survey staff
  - Will help target interventions

- Quality Insights will tally results for you

*Coming soon for participants in the Reducing HAIs in Hospitals project*
CAUTI Initial Facility Assessment Tool

- Major CAUTI Domains
- General Infrastructure, capacity, and processes
  - Leadership
  - Training
  - Competency assessments
  - Audits & Feedback
- Appropriate indications for urinary catheter insertion
- Timely removal of urinary catheters
- Aseptic urinary catheter insertion
- Proper urinary catheter maintenance
- Preventing candiduria and detection of asymptomatic bacteriuria
Resources and Events

- SIR and CAD Tip Sheet
- TAP Resources
  - CAUTI Initial Facility Assessment Tool
  - Cumulative Attributable Difference (CAD) Calculator
- Day to Day Stewardship: Focusing on What Works and What You have Resources For
  - May 20th webinar cosponsored by Philadelphia Department of Health and Quality Insights
    - Speaker: David Schwartz, MD, Chair, Division of Infectious Diseases, Cook County Health and Hospitals System
- E-learning activities for participating hospitals
  - Available 24/7
  - CEUs for RNs
State Task Leads

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Questions?

Thank you!