Overview of the STOP-BSI Program

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Learning Objectives

- To understand the goals of STOP-BSI
- To understand how the project is organized
- To understand the interventions
- How to apply in other areas of work
Goals

- To work to eliminate central line-associated blood stream infections (CLABSI); state mean < 1/10000 catheter days, median 0

- To improve safety culture by 50%

- To learn from one defect per month
### Safety Score Card: Keystone ICU Safety Dashboard

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often did we harm (BSI)</td>
<td>2.8/1000</td>
<td>0</td>
</tr>
<tr>
<td>How often do we do what we should</td>
<td>66%</td>
<td>95%</td>
</tr>
<tr>
<td>How often did we learn from mistakes*</td>
<td>100s</td>
<td>100s</td>
</tr>
<tr>
<td>Have we created a safe culture? Percent needs improvement in ...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety climate</td>
<td>84%</td>
<td>43%</td>
</tr>
<tr>
<td>Teamwork climate*</td>
<td>82%</td>
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CUSP is intervention to improve these
Project Organization

- Statewide effort coordinated by Hospital Association
- Use collaborative model (two face-to-face meetings, monthly calls)
- Standardized data collection tools and evidence
- Local ICU modification of how to implement interventions
Intervention to Eliminate CLABSI

1. Summarize the Evidence
   - Identify interventions associated with improved outcomes
   - Select interventions with the largest benefits and lowest barriers to use
   - Convert interventions to behaviors
   - Observe staff performing the interventions
   - “Walk the process” to identify defects in each step of intervention implementation
   - Enlist all stakeholders to share concerns and identify potential gains / losses associated with intervention implementation
   - Select measures (process and/or outcome)

2. Identify local barriers to implementation: understand the process and context of work
   - Develop and pilot test measures
   - Measure baseline performance

3. Measure Performance
   - Engage
     - Explain why the interventions are important
   - Evaluate
     - Regularly assess performance measures
   - Educate
     - Share the evidence supporting the interventions
   - Execute
     - Design an intervention or “toolkit” targeted to barriers employing standardization, independent checks and reminders, and learning from mistakes

4. Ensure all patients receive the interventions

Translating Evidence into Practice
- Envision the problem within the larger health care system
- Engage collaborative multi-disciplinary teams centrally (stages 1, 2 & 3) and locally (stage 4)
Evidence-Based Behaviors to Prevent CLABSI

- Remove unnecessary lines
- Wash hands prior to procedure
- Use maximal barrier precautions
- Clean skin with chlorhexidine
- Avoid femoral lines

Identify Barriers

- Ask staff about knowledge
  - Use team check-up tool

- Ask staff what is difficult about doing these behaviors

- Walk the process of staff placing a central line

- Observe staff placing central line
## Ensure Patients Reliably Receive Evidence

<table>
<thead>
<tr>
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<th>Senior leaders</th>
<th>Team leaders</th>
<th>Staff</th>
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<tr>
<td>Engage</td>
<td><em>How does this make the world a better place?</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate</td>
<td><em>What do we need to do?</em></td>
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</table>
| Execute| *What keeps me from doing it?*  
*How can we do it with my resources and culture?* |              |       |
| Evaluate| *How do we know we improved safety?* |              |       |

The 4Es

- Ideas for ensuring patients receive the interventions: the 4Es
  1. Engage: stories, show baseline data
  2. Educate staff on evidence
  3. Execute
     - Standardize: create line cart
     - Create independent checks: create BSI checklist
     - Empower nurses to stop takeoff
     - Learn from mistakes: review infections
  4. Evaluate
     - Feedback performance
     - View infections as defects
Comprehensive Unit-Based Safety Program (CUSP)

- An intervention to learn from mistakes and improve safety culture
  - Educate staff on science of safety
    [http://www.jhsph.edu/ctlt/training/patient_safety.html](http://www.jhsph.edu/ctlt/training/patient_safety.html)
  - Identify defects
  - Assign executive to adopt unit
  - Learn from one defect per quarter
  - Implement teamwork tools

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CRBSI Rate Over Time

Median and Mean CRBSI Rate

CRBSI rate

Time (months)

Baseline Intervention 0-3 4-6 7-9 10-12 13-15 16-18 19-21 22-24 25-27 28-30 31-33 34-36

Mean CRBSI Rate
Median CRBSI Rate
VAP Rate Over Time

Median and Mean Quarterly VAP Rate

VAP rate per 1,000 ventilator days

Mean VAP Rate
Median VAP Rate

Time (months)
Baseline Intervention 0-3 4-6 7-9 10-12 13-15 16-18 19-21 22-24 25-27 28-30
Effect of CUSP on Safety Climate

Pre-CUSP (2004): 87%
Post-CUSP (2006): 47%

**“Needs improvement” - Safety Climate Score < 60%**
Michigan ICU Safety Climate Score Distributions

Michigan ICU Safety Climate 2004 and 2006

- Percent reporting good safety climate 2006 (%)
- Percent reporting good safety climate 2004 (%)