Central Line Bloodstream Infections (CLABSI) Prevention Outside the ICU

A Collaborative of 6 Hospitals in Rochester, NY

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Outline

- Compare the burden of CLABSI in an outside the ICU
- Summarize the interventions implemented to reduce CLABSI rates
- Discuss the barriers to projects implementation and the potential solutions
Establishment of the Prevention Collaborative

- Collaborative members
  - Hospital Epidemiologists
  - Infection Preventionists

- A letter of support obtained from each hospital CEO

- Nursing Leadership informed of
  - Goals of the project
  - Need for their support

- Collaborative expanded in 2010
  - Nursing, IV teams and Quality staff
6 hospitals
965 medical/surgical beds
37 units
Timeline

April-June 08
- Baseline data
  - Collection of line and patient-days
  - Collection of CLABSI events
  - Generation of baseline rates of CLABSI

July-Sept 08
- Stage 2
  - Evaluations of policies & procedures
    - Survey nursing knowledge
    - Review CVC care policies
    - Line Care Maintenance Protocol (LCMP)

Oct 08-Dec 09
- Stage 3
  - Interventions
    - Feedback of CLABSI rates
    - Education of nurses
    - Audits of line care

Jan 10
- Stage 4
  - Effect of intervention
    - Assess the effect of feedback and education on the rate of CLABSI
# Device Use Ratio in Non-ICU

<table>
<thead>
<tr>
<th>Unit type</th>
<th>Mean DUR</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty</td>
<td>33%</td>
<td>24-95%</td>
</tr>
<tr>
<td>ICU Step down</td>
<td>26%</td>
<td>9-74%</td>
</tr>
<tr>
<td>Medical and Surgical</td>
<td>15%</td>
<td>6-28%</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>18%</strong></td>
<td><strong>5.5-95%</strong></td>
</tr>
</tbody>
</table>

Device use in ICUs in 2009: 40 to 71%
Line Use by Unit Type

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>PICC</th>
<th>CVC</th>
<th>Dialysis</th>
<th>Tunneled</th>
<th>IVAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>57%</td>
<td>12%</td>
<td>13%</td>
<td>9%</td>
<td>12%</td>
</tr>
<tr>
<td>Surgical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stepdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialty</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Medical</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Med/Surg</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- PICC
- CVC
- Dialysis
- Tunneled
- IVAD

ROCHESTER CLABSI COLLABORATIVE
CLABSI Rate by Unit Type

April 2008 - Dec 2009

ROCHESTER CLABSI COLLABORATIVE
CLABSI Rate by Line Type

April 2008- Dec 2009

ROCHESTER CLABSI COLLABORATIVE
CLABSI Rates by Line Type
Excluding Specialty Care Units

April 2008 - Dec 2009
Burden of Infection and Line days: ICU vs. Non ICU

**ICU rate:**
2.46 per 1,000 line days

**Non ICU rate:**
2.54 per 1,000 line days

April 2008-Dec 2009

ROCHESTER CLABSI COLLABORATIVE
Pathogen Distribution

From HAI 2009, NYS DOH
Line Care Maintenance Protocol

1. Hand hygiene:
   Before and after accessing line, dressing and needleless device change

2. Cleaning and changing the needleless access
   Use a twisting motion 10-15 X (or 10-15 sec) for cleaning
   Change needleless device aseptically every 96 hrs and with tubing change

3. Dressing change:
   Clean site with chlorhexidine/alcohol
   Use back and forth motion for 30 sec
   Change transparent dressing q 7 days, gauze dressing q 48h or PRN

4. Follow recommendations for flushing lines

5. Assess the need for continued CVC use daily
Survey of Nurses, 2008

- Change access port every 96 hrs
- Change trans. dressing every 5-7 days
- Clean insertion site with 2% CHG
- Scrub access port for 15 seconds

percent positive response

ROCHESTER CLABSI COLLABORATIVE
Nursing Audits Post LCP Education

- Scrub access port for 15 sec: 100%
- IV tubing dated: 100%
- Scrub insertion site 30 sec, let dry: 100%
- Dressing dated: 100%
- Trans. dressing changed every 7 days: 100%
Nursing Survey 2010

- Change access port every 96 hrs
- Change transparent dressing every 5-7 days
- Clean insertion site with 2% CHG
- Scrub access port for 15 seconds
Total Mean CLABSI Rate

1st quarter
Apr-Jun 08
2.8 per 1,000 line days

8th quarter
Jan – Mar 10
1.04 per 1,000 line days*

*P=0.008
Overall CLABSI Monthly Rates

- Online Education
- Observation of Central Line Care
- Feedback of Rates
- Lectures

CLABSI per 1,000 line days

- Apr-08
- May-08
- Jun-08
- Jul-08
- Aug-08
- Sep-08
- Oct-08
- Nov-08
- Dec-08
- Jan-09
- Feb-09
- Mar-09
- Apr-09
- May-09
- Jun-09
- Jul-09
- Aug-09
- Sep-09
- Oct-09
- Nov-09
- Dec-09
- Jan-10
- Feb-10
- Mar-10

ROCHESTER CLABSI COLLABORATIVE
Quarterly CLABSI Rates Grouped by Unit Type

- Lectures
- Feedback of Rates to Units
- Observation of Central Line Care
- On-line Education

Special
Stepdown
Medical/Med Surg/Surgical

CLABSI Rate per 1,000 line days

Apr - Jun 08  Jul - Sept  Oct - Dec  Jan - Mar 09  Apr - Jun  Jul - Sep  Oct - Dec  Jan - Mar

Special
Stepdown
Medical/Med Surg/Surgical
BARRIERS AND SOLUTIONS
Implementation of Evidence Based Guidelines: Diffusion of Innovation

Conceptual framework for translating infection prevention evidence into practice
Krein et al AJIC Vol. 34 No. 8: 507-512
Barriers and Lessons Learned

• The implementation of CLABSI prevention more difficult on non ICU units:
  ◦ Large numbers of units with diverse makeup
  ◦ Communication Gaps regarding information on process change
  ◦ Varied approaches to implementation of prevention efforts
Barriers and Lessons Learned

- Interest and implementation of CLABSI prevention efforts varied between:
  - Hospitals
  - Hospital units

- Implementation influenced by:
  - Presence of a dedicated unit nurse Champions
  - Hospital and Nursing Leadership “buy in”
  - CLABSI rates
Collection of Line days
After TWO Years

Oh No!
The LINE LADY is here again

Why can’t they remember
Summary

- The burden of CLABSI is higher in non-ICU wards
- Nursing staff play an important role in the prevention of CLABSI
- The use of a line care maintenance protocol has led to a decrease of CLABSI on the general medical wards
- Establishing an innovative infection control practice requires a “culture change” facilitated by:
  - Leadership involvement
  - Identifying “champions”
The Rochester CLABSI Collaborative Members

- Ghinwa Dumyati, MD (PI)
- Mark Shelly, MD (Co-PI)
- Cathy Concannon, Coordinator

- Guilia Abernathy, CIC
- Celeste Andrews, CIC
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- Ruth Curchoe, CIC
- Nayef El Daher, MD
- Donna Farnsworth, CIC
- Lynn Fine, CIC

- Paul Graman, MD
- Linda Greene, CIC
- Gloria Karr, CIC
- Dianne Moroz, CIC
- Ann Marie Pettis, CIC
- Gail Quinlan, CIC
- Lynnette Ward, CIC
- Carol Wisner, CIC