Practical Strategies for Addressing CLABSIIs: Perspectives from Florida NCABSI Hospitals

FHA Hospital Engagement Network
Florida Perinatal Quality Collaborative

Coaching Call #18
August 19, 2014
Today’s Call

- Welcome by Kim Streit
- Introduction by Dr. Douglas Hardy
- Hospital Presentations
  - Baptist Hospital
  - St. Joseph’s Women’s Hospital
  - Broward Medical Health Center
- Discussion
Douglas E. Hardy, MD
• Clinical Director, Neonatal Intensive Care Unit, Winnie Palmer Hospital
Ashley Darcy-Mahoney, Ph.D.

- Neonatal Nurse Practitioner, South Dade Neonatology
- Assistant Professor, Emory University Nell Hodgson Woodruff School of Nursing
Our Journey to Zero CLABSI

Camila Takahashi, RN, BSN, RNC
Ashley Darcy Mahoney, PhD, NNP
Gisela Diaz-Monroig, MD
Saving Lives
by Ceasing Lines

South Dade Neonatology

Baptist Children’s Hospital
BAPTIST HEALTH SOUTH FLORIDA
Plan

- BCH NCABSI Interdisciplinary Team
- Review action plan with team
- Introduce to all BCH NICU care providers the initiative and process for live-audits
- Delegate data collection and entry methods
- Review monthly reports and evaluate progress
- Attend monthly webinars / conference calls
Challenge #1: Baseline Data
Baseline Data: Central Line Days

Initiation of NCLABSI Project

Mean 420
DO

• Educate staff on project and live auditing tool
• Re-educate staff on Central Line Bundles (CLB)
• Daily live audits and data entry in national database of CLB compliance for insertion and maintenance of all central lines and CLABSI
• Daily Assessment of necessity of each central line.
Challenge #2: Audit Completion Compliance

Audit Form Revised
Study

- Need to change culture across medical team and nursing team
- Poor audit completion compliance
- Forms were being lost/misplaced
- Reduction in days between CLABSI
- Audit was bringing awareness
What changes need to be made?
How can we move forward collectively?

Culture Eats Strategy for Breakfast
-- Peter Drucker
Act

- Reached out to FPQC NCABSI listserv
- Adopted and modified Florida Hospital’s audit tool
- Revised daily audit form
  - New form allows for seven days of audits
- Forms were made accessible
  - Folder placed inside each CLB box and at bedside
- Continue daily audits of every central line
- Awareness to everyone
  - Audits, monthly emails and huddles
## Maintenance Audit Revised

### NCABSI Data Collection Site

#### Maintenance Information

- **Patient ID:** 
- **Central Line (type and install date):** 
- **Data/time of maintenance:**
- **Shift:**
- **Catheter Type:**
- **Today, this patient was on enteral feeding volume of:**
- **In multidisciplinary rounds today, we decided the baby still needs this line:**
- **Was catheter accessed for any reason during your shift:**
- **If yes, did staff glove before access:**
- **If yes, did staff perform hand hygiene before and after gloving:**
- **If yes, was the hub connector cleaned for at least 5 seconds:**
- **If yes, check all used for skin prep:**
- **If yes, solution allowed to air dry completely:**
- **Was infusion tubing changed during your shift:**
- **If yes, did staff at a minimum wear gloves:**

### NICU NCABSI Daily Data Maintenance Form

<table>
<thead>
<tr>
<th>Monday Date</th>
<th>UVC</th>
<th>PICC</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday Date</td>
<td>ULC</td>
<td>PM/PM</td>
<td>PM/PM</td>
</tr>
<tr>
<td>Wednesday Date</td>
<td>ULC</td>
<td>PM/PM</td>
<td>PM/PM</td>
</tr>
<tr>
<td>Thursday Date</td>
<td>ULC</td>
<td>PM/PM</td>
<td>PM/PM</td>
</tr>
<tr>
<td>Friday Date</td>
<td>ULC</td>
<td>PM/PM</td>
<td>PM/PM</td>
</tr>
<tr>
<td>Saturday Date</td>
<td>ULC</td>
<td>PM/PM</td>
<td>PM/PM</td>
</tr>
<tr>
<td>Sunday Date</td>
<td>ULC</td>
<td>PM/PM</td>
<td>PM/PM</td>
</tr>
</tbody>
</table>

For Performance Improvement Purpose Only - not part of the medical record.

- **MAC D/C Date:** 
- **PICC D/C Date:** 
- **UVC D/C Date:** 
- **Other D/C Date:** 

*Patient Name*
## Change Theory: Anchor/Refreeze

<table>
<thead>
<tr>
<th>Kurt Lewin</th>
<th>John Kotter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unfreeze</strong></td>
<td>1. Establish a Sense of Urgency</td>
</tr>
<tr>
<td></td>
<td>2. Create the Guiding Coalition</td>
</tr>
<tr>
<td></td>
<td>3. Develop a Vision and Strategy</td>
</tr>
<tr>
<td></td>
<td>4. Communicate the Change Vision</td>
</tr>
<tr>
<td><strong>Change</strong></td>
<td>5. Empower Broad-Based Action</td>
</tr>
<tr>
<td></td>
<td>6. Generate Short Term Wins</td>
</tr>
<tr>
<td></td>
<td>7. Consolidate Gains &amp; Make More Change</td>
</tr>
<tr>
<td><strong>Refreeze</strong></td>
<td>8. Anchor New Approaches in the Culture</td>
</tr>
</tbody>
</table>

- **CVL: Bundle Insertion Compliance (all NICU babies)**: 93%
- **CVL: Bundle Maintenance Compliance (all NICU babies)**: 92%

- **Avg. YTD FY 13**: 93%
- **Avg FY 12**: 85%
- **92%**: 97%
Challenges & Lessons Learned

■ COLLABORATION: potentially better practices within the project were explored with other involved institutions.

■ EDUCATION: initial and ongoing education increased staff awareness and understanding of safe management of central lines.

■ COMMUNICATION: open communication led to discontinuation of lines in a timely manner, staff feedback on QI and transparency in opportunities for improvement.

■ CELEBRATION: highlight successes and reinforce the purpose for the project.
Baptist Children’s Hospital
Accomplishments
Challenges Accepted: Results

![Graph showing CLABSI rate per 1000 line days with mean, initiation of HCABSI project, and UCL at 2.50 and LCL at 0.39.](image-url)
Challenges Accepted: Results

![Graph showing central line days from FYQ1 2010 to FYQ3 2014. The graph includes a line indicating the mean and control limits (UCL, LCL). The graph highlights the initiation of the NCABSI Project with a downward trend in line days following the intervention.]
Jayne Solomon, ARPN-BC

• Quality Coordinator, St. Joseph’s Women’s Hospital, Tampa
St. Joseph’s Women’s Hospital Story –
Who We Are...
Before you Begin

• Review your current data- Establish a baseline

• Develop an NICU CLABSI Reduction Committee

• Literature Review for best practice measures- Adopt a Toolkit

• Design Method: PDSA Cycle

• *Plan, Do, Study, Act*
Methods and Strategies

Hand Hygiene Campaign and monitoring

Central Line Insertion Bundle
1) Hand hygiene
2) Maximum barrier precautions on insertion
3) CHG for Skin Antisepsis
4) Optimal Site Selection
Methods and Strategies- 2010

Central Line Maintenance Bundle

- Daily review of line necessity: Prompt removal of PICC line at 120ml / kg
- CL Dressing Change
- Port Set-up and Access
  - Closed IV administration system
  - “Scrub the Hub”
  - IV tubing change
Additional Strategies

• Additional hand soap and gel dispensers added in work areas

• Boxes of gloves easily accessible

• Use of CHG-impregnated dressing (Biopatch™) infants >28 weeks and 10 days of age

• Use of Claves
Promote Skills & Education

• Nursing Education during “Lunch & Learn” sessions
• Validation of skills during line draws, tubing changes
• Skills Fair (hand hygiene, tubing changes, CL Care)
• Random audits (hand hygiene, line changes and central line insertion)
Methods and Strategies, 2013-2014

• Monitoring of other hospital-acquired infections (non-CL related BSI, VAP, UTI)

• Parent education related to hand hygiene

• Bundle of Love (Audit Tool)

• PICC Team Daily Rounding

• Intense Reviews
Challenges

- Staff Buy-In
- Compliance
- Support from other departments
- Competition with other projects
Keys to Success

• A Project Champion is critical. A nurse lead and a physician lead.
• Quality Bulletin Board
• Newsletter- What is an HAI?
• Recognition- Parties
Lessons Learned

• Staff must understand that CLABSI are preventable

• The GABBY video available through the Perinatal Quality Collaborative of North Carolina is excellent.

• Hand hygiene is the *key* to CLABSI reduction and hospital acquired infections

• Audits are critical to sustain results
Recommended Resources


Broward Health Medical Center

- Dr. Johny Tryzmel, NICU Medical Director
- Maria Osuch, BSN, RNC-NIC
- Jennifer Bilecki, MSN, ARNP, RNC-NIC
- Susan Varughese, BSN, RN
FANTASTIC FOUR
**Physician Champions:**
Dr.Ed.Otero, NICU  
Dr.PatRowe-King, Peds  
Dr. Venue Devabhaktuni, PICU  
Dr.Rudolph Roskos, Hem/Onc

**THE TEAM**
Maria Osuch, NM NICU  
Nicole Sant’elia, NM Hem/Onc.  
Sandra McGrath, CS, PICU  
Pablo Mora, CS, Epidemiology  
Bea Reynolds, Quality  
Carol Bhim, NM Peds  
Jennifer Bilecki, CS, NICU  
Serena Toney, CS, Peds  
Robert Tellez, Materiels
## Organizational Goals

**Success Piliars**

**FY 13**

<table>
<thead>
<tr>
<th>Service</th>
<th>People</th>
<th>Quality/Safety</th>
<th>Finance</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient/Family Satisfaction</td>
<td>Nursing Empowerment</td>
<td>CLABSI Rate Target: ≤1.0</td>
<td>Revenue over Expenses</td>
<td>Marketing – Recognition of Excellence &amp; Quality Care</td>
</tr>
<tr>
<td>Community Standards</td>
<td>Physician Awareness</td>
<td>Decreased Length of Stay</td>
<td>Avoidable Hospital Stay</td>
<td></td>
</tr>
<tr>
<td>Staff Satisfaction</td>
<td>Decreased Morbidity/Mortality</td>
<td>Increased Productivity Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician Satisfaction</td>
<td></td>
<td>Cost Containment</td>
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</tr>
</tbody>
</table>
BRAINSTORM: NICU/PICU/PEDS/PED Hem. Onc.

Possible Reasons for CLABSI

- Poor Technique
- Inconsistent PPE use
- Inadequate insertion technique
- Non-Compliance with procedure
- Staff non-compliance with Bundle
- Patient/Family complaint
- Lack of available supplies
- Maintenance non-compliance
- Dressing size – too small
- Care of site
- Rounds – lack of focus on lines
- Lack of available supplies
- Tracking – Compliance issues
- Tracking – Compliance issues
- Care of Hub
- Nursing care
- LOS
What Are the Issues Involved in Neonatal/Pediatric Catheter Associated Blood Stream Infections?

Nursing Care:
- Poor Technique
- Inconsistent Practice
- Care of Site
- Care of Hub
- Culture Technique
- Insertion Technique

Supplies:
- No compliance Bundle
- Availability supplies
- Dressing size
- Inconsistent PPE use

Tracking/Compliance:
- Rounds – lack of focus on lines
- Maintenance
- Compliance with Bundle
- Compliance with established procedure

Patient/Family:
- Length of Stay
- Complaints
- Key player support
PEOPLE
- Poor Technique
- Incorrect Practice
- Improper Culture Technique
- Patient Rounds
- Lack of focus on lines
  - Key Player Support not evident

SUPPLIES
- Improper care of S.Ve/Hub
- Improper Insertion Technique
  - Not available when needed
- Inconstant PPE use
  - Size of Dressing inadequate

POLICY/PROCEDURE
- Non-compliance with established procedure
- Maintenance of Line

PATIENT/FAMILY ISSUES
- Non-compliance Bundle
- Patient LOS
  - Lack of family support
- Key Players
- Lack of support

CLABSI
Infections by type of line

Force Field Analysis

+ Positive Drivers

- Negative Drivers

Empowers Nurses to Stop for non-compliance of Sterile Technique

Awareness of importance of Timely line removal

Best Practice-MD/ARNP

Physician non-compliance with hand hygiene

Maintenance issues

Patients-Chronic conditions
### AHA National CABS1 Prevention Collaborative Action Plan

<table>
<thead>
<tr>
<th>Performance Expectations</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insertion</strong></td>
<td></td>
</tr>
<tr>
<td>1. Dedicated team with demonstrated competencies for placement &amp; maintenance of central lines in NICU patients</td>
<td>- Insertion training course, including sterile technique, hand hygiene, use of maximum sterile barrier precautions, proper skin disinfection. - Educational competencies for all aspects of care.</td>
</tr>
<tr>
<td>2. Maximum sterile barrier precautions utilized</td>
<td>- Cover entire infant with sterile drapes or as much as affords safe observation. - Recommend staff wear face mask when within 3 feet of sterile field.</td>
</tr>
<tr>
<td>3. Skin disinfected with Chlorhexidine (CHG) or povidone iodine (PI)</td>
<td>- Apply over 30 seconds &amp; allow to dry (exception aqueous CHG). - Consider the development of PICC/central line insertion carts.</td>
</tr>
<tr>
<td>4. All supplies required for the procedure should be available at the bedside prior to catheter insertion</td>
<td></td>
</tr>
<tr>
<td>5. Hand hygiene standards met</td>
<td>- Standardize critical elements of line insertion. - Ensure staff observers are skilled in monitoring elements of sterile technique.</td>
</tr>
<tr>
<td>6. Insertion checklist utilized</td>
<td></td>
</tr>
<tr>
<td>7. Staff empowered to stop non-emergent procedure if sterile technique not followed</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Maintenance</strong></th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment &amp; Site Care</strong></td>
<td></td>
</tr>
<tr>
<td>1. Daily assessment and documentation of catheter need included as part of multidisciplinary rounds and review of daily goals</td>
<td>No routine dressing changes, perform FRN using sterile technique and CHG or PI for skin antisepsis.</td>
</tr>
<tr>
<td>2. Removal of catheters in place for nutritional purposes when infant reaches ≥120 ml/kg/day enteral nutrition</td>
<td></td>
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<tr>
<td>3. Review dressing integrity and site cleanliness daily</td>
<td></td>
</tr>
<tr>
<td><strong>Tubing, injection ports, catheter entry</strong></td>
<td></td>
</tr>
<tr>
<td>1. Use &quot;closed&quot; systems for infusion, blood draws &amp; medication administration</td>
<td>May use manufactured or improvised closed system. If stopcocks are used, port(s) are capped with swabable needleless connector(s). Define consistent practice to be used when accessing catheters.</td>
</tr>
<tr>
<td>2. Assemble and connect infusion tubing using aseptic or sterile technique. Configure tubing consistently for each type of arterial or venous access device.</td>
<td>- Sterile technique ideally includes sterile barrier for tubing assembly and wearing of face mask, hat, sterile gloves &amp; 2 staff members performing connection to central catheter. - Aseptic technique includes clean barrier for tubing assembly &amp; wearing of clean gloves.</td>
</tr>
<tr>
<td>3. Scrub needleless connector using friction with either alcohol or CHG/alcohol swab for at least 15 sec. prior to entry. Allow surface to dry prior to entry.</td>
<td></td>
</tr>
<tr>
<td>4. Clean gloves for all device entries &amp; hand hygiene utilized before &amp; after glove use</td>
<td>Standard precautions.</td>
</tr>
<tr>
<td>5. Use pre-filled, flush containing syringes wherever feasible.</td>
<td>- Higher risk of contamination when flush withdrawn from another container by a nurse.</td>
</tr>
<tr>
<td>6. Staff empowered to stop non-emergent procedure if sterile technique not followed</td>
<td></td>
</tr>
<tr>
<td>Administrative Leadership</td>
<td>Considerations</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>1. Demonstrable administrative involvement in and support for achieving Zero Healthcare-Associated Infections</td>
<td>- Posting days since last CABSI</td>
</tr>
<tr>
<td></td>
<td>- Posting CABSI rates</td>
</tr>
<tr>
<td></td>
<td>- Annotate CABSI rates with descriptions and dates of practice changes</td>
</tr>
<tr>
<td></td>
<td>- Celebrations of successes</td>
</tr>
<tr>
<td>2. Engage Staff with feedback</td>
<td>- Begin process within 24 hours of CABSI notification.</td>
</tr>
<tr>
<td></td>
<td>- Review opportunities for system improvements after each event</td>
</tr>
<tr>
<td>3. Perform investigation and analysis of each CABSI</td>
<td>- Consider specialized team for dressing changes, catheter repair, catheter clearance of blockage</td>
</tr>
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</tbody>
</table>

**CABS Diagnosis And Classification**

1. Two blood cultures drawn from separate sites, following skin disinfection with PI or CHG, within 48 hours of each other.

2. The diagnosis of a laboratory confirmed (LC) catheter-associated BSI (CABS) can only be made in the absence of another clinically appreciated infectious focus, the presence of one or more positive blood cultures, and one of the following three criteria being met:
   - Criteria 1) at least one blood culture growing a recognized pathogen (see Considerations); or
   - Criteria 2) at least two blood cultures growing a recognized contaminant (see Considerations) and the presence of one (or more) clinical signs of general infection (either Fever > 38°C (see Considerations) or Hypotension; or
   - Criteria 3) Age < 1yr AND one of the following: Fever (see Considerations), Hypothermia (<37°C rectal), apnea, or bradycardia.

CECH CLABSI RATE 2012 VS 2011/
SAVINGS BELOW NHSN BENCHMARK

- 2011: $580,000, CLABSI Rate: 4.1
- 2012: $444,545, CLABSI Rate: 0.44

64% DECREASE

$1,024,545
NCABSI PHASE II UPDATE

Calendar year of 2013 NICU rate of 0.

Calendar year of 2014 encountered two infections.

Performed a thorough review.

Back to chasing the 0.
Questions?
NEONATAL MEETING
TUESDAY SEPTEMBER 30, 2014
ANNUAL MEETING FOR FLORIDA’S NICUs
TAMPA, FL
9 AM - 3 PM
Register Now!
DINNER COLLOQUIUM:
CURRENT NEONATAL POLICY, REGULATORY, FISCAL,
AND OTHER ISSUES
SAVE THE DATE: MONDAY SEPTEMBER 29TH