

Reducing Hospital Acquired Infections in the NICU

St. John's Regional Medical Center
Oxnard, California

Objectives

- At the conclusion of this program the participants will:
 - Create an AIM Statement to reduce HAI in their workplace
 - Use best practice bundles to create staff education on practice changes that will reduce HAI
 - Gather, Monitor, and Share Data

Demographics



St. John Regional Medical Center
16 Bed Community Level NICU
Population

Neonatal Hospital-Acquired Infection Prevention Project



California Perinatal Quality Care Collaborative (CPQCC)

Background of HAI Project

- Original HAI project was completed by California Children's Hospitals in 2007
- Central Catheter insertion/maintenance bundles introduced and monitored
- 2007 HAI Findings revealed a decrease in CABSIs rates, after completion of the project

Background of HAI Project

- In 2008, 19 Community Level NICU(s) were added to the CPQCC HAI project
- All participating hospitals report to CPQCC:
 - Line days
 - Infection rates
 - Compliance to bundles

Goals of HAI Project

- Establish new neonatal systems that will produce:
 - Improved clinical outcomes
 - Reduction in costs
 - Improved coordination of care
- Reduce number of infections associated with central catheters
- Collaborate and share scientific knowledge and best practices available

Anticipate Barriers

- Physical environment
- Resistance to change
- Time limitations

Data Collection

- Observe central line management
 - Connecting iv solution to central line
 - Injecting medication into central line
 - Drawing blood from central line
- Infection Control
 - What is the compliance rate for appropriate hand hygiene among the healthcare professionals in the NICU
 - Policy adherence

Data Collection

- Hand washing
 - Compliance rate
 - 70-80% Nurses
 - 60% Respiratory Care Practitioners
 - 80% Neonatologists
 - 100% Volunteer Cuddlers
 - 100% Occupational Therapists

Data Collection Results



Data Collection



Data Collection



Create an AIM Statement

- What makes a good AIM Statement
 - Outcome focused
 - Measurable
 - Goal oriented
 - Clear timeline
 - Population
 - Succinct and Clear

SJRMCA AIM Statement

- By the end of the project (12/31/08), we aim to decrease our CABSI rate by 50%

Implementation

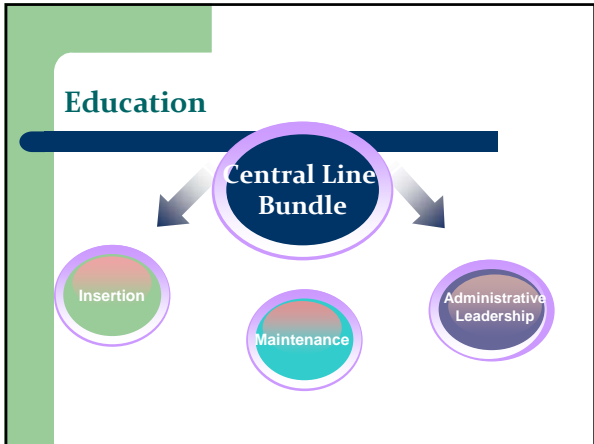
- > Administrative Support
- > Policies changed
- > Staff education
- > Data Collection
- > Sharing

Administrative Support

- > Financial support
 - > Cost of program
 - > Labor costs for education
 - > New products
- > Reporting structure for project

Improve Policies

- > Leadership team reviews and revises policies
- > Central line policies reviewed and updated to reflect insertion and maintenance bundles
- > Infection control policy reviewed, revised, and enforced



- ### Education
- > Mandatory education for nursing staff in September, 2008
 - > Insertion and Maintenance Bundle
 - > Hand washing

The Bundles

A "bundle" is an organized **group** of evidenced based practices that move care to a higher level that has been proved to reduce infections.

Insertion and Central Line Bundle

Component	Requirement
1. Hand hygiene	Hand hygiene must be performed before and after the procedure.
2. Sterile barrier precautions	Maximum sterile barrier precautions must be used for all central line insertions.
3. Central line bundle	The central line bundle must be followed for all central line insertions.
4. Staff to wear face mask when in 3 feet of sterile field	Staff to wear face mask when in 3 feet of sterile field.
5. Cover entire infant with sterile drapes or as much as affords safe observation	Cover entire infant with sterile drapes or as much as affords safe observation.
6. Maximum sterile barrier precautions utilized	Maximum sterile barrier precautions utilized.
7. Central line bundle	Central line bundle.
8. Staff to wear face mask when in 3 feet of sterile field	Staff to wear face mask when in 3 feet of sterile field.
9. Cover entire infant with sterile drapes or as much as affords safe observation	Cover entire infant with sterile drapes or as much as affords safe observation.
10. Maximum sterile barrier precautions utilized	Maximum sterile barrier precautions utilized.
11. Central line bundle	Central line bundle.
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18. Maximum sterile barrier precautions utilized	Maximum sterile barrier precautions utilized.
19. Central line bundle	Central line bundle.
20. Staff to wear face mask when in 3 feet of sterile field	Staff to wear face mask when in 3 feet of sterile field.

Insertion Bundle

- > Maximum sterile barrier precautions utilized
 - > Cover entire infant with sterile drapes or as much as affords safe observation
- > Staff to wear face mask when in 3 feet of sterile field

Maximum Sterile Precautions Central Line Insertion



Insertion Bundle

- > Skin disinfected with Chlorhexidine (CHG) or povidine iodine (PI)
 - > Apply over 30 seconds and allow to dry

Insertion Bundle

Dedicated team for placement and maintenance



Insertion training course and education competencies for all aspects of central line care

Insertion Bundle

- > All supplies required for the procedure should be available at the bedside prior to catheter insertion



Insertion Bundle

- Standardize critical elements of line insertion
 - CLIP Form (Senate Bill 739)
- Ensure staff observers are skilled in monitoring elements of sterile technique

Maintenance Bundle

- Daily assessment and documentation of catheter need included as part of multidisciplinary rounds and review of daily goals
 - When catheter used primarily for nutritional needs consider removal when infant reaches > 120 mg/kg/day enteral nutrition
 - Consider discontinuing lipids when infant reaches >2.5 gm/kg/day of enteral fat intake

Everyday Ask



Can the catheter be removed?

Maintenance Bundle



Dressing Changes

Close the line



Maintenance Bundle

- Assemble and connect infusion tubing using aseptic or sterile technique. Configure tubing consistently for each type of VAD.
 - Sterile technique includes sterile barrier for tubing assembly and wearing of face mask, hat, sterile gloves, and 2 staff members performing connection to central catheter
 - Aseptic technique includes clean barrier for tubing assembly and wearing of clean gloves

Maintenance Bundle

Here's how you can prevent
Catheter Line Associated
Bacteremia (CLAB) in your patient!

Make sure you thoroughly scrub
the injection port with alcohol before
injecting IV medications.



Don't forget to
"Scrub the Hub."

HealthCare

Scrub the Hub

- Disinfection of Needleless Connectors
- Comparison of 3.12% CHG/alcohol vs. alcohol for cleaning needleless connectors for 4 months in
- Peds CICU (25% neonates)
- \downarrow CRBSI in CHG group 1.1% vs 5.6% (p<0.04)
- \downarrow CRBSI 68% (6.2-2.4/1000 CD) after
- implementing practice unit wide for 6 months
- 38
- Jarrell & Maher, 2007 AVA Abstract

Maintenance Bundle

- > Clean gloves for a VAD entries and hand hygiene utilized before and after glove use.



Maintenance Bundles

- Use pre filled, flush containing syringes whenever feasible
 - Higher risk of contamination when flush withdrawn from another container by a nurse

Maintenance Bundle

- Empower staff to STOP THE LINE



Administrative Leadership

- Demonstrate administrative involvement in an support for achieving Zero Healthcare-Associate Infections
- Perform investigation and analysis of each CABS I
 - Begin process ASAP and within 24 hours of CABS I notification. Review opportunities for system improvements after each event

Administrative Leadership

- Engage staff in feedback
 - Posting days since last CABS I
 - Posting CABS I rate
- Celebrate success

Administrative Leadership

- > Surveillance activities of critical processes related to sustaining the gains
 - > Hand hygiene
 - > Adherence to unit catheter management and entry standards
 - > Monitor patient processes off unit for bundle compliance
 - > Unit personnel support for the “Stop the Line” safety culture

Administrative Leadership

- > Competent trained personnel to perform specialized maintenance activities
 - > Consider specialized team for dressing changes, catheter repair, catheter clearance of blockage

CABSI Diagnosis and Classification

- Two blood cultures drawn from separate sites, following skin disinfection with PI or CHG, within 48 hours of each other
- The diagnosis of laboratory confirmed CABSI can only be made in the absence of another clinically appreciated infectious focus, the presence of one of more positive blood cultures, and one of three criteria
 - Fever, recognized pathogen, two cultures growing

Accomplishments

- Hand hygiene surveillance implemented and on going
- Empowered staff to STOP THE LINE
- Achieved 100% compliance with insertion bundle
- Improvement on maintenance bundle
- Documented daily assessment of lines
- Increased staff awareness of CABSI

Data Collection



Starting the New Decade with 503 days free of CABSI(s)

Conclusions

- Decreasing infection is possible
- “Zero infections” is an attainable goal
- Collaborative work energizes the community of practice and practitioners
- Communication and celebration of your progress is important

Sharing Best Practices

- What did we discover that could be shared with other departments within our organization?

Rewards



NPSG 7

- Staff education
- Hand hygiene audits
- Central line cart
- Checklist and protocol
- Sterile barrier precautions
- Chlorhexidine
- Disinfection of hubs
- Parent education

Things to Improve on

- Parent education
- Stop the line
- Finding the right people to carry on the project
- Making time for the project

Holding the Gain

- Continue to complete the Data forms
- Continue daily/weekly central line rounds
- Continued staff updates and education

Questions and Discussions

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Resources

- > www.cpgcc.org
- > www.jcaho.org
- > www.IHI.org
- > www.aboutinfectioncontrol.com
