Addressing the “Special Cause” Increase in Pediatric CLABSIIs: A Quality Improvement Approach
Getting on the Telephone:
- Your GoTo Navigation pane should be on the right of your screen
- Expand the “audio” box
- Click Telephone option
- Dial the phone number
- Enter the access code, then press #
- You will be prompted to enable audio and enter your audio pin
- Please remember to mute yourself

If you are having trouble getting onto the telephone, please enter your concerns in the question box - we’ll be happy to help!

Questions and Comments:
Should you have any questions and/or comments during the webinar, please enter them into the question box, and we will address them during the open discussion portion.
CLA-BSI Pediatric Webinar

Mike Gutzeit, MD
Margie McCaskey, RN
Jeff Hord, MD

Friday, January 29, 2016
3:30pm - 4:30pm EST
Our CLA-BSI Leaders

**Mike Gutzeit**, MD  
Chief Medical Officer  
Children’s Hospital of Wisconsin

**Holly O'Brien**, MSN RN CPPS  
Safety Program Manager  
Children’s Hospital of Wisconsin

**Jeff Hord**, MD  
Director of Hematology/Oncology  
Akron Children’s Hospital

**Margie McCaskey**, RN, DNP  
Clinical Outcomes & Quality Advisor  
Children’s of Alabama
## Agenda

**Friday, January 29, 2016  3:30pm - 4:30pm EST**

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<tr>
<th>Agenda Item:</th>
<th>Presenter:</th>
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<tr>
<td>Welcome and Objectives</td>
<td>Erin Goodman</td>
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<td>About SPS</td>
<td>Emily Oehler</td>
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<td>Unique Circumstances of Pediatrics CLABSIs</td>
<td>Mike Gutzeit</td>
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<td>Prevention Bundle and High-Reliability Theory</td>
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<td>Approach to Special Cause</td>
<td>Margie McCaskey</td>
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<td>Initial Learning from the Pediatric CLABSI Increase</td>
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<td>Open Discussion</td>
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Session Objectives

• Understand Pediatric CLABSIs – Central Line Associated Blood Stream Infections
• Understand the Root Cause Testing Theory and the Method to Verify Suspected Cause
• Learn from SPS experience in responding to special cause within Pediatric CLABSIs
About SPS

Emily Oehler
Project Manager
Children’s Hospitals’
Solutions for Patient Safety

OUR MISSION:
Working together to eliminate serious harm across all children’s hospitals
Our 2015-2016 Goals

- 40 percent reduction in hospital-acquired conditions (HACs)
- 10 percent reduction in readmissions
- 25 percent reduction in serious safety events (SSEs)
Unique Circumstances of Pediatrics CLABSIs

Mike Gutzeit, MD
Chief Medical Officer
Children’s Hospital of Wisconsin
Estimated Attributable Costs

- $1000 CAUTI
- $3000 OBAE
- $5000 ADE
- $13,000 Falls
- $35,000 CLABS
- $43,000 PU
- $51,000 VAP
CLABSIs Are Unique for Children

Children have different needs than adults. They require special attention for many reasons such as...

• Age diversity
• Challenges with immune function
• Concerns about deploying the usual hygiene agents due to potential toxicity
• Variability in home care standards
• Maintenance vs. insertion
• Kids are Kids!
  • Constant motion
  • Hygiene
Defining the HAC Problem in Pediatrics

Conditions generating unique pediatric safety risk:

• **Size**: Catheters are smaller & more prone to complication; anatomy is smaller leading to difficulties with dressings and location of insertion sites in close proximity to other things (trachs, GT’s ostomies, etc.)

• **High potential for extravasation / effusion** due to thinner vasculature

• **Greater challenges** with PIV access

• **Greater potential** for line migration
Prevention Bundle and High-Reliability Theory
**CLABSI NETWORK KEY DRIVER DIAGRAM**

**Key Drivers**
- Reliable CLABSI maintenance prevention bundle (>90%) hospital wide
- Reliable CLABSI insertion prevention bundle (>90%)
- Ease of accessibility of proper CLABSI supplies
- Transparency of data to drive continual learning & improvements
- Effective use of High Reliability Methods
- Clean Patient Environment

**INTERVENTIONS (Level Of Reliability – LOR)**
- Adopt & implement SPS Prevention Bundle - evidence based bundle (Level 2)
- Consider CHG baths for high risk populations (Level 1)
- Utilize PDSA and change management cycles to increase reliability of care delivery (Level 2)
- Develop and deliver regular training plan on Bundles. (Level 1)
- Effective spread from successful units to hospital (Level 1)

| Revision Date: 1/4/2016 |

**Reduction SMART AIM**
Reduce CLABSI rate centerline by 40% by 12/31/16.

**GLOBAL AIM**
Eliminate all CLABSI Safety Events across all pediatric hospitals in the SPS network

- Fully stocked Insertion bin (Level 2)
- Adopt & Implement SPS Prevention Bundle - evidence based bundle (Level 2)
- Utilize PDSA and change management cycles to increase reliability of care delivery. (Level 2)
- Develop and deliver regular training plan on Bundles. (Level 1)
- Cap change kit (Level 2) & Dressing change kits (Level 2)
- Fully Stocked Insertion bin (Level 2)
- Effectively measure and utilize process data to drive action (Level 1)
- Share process & outcomes data with senior leadership, and demonstrate how reliability reduces outcomes (Level 2)
- Ensure data is visible weekly to unit/bedside teams
- Every day in huddle review previous reliability, and ask staff if “failures” are skill, rule, and/or knowledge error

- Develop Patient & Family Engagement approach to increase reliability of bundle (Level 2)
- Preoccupation with Failure to include systematic analysis of each infection (Level 2)
- Unit level Rounding to influence of accepted safety behaviors around the CLABSI bundle (Level 2)
- Use of expected safety behaviors around the CLABSI bundle which includes safety coaches (level 2)

- Disinfect high touched surfaces once a shift
- Limit personal items at the bedside.
- Long term in-patients (> 30 days) a deep cleaning of their room

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2016 Focus for SPS Pediatric CLABSIs

- Prevention Bundle Reliability
- Hematology/Oncology Population
- Environmental Contamination
What should be standardized?
Nomenclature

• **SPS Prevention Bundle** - Terminology selected following input from the SPS Clinical Steering Team

  – **SPS Standard Element**: Strong evidence suggests that implementation of this element is associated with a significant decrease in patient harm; all SPS hospitals should implement and measure reliability of this element.

  – **Recommended Element**: Preliminary data and clinical expert opinion support the implementation of this element; SPS hospitals should strongly consider implementing and measuring reliability of this element.
# CLABSIs - MAINTENANCE:
SPS Prevention Bundle

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<th>Bundle Element</th>
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<td><strong>STANDARD ELEMENTS</strong></td>
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| Daily discussion of line necessity, functionality and utilization including bedside and medical care team members | • Discuss with the medical team continued necessity of line  
• Discuss with the medical team the function of the line and any problems  
• Discuss with the medical team the frequency of access and utilization of line. Consider bundling labs and line entries.  
• Consider best practice is documentation that the discussion occurred in the medical record. |
| Regular assessment of dressing to assure clean/dry/occlusive | • Replace catheter site dressing if the dressing becomes damp, loosened, or visibly soiled (CDC Reference)  
• Replace dressings used on short-term central venous catheters sites every 2 days for gauze dressings and at least every 7 days for transparent dressings [CDC Reference] |
| Standardized access procedure | • Refer to Hand Hygiene details in CLABSI insertion Bundle  
• Disinfect cap before all line entries by scrubbing with an appropriate antiseptic and accessing the port only with sterile devices [CDC Reference]  
• Alcohol (15 second scrub + 15 second and allowed to dry) or CHG (30 second scrub + 30 second dry) or an alcohol / CHG containing product per manufacturers’ recommendations [CDC Reference]  
• Sterile gloves used for needle access for all implanted permanent central lines (example: Portacath) |
| Standardized dressing, cap and tubing change procedures/timing | • Scrub skin around site with CHG for 30 seconds (2 minute for femoral site), followed by complete drying. (Note: institutional preference for CHG use for infant < 2 months of age) [CDC Reference]  
• Change crystalloid tubing no more frequently than every 72 hours [CDC Reference]  
• Change tubing used to administer blood products every 24 hours or more frequently per institutional standard [CDC Reference]  
• Change tubing used for lipid infusions every 24 hours [CDC Reference]  
• Document date dressing/cap/tubing was changed or is due for change [CDC Reference & SPS Data]  
• Consider when hub of catheter or insertion site are exposed, wear a mask (all providers and assistants)—shield patient’s face, ETT or trach with mask or drape  
• Sterile gloves used for dressing/tubing/cap changes |
| **RECOMMENDED ELEMENTS** | |
| An in-depth review of all identified CLABSI with multidisciplinary involvement AND the intent to change the process if needed. | • Utilize a systematic approach to review all hospital acquired CLABSI |
| Daily CHG bathing and linen changes | • Follow manufacturer recommendations for usage |
Prevention Bundle and High-Reliability Theory

Children’s Hospitals’ Solutions for Patient Safety (SPS) National Network

Reliability to Blood Stream Infections Insertion Bundle
SPS Weighted Network Aggregate

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Prevention Bundle and High-Reliability Theory

Children's Hospitals' Solutions for Patient Safety (SPS) National Network

Reliability to Blood Stream Infections Maintenance Bundle

SPS Weighted Network Aggregate

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Approach to Special Cause

Margie McCaskey, RN, DNP
Clinical Outcomes & Quality Advisor
Children’s of Alabama
Current SPS Outcomes

Children’s Hospitals’ Solutions for Patient Safety (SPS) National Network

Central Line Associated Blood Stream Infections Rate

SPS Network Aggregate

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Initial Findings During Focus Groups

• Products
  • Alcohol caps
  • Tubing - the way tubings are set up; cracked tubing; quads on quads; are there hairline cracks in any of the tubing that could be causing this?
  • Z-flo pillows

• Human Factors
  • Changing staff workflows
  • Dress code compliance (jewelry, nails, Fitbits)
  • Keeping linens clean
  • Competency in staff – practice with line maintenance, keeping environment clean, following bundle elements

• Populations
  • Medically complex – short gut & MBI
  • NICU
  • Oncology – changes in COG protocol
Theory of Special Cause

Smart OBJECTIVE

To vigilantly a) identify, b) verify and c) mitigate the root cause(s) of the CLABSI special cause affecting SPS hospitals in 2015

Change in the Jan 2015 NHSN operational definition change

Change in organisms

Change in product or device

Change in prevention bundle process execution at the bedside (undetected by process reliability measurement system) e.g. line access procedures

Change in patient population

Global OBJECTIVE

Spread special cause learning to the SPS Network to prevent future CLA-BSI harm

SPS CLA-BSI Special Cause 2015

Root Cause Testing Theory

Suspected Cause

Method to Verify Suspected Cause

Quantify the op def changes in hospitals with special cause (26): ask special cause hospitals to evaluate their 2015 events through the 'lens' of the 2014 definition and 2015 definition

Quantify the op def changes in stable hospitals: sample unchanged hospitals asking them to evaluate their 2015 events through the 'lens' of the 2014 definition and 2015 definition

Ask special cause hospitals (26) permission to engage the CDC to explore microbiologic epidemiology of the rate increase

Clear learning objectives and timeline with CDC

Investigate and document (multi-site) credible event timeline linkage between change and special cause

Compare similarities and differences between special cause hospitals and stable hospitals: utilize multi-disciplinary team, random in-person audits

Sub-groups of hospitals investigating credible categories of suspected special cause

Rapid cycle PDSA testing to gather data and test hypothesis

Real-time sharing of lessons learned and recommendations across the network

Revision Date: 11/18/2015

Key
Yellow = Active investigation
White = Future investigation

Spread special cause learning to the SPS Network to prevent future CLA-BSI harm
Initial Learning from the Pediatric CLABSI Increase

Jeff Hord, MD
Director of Hematology/Oncology
Akron Children’s Hospital
Potential suspects of special cause

- Product / device changes
  - Alcohol caps
  - Flush syringes
  - Dressing changes
- Linen change frequency
- Changes in organisms
  - Reported increases
  - Reported new cases that had not been seen prior
- Changes in patient population
  - Short gut & MBI
Unlikely Causes of Network Special Cause

- Unit Acuity
- Need for ongoing education
- Organizational factors
- Belief some BSIs are not preventable with bundle care interventions only
- Staffing (Turnover, New Staff, etc)
- Adding/Stopping Bundle Elements
Learning and Next Steps for SPS Pediatric CLABSI's

- Renewed focus on bundle reliability – let’s get to 90%!
- Changes to the operational definition may have had a larger impact than anticipated.
- The special cause served as a catalyst to form workgroups (in 2016) in the following areas:
  - Reducing Pediatric CLABSI’s in Hem/Onc population
  - Reducing Pediatric CLABSI’s in the NICU population
  - Investigating changes in products or device across the network
  - Investigating changes in prevention bundle process execution at the bedside
Open Discussion

Emily Oehler
Project Manager
More Information on Preventing Pediatric HACs

- Publicly available information:
  - www.solutionsforpatientsafety.org
More Information on Preventing Pediatric HACs

- Publicly available information:
  - www.solutionsforpatientsafety.org
Results on Our Website

Do no harm.
Results on Our Website

Our Results

The Children’s Hospitals’ Solutions for Patient Safety (SPS) Network is an unparalleled, collaborative effort to improve pediatric patient safety in pursuit of an urgent mission: to eliminate serious harm across all hospitals. A 2013 analysis shows that if the SPS Prevention Bundles are implemented reliably, the Network will reduce the ten hospital-acquired conditions (HACs) below.

- Adverse drug events (ADE)
- Central line-associated bloodstream infections (CLABSI)
- Catheter-associated urinary tract infections (CAUTI)
- Obstetrical adverse events (OBAE)
- Pressure ulcers (PU)
- Infections from falls and immobility
- Ventilator-associated pneumonia (VAP)
- Surgical site infections (SSI)
- Obstetrical adverse events (OBAE)
- Venous thromboembolism (VTE)

Through implementation of the Network’s best practices, children are being protected from harm. Since 2012, this national effort has led to an estimated savings of more than $79 million and saved 3,079 children from serious harm, with a consistent upward trend in harm prevented every month.
Thank you!
Adjourn

Anyah Land
Senior Specialist

Contact us: ochsp@cchmc.org
SPS is on Twitter & Facebook!

Follow us on Twitter - @sps4kids

Like us on Facebook

# Share what you’re learning here using the hashtag #sharesafety