



Decreasing CLABSI Using High Reliability Strategies

Stephanie Scholdt MN, RN, CCRN, CCNS, ACNS-BC
Henry Ford Hospital
Detroit, MI

Learning Objectives

- What is High Reliability
- Identify the scope of the CLABSI problem
- Discuss central line and PICC practices prior to the intervention
- Explain the intervention
- Discuss results
- Describe next steps

High Reliable Organizations

“Organizations that have systems in place that make them exceptionally consistent in accomplishing their goals and avoiding potentially catastrophic errors.”

Gamble M. 5 traits of high reliability organizations: how to hardwire each in your organization. *Becker's Hospital Review*. April 29, 2013. <https://www.beckershospitalreview.com/hospital-management-administration/5-traits-of-high-reliability-organizations-how-to-hardwire-each-in-your-organization.html>. Accessed January 23, 2016.

High Reliability Organizations are:

- Sensitive to operations
- Reluctant to accept “simple” explanations
- Preoccupied with failure
- Will defer to expertise
- Resilient

Gamble M. 5 traits of high reliability organizations: how to hardwire each in your organization. *Becker's Hospital Review*. April 29, 2013. <https://www.beckershospitalreview.com/hospital-management-administration/5-traits-of-high-reliability-organizations-how-to-hardwire-each-in-your-organization.html>. Accessed January 23, 2018.

CNSs & High Reliability

- CNSs are poised to be key players in High Reliability
 - Sensitive to operations and processes
 - Drill down adverse events down to the smallest details
 - Obsessed with failed processes
 - We know when and how to ask for help
 - We get knocked down A LOT...so we are very resilient

Background and Scope of CLABSI

- Healthcare Associated Infections occur in ~5% of patients
- CLABSIs have a reported mortality of 12-25%
- A CLABSI has an associated cost per incident of \$17,000
- Historically in Michigan the MHA Keystone collaborative showed a 70% reduction in ICU CLABSIs using “bundled care” during insertion

CDC Vital Signs- Central Line Associated Blood Stream Infections- US 2001, 2008, 2009. March 3, 2011 MMWR (e-release March 1, 2011).

Henry Ford Hospital (HFH) Fun Facts

- Established 1915
- 877 beds
- 166 ICU beds
- 400 Canadian employees
- 3 million square feet on HFH Campus
- Nearly 100,000 ED visits that lead to more than 40,000 admissions a year



HFH MICU Fun Facts

- MICU has 68 beds
- Broken into 6 separate "pods" with separate staffing
- Resident teaching model in 4 pods (48 beds)
- 2 pods are Advance Practice Provider model (20 beds)
- Early Rehabilitation starts on admission
- Subspecialties
 - Interventional pulmonology
 - Lung Transplant
 - Interstitial Lung Disease
 - Pulmonary Hypertension

MICU Pod 2 Fun Facts

- 12 Bed Pod
- Staffing Grid of 6-7
- Resident Teaching Model

Comparative Data

- 2015 CLABSI rate was 3.17
- Historically drove the CLABSI rate of the hospital
- Similar line utilization rates

	HFH	MICU	MICU Pod 2
CLABSI Rate	CLABSI Rate YTD Avg	CLABSI Rate YTD Avg	CLABSI Rate YTD Avg
	2015 1.33	2015 1.93	2015 3.17
Line Utilization Rate	Central Line Utilization Rate YTD Avg	Central Line Utilization Rate YTD Avg	Central Line Utilization Rate YTD Avg
	2015 0.40	2015 0.67	2015 0.68

Practice Prior to Intervention

- Almost every patient had a central line or a PICC placed once admitted to the MICU without regard for indication
 - Physicians placed central lines
 - PICCs are placed by a dedicated team
 - All used bundled insertion practices and ultrasound when appropriate
- Lines were inconsistently discussed during rounds for necessity
 - When discussed there was a myriad of reasons to maintain a central line based on perceptions
 - Providers
 - Nurses

Interventions Already in Place

- MICU has designated line change/dressing change days
 - Tuesday and Friday
 - Historically a night shift responsibility
- Chlorhexidine Disc (2010)
- Chlorhexidine bathing (2011)
- Chlorhexidine impregnated dressing replacing the patch (2015)
- Alcohol impregnated caps (2016)
- Dressing change kits were available but lacked sterile gloves

More to our Story

- MICU Pod 2 was surveyed regarding central line maintenance practices
 - Nursing has so many competing priorities
 - Increasing acuity
 - New grads (as well as more and more seasoned staff) lack the knowledge and skill to place peripheral IVs
 - Residents enjoy the technical skill of placing lines

 All made it difficult to decrease central line days & infections

The Intervention

- Study took place from April 2016 to April 2017
- Includes subjective data
 - Nurses perception of central line necessity
- Includes objective data
 - CLABSI rates
 - Line utilization rates

 By taking existing processes that were working, drilling down our CLABSIs, watching routine practices and why it failed, a team of experts was created that had the skill and the time to do the job well

Using High Reliability Strategies to Reduce CLABSIs

- A core group of 7 RNs were validated in:
 - Central line dressing changes
 - Tubing changes
 - Maintenance line care
 - Documentation
- Each Tuesday and Friday one person from the core group would have the sole responsibility for the care and maintenance of all IV lines, peripheral IV starts, central line removal
- The staffing allowed for this to occur 80% of Tuesdays and Fridays through the study period
- The core group became very skilled at peripheral IV and US guided IV placement

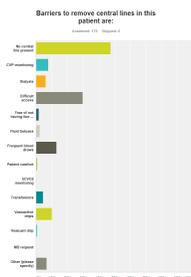
Patients that REALLY need a Central Line...

Patients getting:

- Vasopressors
- Hypertonic saline (3%)
- TPN/Lipids
- Outpatients on antibiotics for > 7 days
- Long term or frequent vesicant chemotherapy

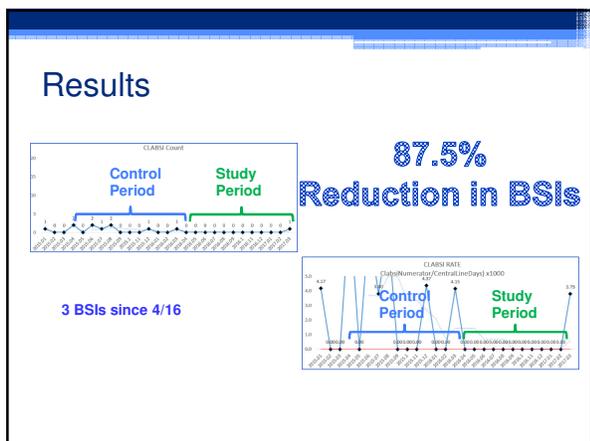
Perceived Barriers to Central Line Removal

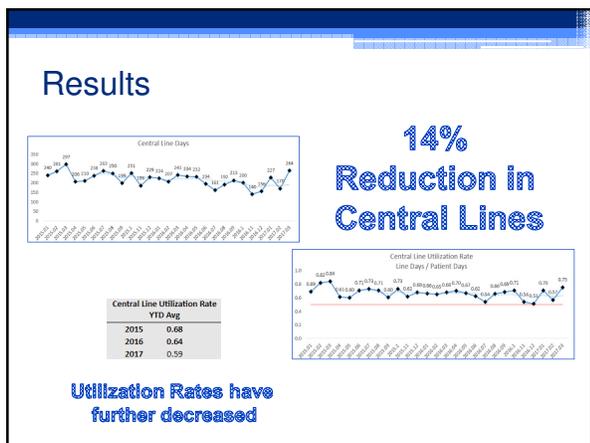
- Almost 50% of patients did not have central lines on Tuesday or Friday
- 23% of the patients were difficult access
- 11% had vesicant drips
- 11% had frequent blood draws

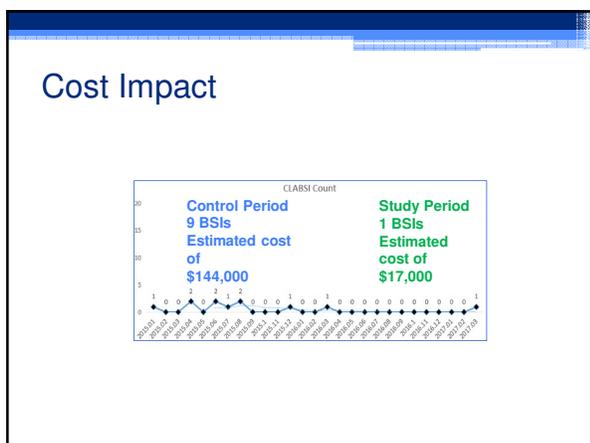


Our Knowledge Gap

- 11% said the central line was necessary for frequent blood draws
- Not a central line indication
- This was a point that was addressed following the study







Impact on Nursing Care

- Nurses became experts at starting IVs
 - Less central lines and PICCs are placed initially
 - When placed they are being removed at a faster rate
- Eliminated competing priorities during the dressing and line change process
- The Expert did the task and did it well
- Process took a routine task with high impact implications off the patient's nurse



The core group offered high reliable IV care & they loved the project

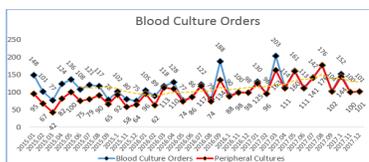
The Take Home Message

- In ICUs as acuity increases prioritizing tasks is challenging without an increase in staffing
- High Reliability Strategies can increase the consistency of a routine task and mitigate failure
 - By having a small group responsible for a high impact task, complications decreased
 - Peripheral IVs were placed
 - Central Lines were removed
- There was time to do the job well and without interruptions



Creativity leads to great outcomes

Next Step...Tackling Blood Cultures



Initiative to decrease blood cultures drawn from central lines and PICCs

Next Steps

- Making our business case
- Engaging the providers in initial dressing
- Re-working dressing change kits so ALL supplies needed are included
 - Central line
 - PICC
 - Port
- Fine tuning our insertion strategies
 - Using a checklist
 - Using a trained observer
 - Considering different placement options

Questions?