



Driving CLABSI Rate to Zero: Building on Prevention With Strategic Practice and Cost-Saving Interventions

Tiffany Curtice, BSN, RN, VA-BC
Carol Hagele, RN, CRNI
Cynthia Oster, PhD, RN, APRN, MBA, ACNS-BC, ANP

Erika Anderson, MSN, RN, CRNI, VA-BC
Rebecca Hiester, BSN, RN, RN-BC

Cheryl Bruns, BSN, RN, CRNI
Nancy Davidson, MA, BSN, CNS-BC
Lavone Hastings, BSN, RN-BC, M.MGT

2016 ANA Quality Conference, Lake Buena Vista, FL, March 9-11, 2016
Porter Adventist Hospital, Denver, Colorado



Introduction

- Nearly one in 25 hospitalized patients in the United States acquires a healthcare associated infection (HAI) each year.²
- 41,000 Central Line Associated Blood Stream Infections (CLABSI) occur annually.¹
- CLABSI is the most deadly HAI with a mortality rate between 12% and 25%.¹
- The excess cost per case for nosocomial CLABSI ranges between \$7,000 to \$29,000, costing the healthcare system nearly \$1 billion annually.⁴
- CLABSI can be prevented by adherence to evidence-based prevention guidelines.³

Purpose

- To reduce the CLABSI rate in an acute care hospital by implementing an evidence-based prevention bundle.

Materials and Methods

2011

- CLABSI evidence-based prevention bundle implemented
- Unit Champions
- Computer Based Training for Registered Nurses
- Standardized outcome metrics
- Cost analysis for antimicrobial PICCs

2012

- CLABSI rate target goal not achieved
- Education redesign
- Standardize intravascular catheter care
- Focus on intravascular catheter maintenance

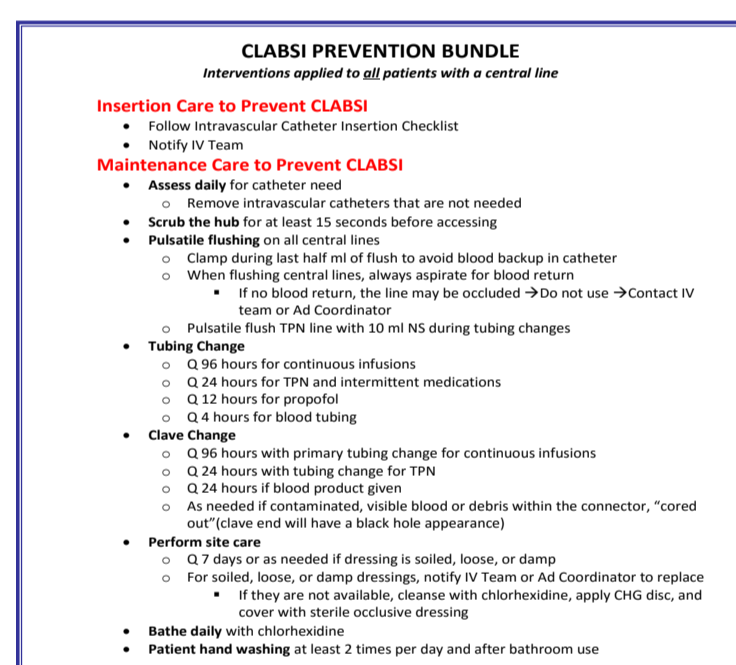
- Daily audits conducted by IV Team to monitor adherence to prevention bundle
- Conduct just-in-time prevention bundle education
- Conduct just-in-time peer review including personal email
- Report unit specific outcome metrics monthly

2013

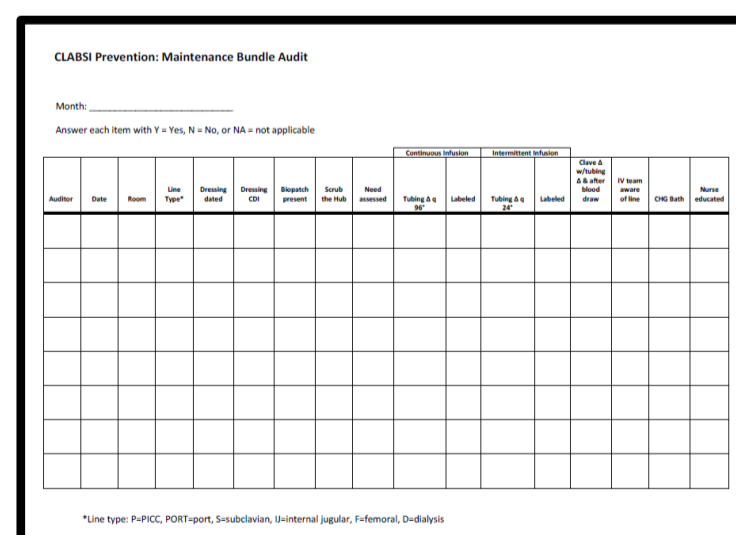
- CLABSI rate decreased but not at target goal
- Implement antimicrobial PICCs for specific at risk population
- Evidentiary review for second tier infection prevention interventions
- Implement CHG bathing for all central line patients

2014 to present

- Continue daily auditing of adherence to evidence-based infection prevention bundle
- Root Cause Analysis for any occurrence



CLABSI Prevention Bundle Guidelines

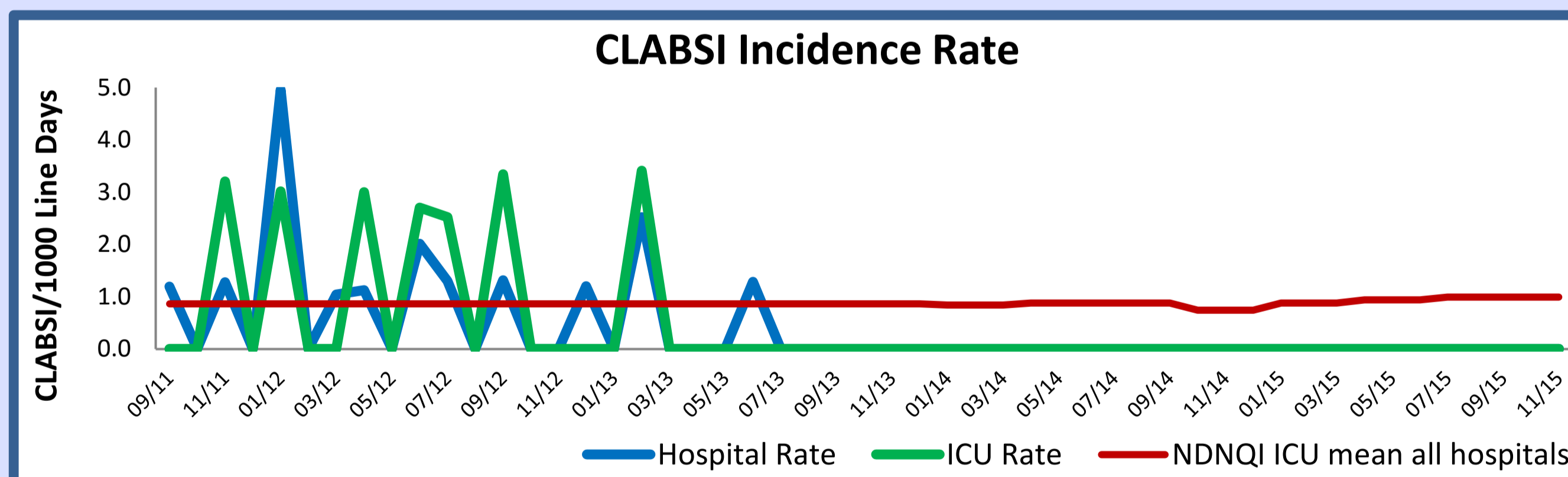


Daily Audit Tool

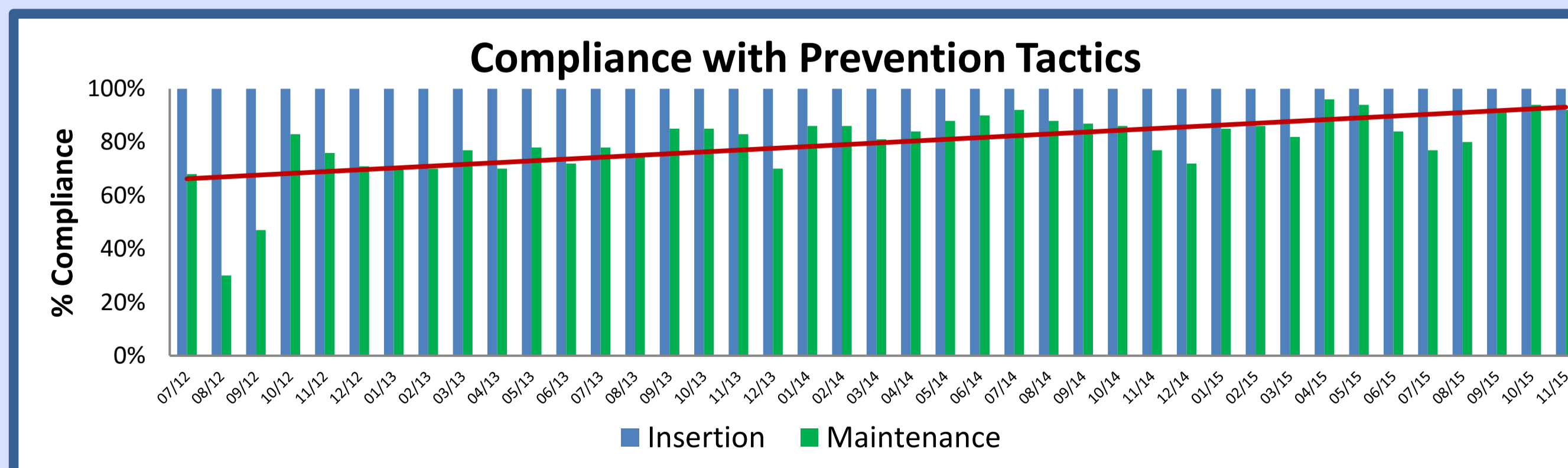
Abstract

CLABSI is the most deadly hospital-acquired infection with mortality rates near 20%. Evidence-based nursing to improve CLABSI outcomes have become the cultural and practice norm. In 2012, an evidence-based CLABSI prevention bundle was implemented with daily audits. Evidentiary review identified CHG bathing as a second tier intervention and a decision was made to add CHG bathing to the bundle for all patients with a central line. In 2014, fully integrated protocol practices were implemented into new-hire and float pool orientation to enhance novice practitioner competence. Adherence to the prevention bundle has improved hospital-wide from 60% to currently 86%. CLABSI rates decreased from 1.02/1,000 catheter days in June 2012 to 0.00/1,000 catheter days in June 2013 and have continued through December 2015. Associated cost savings have exceeded \$470,000 with accompanying avoidance of potential harm to patients. This 102% rate reduction reflects 923 CLABSI-free days hospital-wide and 1,032 CLABSI-free days in the ICU. Driving CLABSI to zero can be accomplished through evidence-based bundle implementation, communication-focused strategies, intentional evaluation of central line need/discontinuation, and integration of vascular access education and support responsibilities.

Results



CLABSI incidence rate decreased to, and sustained at, zero FY14 to present



Average adherence to prevention bundle guidelines increased to 86% in FY16TD

Discussion and Conclusions

- Evidence-based nursing practices to improve patient outcomes have become the norm
- The IV Team sustains a culture of patient safety and contributes to CLABSI rate reduction with daily monitoring of central lines and just-in-time peer review
- Implementation and adherence to a prevention bundle can drive CLABSI rates to zero
- CLABSI rate decreased from 1.02 in FY12 to 0.00 from FY14 to present (FY= July-June)
- 100% reduction in number of CLABSIs:
FY12: N=10 FY13: N=6
FY14: N=0 FY15: N=0 FY16TD: N=0
- 86% adherence to prevention bundle FY16TD (July-December)
- 923 CLABSI-free hospital days
- 1,032 CLABSI-free ICU days



Celebration Poster

\$474,000 ESTIMATED COST AVOIDANCE
FY12 to FY16TD

FY12 \$20,000/case x 10 cases = \$200,000	}	\$104,000
FY13 \$16,000/case x 6 cases = \$96,000		Cost avoidance Year 1
FY14-FY16 \$16-17,000/case x 0 cases = \$0	}	\$474,000
		Cost avoidance to date

Literature Cited

- Centers for Disease Control and Prevention. (March 4, 2011). Vital Signs: Central line-associated blood stream infections – United States, 2001, 2008, and 2009. *Morbidity and Mortality Weekly Report*, 60(8); 243-248.
- Magill, S.S., Hellingher, W., Cohen, J., Kay, R., Bailey, C., Boland, B., Carey, D., de Guzman, J., Dominguez, K., Edwards, J., Goraczewski, L., Horan, T., Miller, M., Phelps, M., Saltford, R., Seibert, J., Smith, B., Starling, P., Viergutz, B., Walsh, K., Rathore, M., Guzman, N., & Fridkin, S. (2012). Prevalence of healthcare-associated infections in acute care hospitals in Jacksonville, Florida. *Infection Control & Hospital Epidemiology*, 33(3): 283-291.
- O'Grady, N.P., Alexander, M., Burns, L.A., Dellinger, E.P., Garland, J., Heard, S.O., Lipsett, P.A., Masur, H., Mermel, L.A., Pearson, M.L., Raad, I.I., Randolph, A.G., Rupp, M.E., Saint, S.; Healthcare Infection Control Practices Advisory Committee (HICPAC). (2011). Guidelines for the prevention of intravascular catheter-related infections. *Clinical Infectious Disease*, 52(9): e162-93.
- Scott, D. (2008). The direct medical costs of healthcare-associated infections in US hospitals and the benefits of prevention. Retrieved 02/15/14 from http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf.

Contact Information

Tiffany Curtice, BSN, RN, VA-BC

tiffanycurtice@centura.org