



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

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## Introduction

- Nearly one in 25 hospitalized patients in the United States acquires a healthcare associated infection (HAI) each year.<sup>1</sup>
- 41,000 Central Line Associated Blood Stream Infections (CLABSI) occur annually.<sup>4</sup>
- CLABSI is the most deadly HAI with a mortality rate between 12% and 25%.<sup>4</sup>
- The excess cost per case for nosocomial CLABSI ranges between \$7000 to \$29,000, costing the healthcare system nearly \$1 billion annually.<sup>3</sup>
- CLABSI can be prevented by adherence to evidence-based prevention guidelines.<sup>2</sup>

### 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 (Fig 1)
  - Unit Champions
  - Computer Based Training
- Standardized outcome metrics
- Cost analysis for antimicrobial PICCs

### 2012

- CLABSI rate target goal not achieved
- Opportunities for improvements identified
  - Education redesign
    - Standardize intravascular catheter care
    - Focus on intravascular catheter maintenance
  - Daily audits conducted by IV Team to monitor adherence to prevention bundle (Fig 2)
    - Conduct just-in-time prevention bundle education
    - Conduct just-in-time peer review including personal email
    - Report unit specific outcome metrics monthly

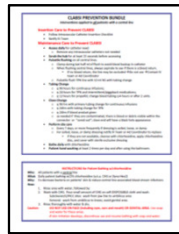


Fig 1: CLABSI Prevention Bundle Guidelines

### 2013

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



Fig 2: Daily Audit Tool

### 2014

- Continue daily auditing of adherence to evidence-based infection prevention bundle

## 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 into new-hire and float pool orientation to enhance novice practitioner competence. Adherence to the prevention bundle has improved from 60% to 85% hospital-wide. CLABSI rates decreased from 1.02/1,000 catheter days in June 2012 to 0.00/1,000 catheter days from June 4, 2013 and through July 2015. Associated cost savings have exceeded \$300,000, with accompanying avoidance of potential harm to patients. This 102% rate reduction reflects 806 days of CLABSI-free practice, with the ICU at 915 days CLABSI-free. Driving CLABSI to zero can be accomplished through evidence-based bundle implementation combined with nursing and communication-focused strategies, intentional evaluation of central line need/discontinuation, and integration of vascular access education and support responsibilities.

## Results

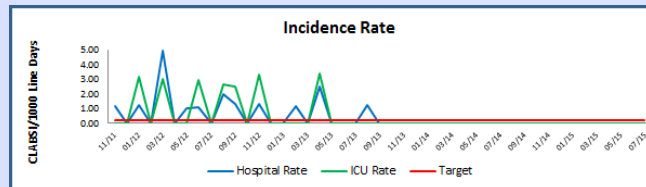


Fig 3: CLABSI incidence rate decreased to zero FY 2014

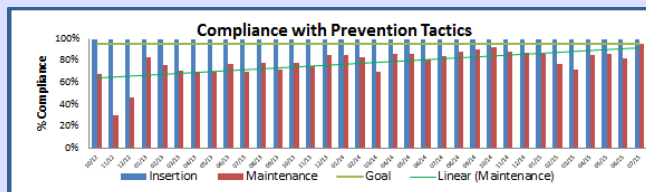


Fig 4: Adherence to prevention bundle guidelines increased to 85% FY 2015

## 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 FY2012 to 0.00 in FY2014 (Fig 3)
- 100% reduction in number of CLABSIs
 

FY12 (n=10)	FY13 (n=6)
FY14 (n=0)	FY15 (n=0)
- 85% adherence to prevention bundle FY 2015 (Fig 4)
- 806 CLABSI free hospital days (Fig 6 & 7)
- 915 CLABSI free ICU days



Fig 6: Celebration Poster



Fig 7: Cupcake Celebration

## \$200,000 ESTIMATED COST AVOIDANCE

### FY12 to FY14

FY12 \$20,000/case x 10 cases = \$200,000	\$104,000
FY13 \$16,000/case x 6 cases = \$96,000	Cost Avoidance
FY14 \$17,000/case x 0 cases = \$0	\$96,000
	Cost Avoidance

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