

# Nurse-led Practice Initiative Reduces CLABSI Standardized Infection Ratio (SIR)

## Statement of the Problem

Nurse clinicians in two hospitals of a Northern California healthcare system with approximately 800 licensed beds, applied Centers for Disease Control (CDC) guidelines for Central Line-Associated bloodstream infection (CLABSI) prevention. Despite their best efforts, CLABSI incidents continued at an unacceptable rate.



## Background & Significance

In hospitalized patients, use of central line venous catheters (CVC) is associated with a risk for CLABSI, increasing morbidity, mortality, length of hospital stay and cost. According to the U.S. Department of Health & Human Services, approximately 41,000 central line-associated deaths occur each year in the United States<sup>1</sup>.

CLABSIs are largely preventable when evidence-based guidelines for insertion and maintenance of CVCs are followed. CDC Guidelines provide evidence-based recommendations, including:

1. Training for personnel who insert and maintain catheters.
2. Daily antimicrobial bathing.
3. Maximal sterile barrier precautions during central venous catheter insertion.
4. Using a > 0.5% chlorhexidine skin preparation with alcohol for antisepsis.
5. Minimizing routine catheter replacement.
6. Using antiseptic chlorhexidine impregnated sponge dressings.

CDC Guidelines also recommend adopting bundled care elements and documenting compliance with bundles.

Lowered CLABSI rates significantly improve patient outcomes and favorably impact financial stability.

1. U.S. Department of Health & Human Services, Partnership for Patients HealthCare.gov

## Aim of this Project

The aim was to find a creative, evidence-based solution to ensure all practice standards were implemented to decrease CLABSI rates and create better patient outcomes.

## Strategy

Infection Prevention practitioners teamed with front-line clinical nurses to review CLABSI prevention bundles already in place and to further standardize maintenance care.

A central line bundle had been adopted in 2014 that included bathing CVC patients with chlorhexidine gluconate (CHG). However, CHG was not appropriate for all patients and couldn't be used body-wide. CHG was replaced with a non-toxic skin formula, Theraworx<sup>2</sup>, for use on the skin site prior to invasive procedures.



2. Theraworx™ (Antimicrobial Wipes) contains a self-drying, leave-on cleanser consisting of a specialized surfactant and skin-healthy antimicrobial agents: aloe, allantoin, vitamin E and silver, the primary antimicrobial ingredient.

## Implementation

1. March 2015: Theraworx bathing was expanded to all patients (not just those with devices).
2. December 2016: Maintenance care previously performed by Critical Care nurses was transferred to the Parenteral Services Team to reduce variations in CVC dressing-change technique.
3. January 2016: A performance improvement team formed to support adherence with the initiative.
4. March 2016: Theraworx pre-cleaning at catheter insertion sites was added prior to CHG use. Hands-on education was given to the Parenteral Services Team.
5. June 2016: Bedside nurses received both online and hands-on education on management of central lines.

## Implications for Practice

Frontline staff designed a protocol to deploy evidence-based, standardized care bundles to improve patient outcomes.

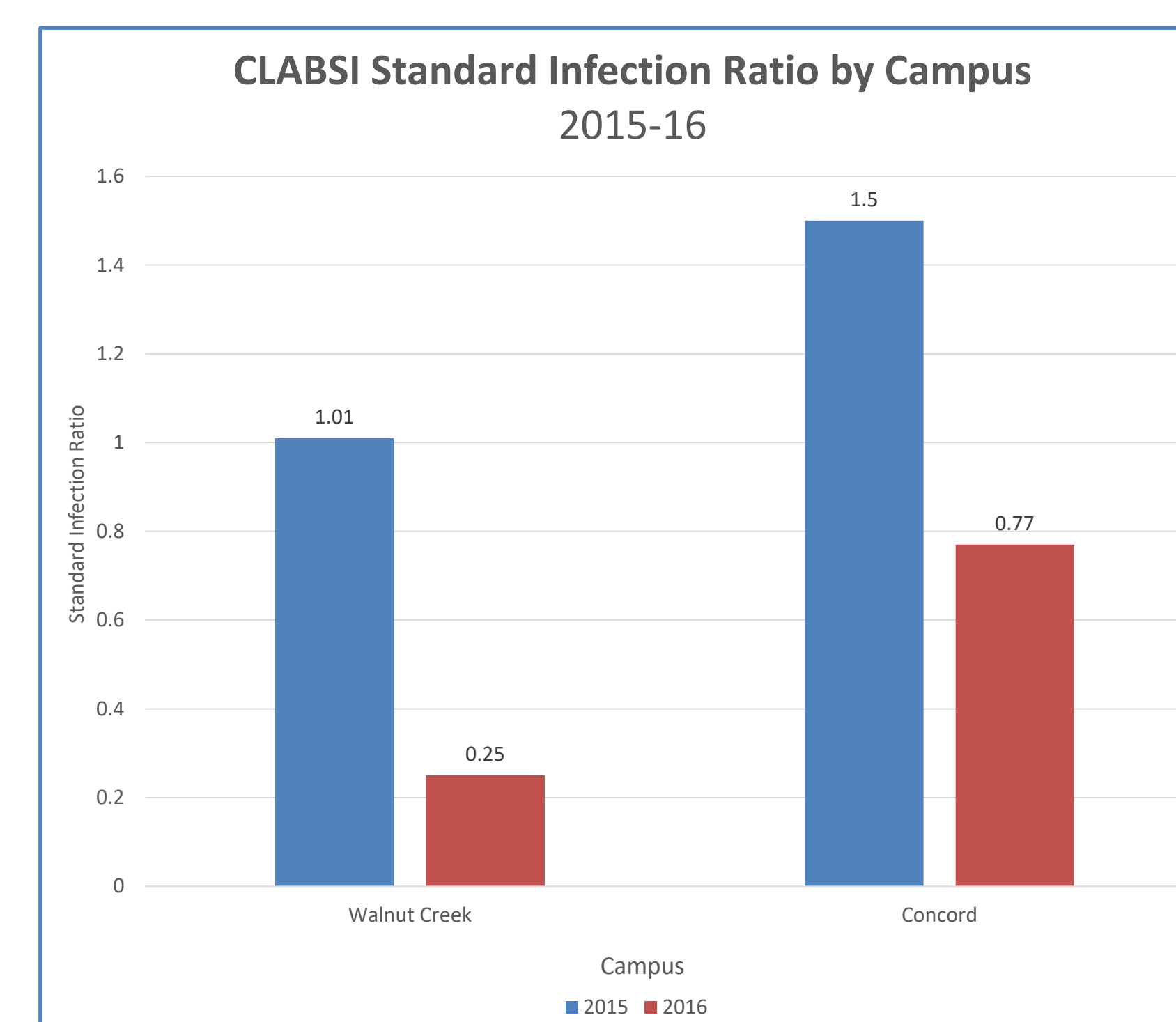
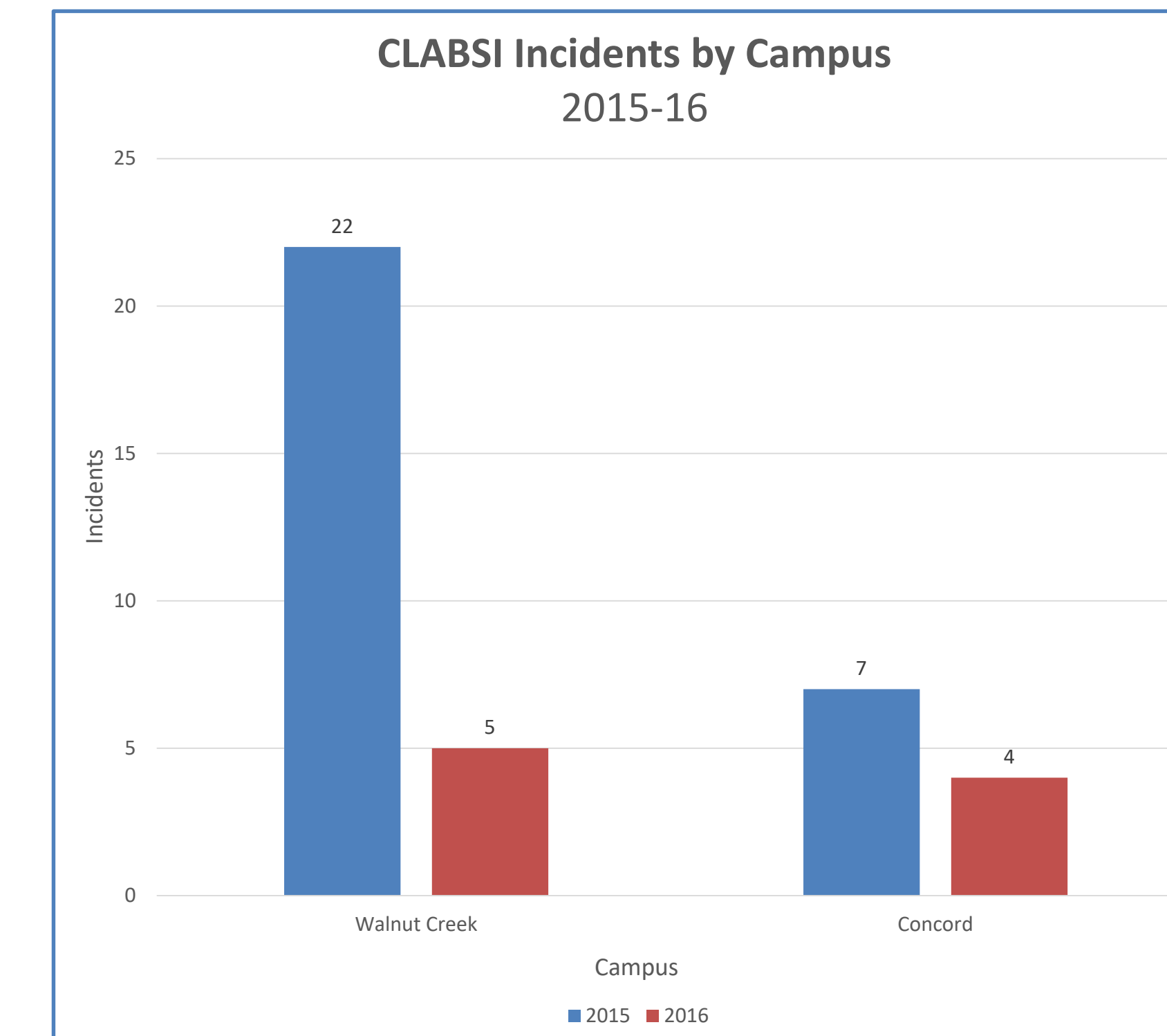
## Outcomes

CLABSI SIRs<sup>3</sup> dropped sharply with Theraworx bathing and the addition of performance team improvements to existing JMH practice standards.

- At JMH Walnut Creek, SIR dropped by 75%, from 1.0 to 0.25.
- At JMH Concord, SIR dropped by almost 50%, 1.5 to 0.77.

3. Standard infection ratio (SIR) compares infections in an organization to infections "predicted" for a hospital of that size based on nationally reported data. A ratio below 1.0 indicates an organization has fewer infections than expected, based on national data.

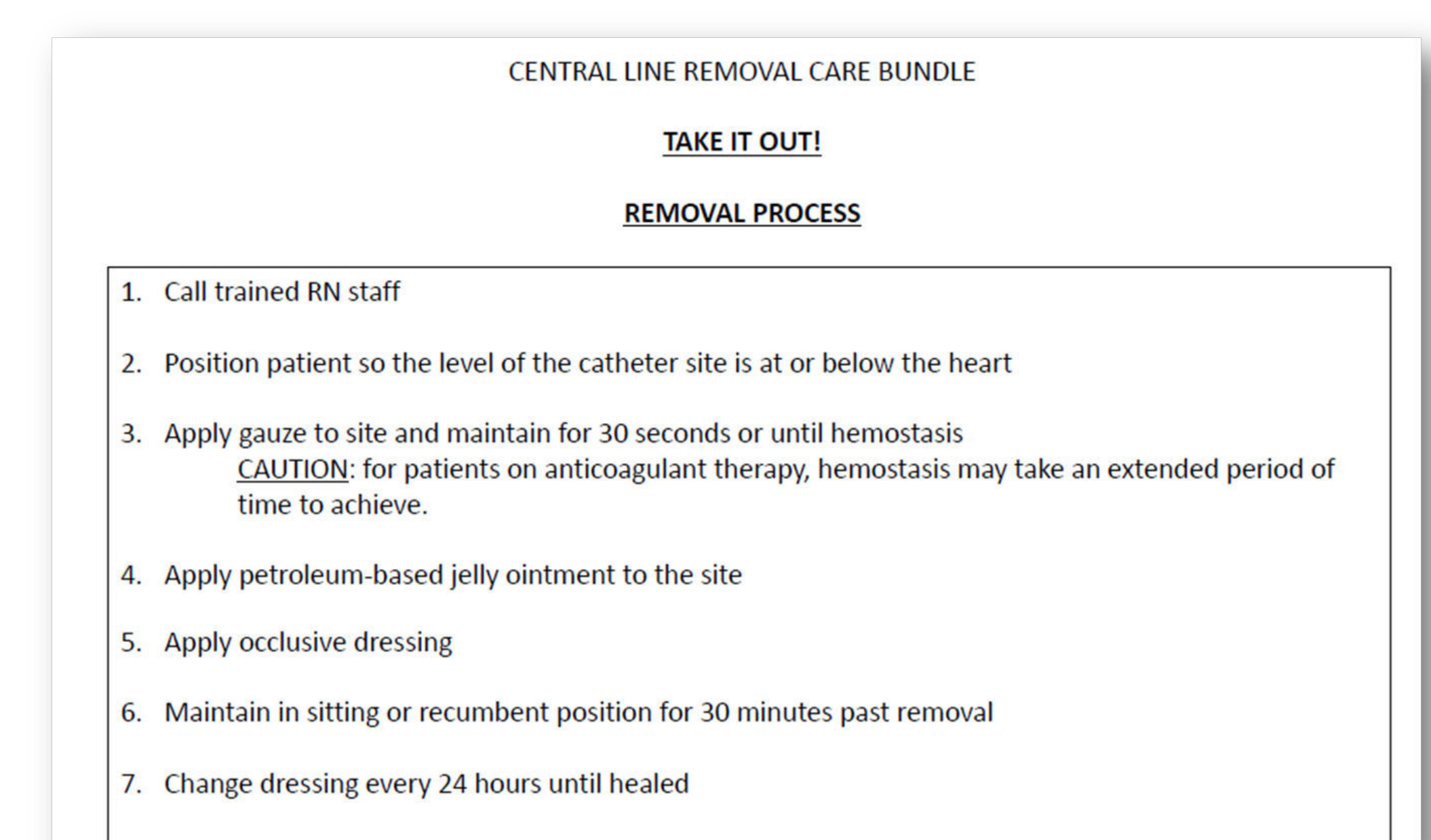
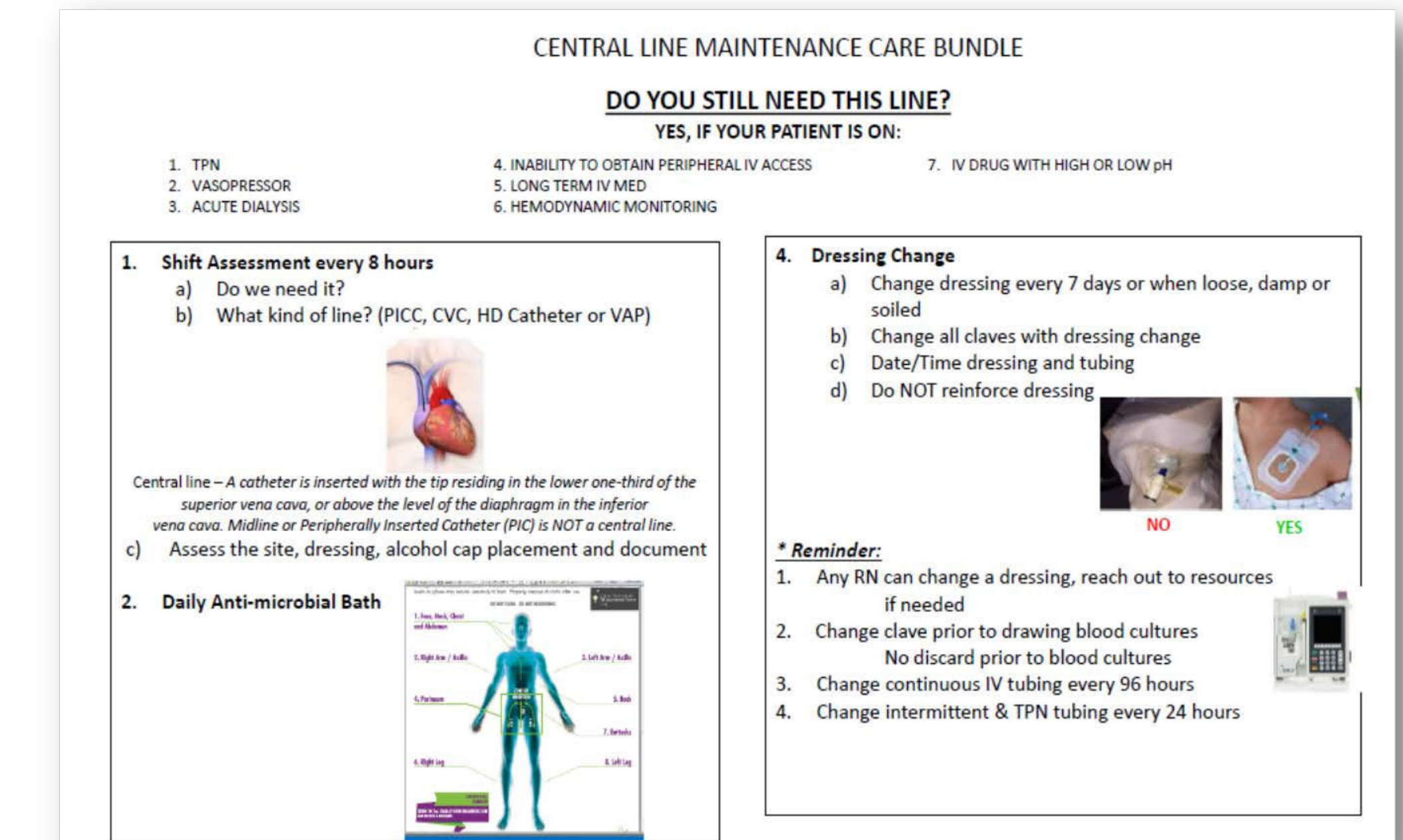
## CLABSI Incidents and Ratios



## Acknowledgements

John Muir Health Parenteral Services  
 John Muir Health Infection Prevention  
 John Muir Health CLABSI Team  
 John Muir Health clinical nurses

## CLABSI Care Bundles



## References

- Avadim Technologies Inc. <https://theraworx>
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