



Increased Compliance with Patient Hygiene Process Measures Reduced Central Line-Associated Bloodstream Infection Standardized Infection Ratios

Lacey D. Taylor, PhD, MLS(ASCP)^{CM}, CIC* & Tamara Powers, MSN, RN, CIC, FAPIC

Providence St. Patrick Hospital, Infection Prevention & Control Department, 500 W. Broadway St. Missoula, MT 59802

*Contact: 406-329-5666, lacey.taylor@providence.org

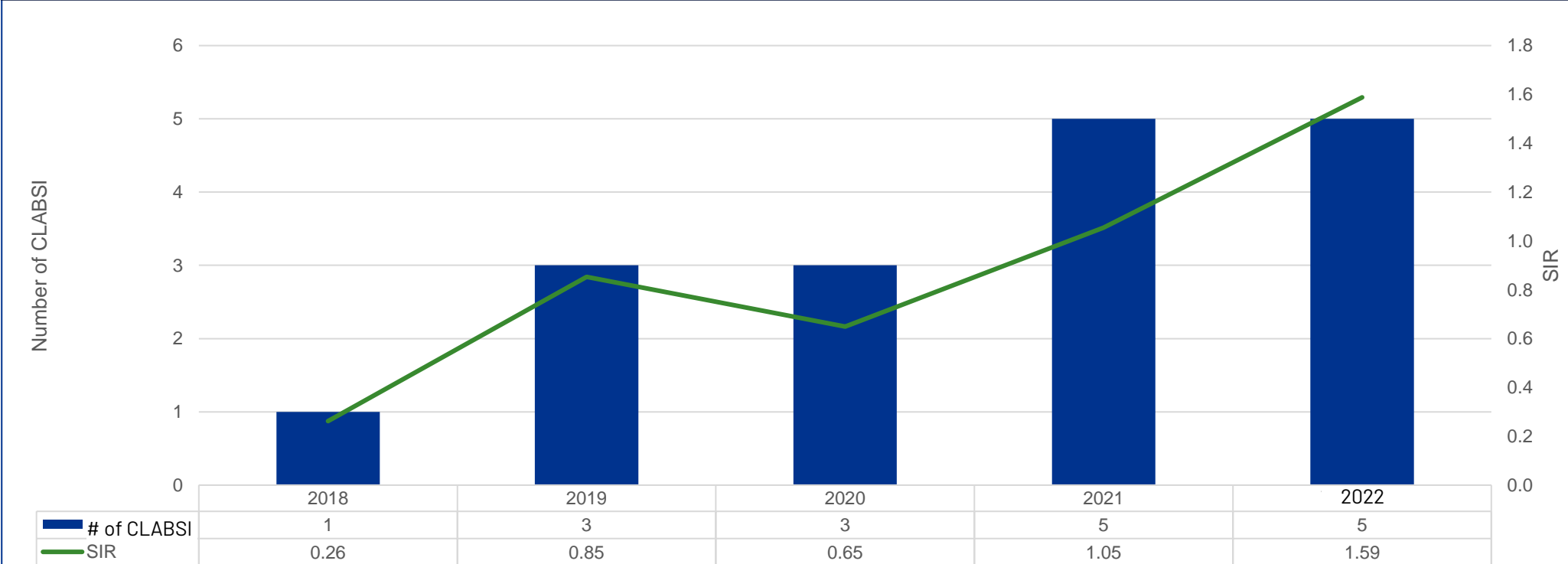


Learning Objectives:

1. Apply contributing factor analysis (CFA) concepts to identify areas for improvement in bundle compliance and basic patient hygiene practices.
2. Recognize key stakeholders to include in a quality improvement plan related to patient daily hygiene management.
3. Identify and implement actions to improve central line bundle compliance.

Background: At a mid-sized tertiary care community hospital, central line-associated bloodstream infection (CLABSI) standardized infection ratios (SIR) increased six-fold in 2022 compared to 2018 (Figure 1). A detailed contributing factor analysis CFA was performed on all CLABSI cases from Jan. 2021 to Aug. 2022 and identified opportunities for improvement in patient hygiene and central line maintenance practices (Figure 2).

Figure 1: CLABSI SIR Increased from 2018-2022



Methods: A multi-disciplinary team, composed of infection prevention (IP), nursing, and process improvement staff identified nursing-sensitive indicators from the CFA as high priority targets for strategic intervention. A back-to-basics approach was applied with goals to 1) standardize workflow practices, 2) increase documentation of central line maintenance elements and 3) improve daily patient hygiene compliance rates. Actions taken by IP and nursing teams are summarized in figure 3. The National Healthcare Safety Network facility-wide SIR was used to determine overall effectiveness of interventions.

Figure 2: Key Findings from CFA of CLABSI Cases from Jan. 2021-Aug. 2022

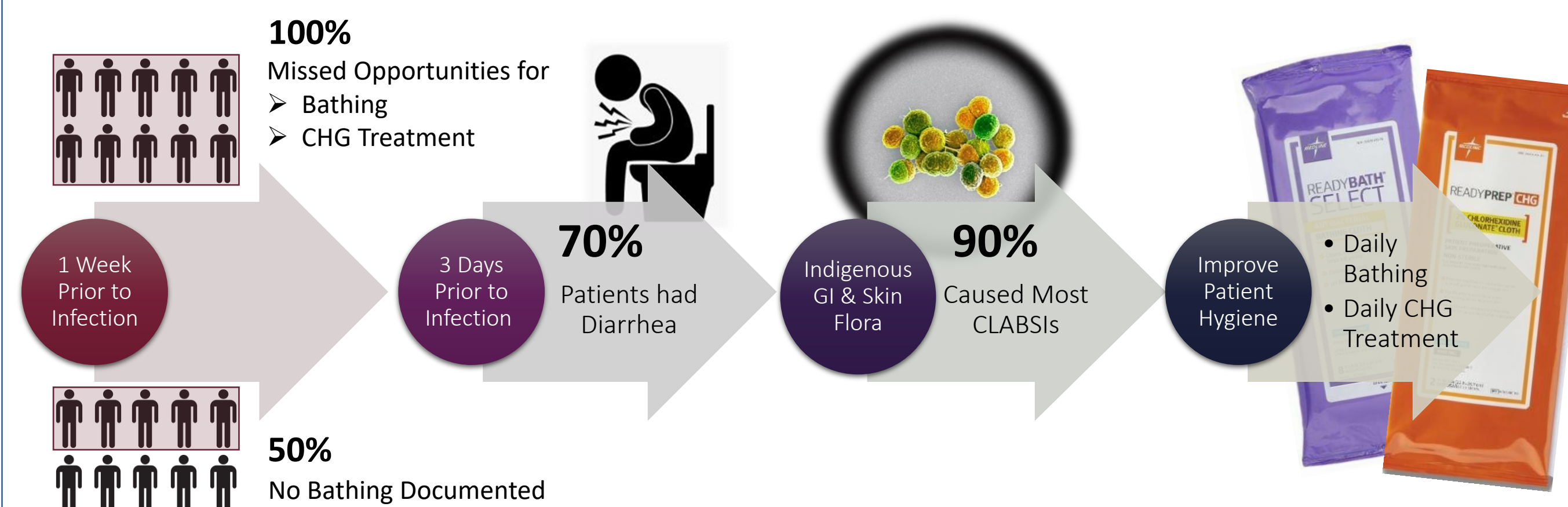
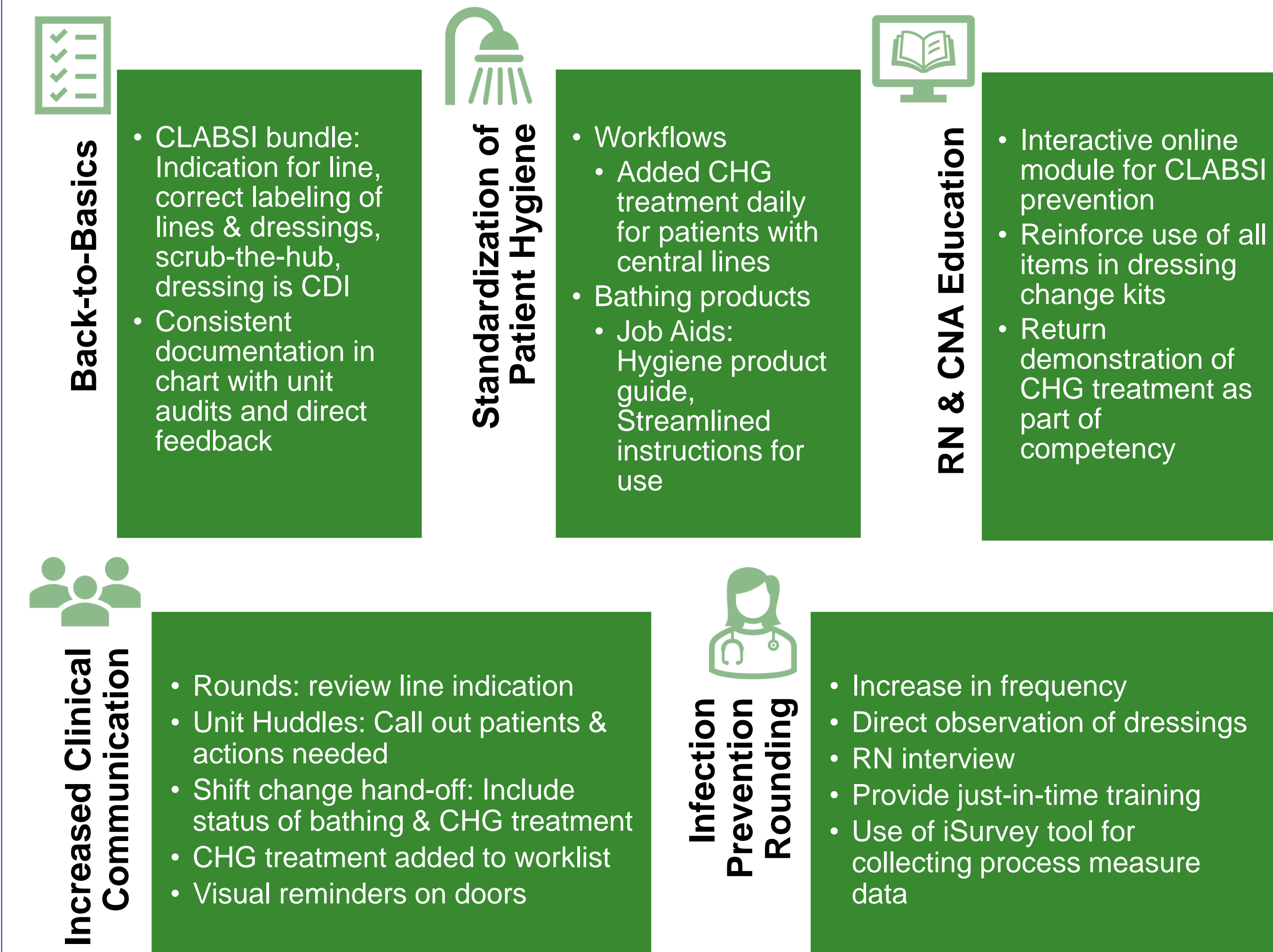


Figure 3: CLABSI Reduction Implementation Plan



Acknowledgments: We are grateful to our system infection prevention team for supporting the CFA and our frontline nursing staff for their feedback and participation. No disclosures to report.

Results: Documentation of CLABSI bundle elements has consistently increased since the start of intervention. Compliance with daily patient hygiene practices, including patient bathing and chlorhexidine gluconate (CHG) treatment for patients with central lines increased from < 10% in the beginning of 2021 to > 60% beginning in July 2023, with sustainability observed through the present date (Figure 4). The facility-wide SIR for CLABSI decreased from 1.52 in Q3 of 2022 to 0.0 in Q4 of 2022, and no CLABSIs have been identified since July 2022 (Figure 5).

Figure 4: Daily CHG Treatment for Patients with Central Lines 2021-2024

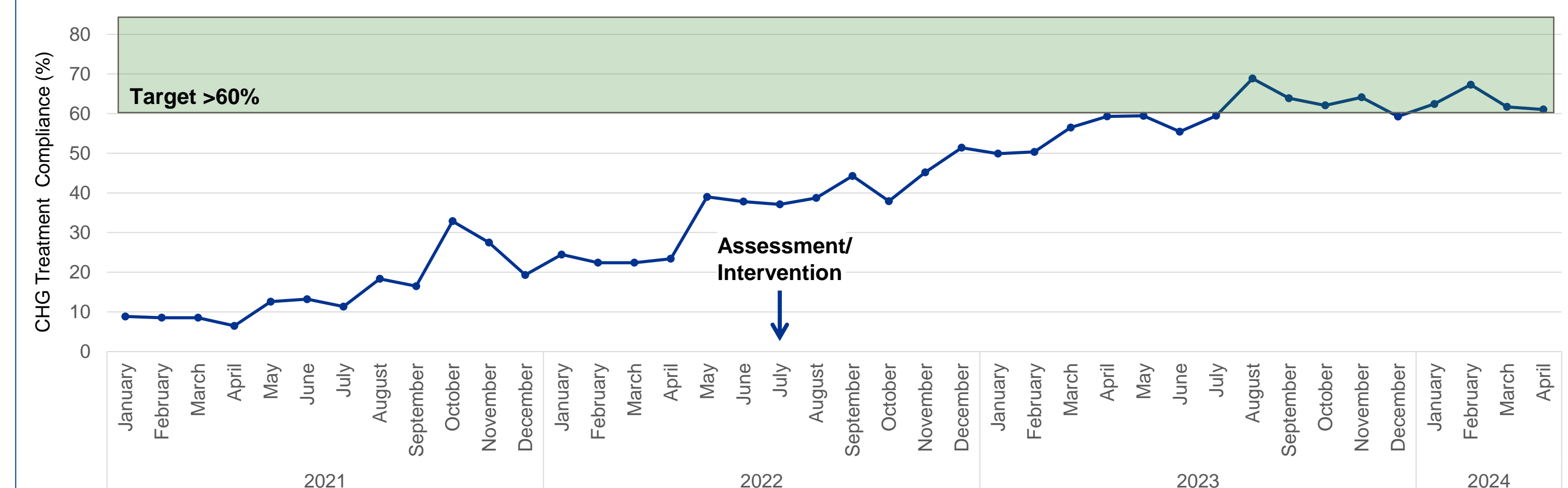
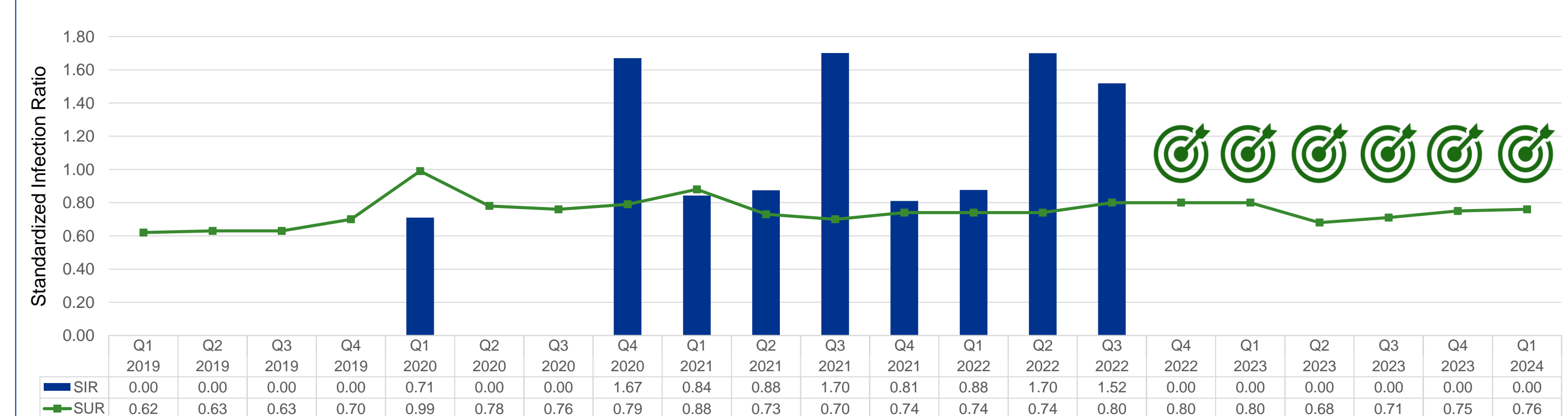


Figure 5: Sustained Reduction of CLABSI SIR Since Q4 2022



Conclusions: A multi-pronged approach to CLABSI reduction including consistent rounding and daily review of patients with central lines emphasizing CLABSI prevention basics, along with standardization of products and protocols, and adherence to best practices for central line maintenance and patient hygiene resulted in heightened awareness by nursing staff of CLABSI prevention measures. This led to increased charted documentation of daily patient hygiene practices for patients. The intervention strategies implemented have resulted in sustained reduction of CLABSI SIR that has been maintained for nearly 2 years as evidenced by no healthcare associated infections acquired by patients with central lines for over 22 months.