

National Quality Improvement Conference

Reducing the Rate of Central Line Associated Blood Stream Infections in the ICUs

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Problem Statement

- Central Line Associated Bloodstream Infection (CLABSI) is associated with increased morbidity, hospital length of stay and healthcare costs.
- In the TTSH Intensive Care Units (ICUs), implementation of full barrier precautions and a line maintenance bundle since Year 2016 and 2017 has helped to bring down CLABSI rates in the hospital. The effect of these interventions plateaued, and there were likely to be other factors which drive the CLABSI rate.
- In Year 2021, interventions to address these factors were implemented in one ICU as the pilot site and if found to be effective were spread to other ICUs.

Project Aim

To reduce all ICUs Central Line Associated Bloodstream Infection (CLABSI) rate by 50% in 3 years*

*All ICUs Central Line Associated Bloodstream Infection (CLABSI) rate: 1.66 (median of all ICU CLABSI rates of Year 2020) -> 0.83 (ie. 50% reduction in 3 Years)

Lessons Learnt

- The approach to containment of CLABSI rates is multidisciplinary. Staff need to feel that they have some skin in the game.
- Cases of CLABSI were painstakingly analyzed and a root cause analysis was undertaken to identify factors which led to the occurrence of the case.
- The results of the audits and CLABSI rates were regularly announced at nursing roll calls and department meetings, which lead to increased staff engagement and buy in.

Potential Solutions

| Root Causes | Interventions Roll Out at Pilot Site (Ward 6B MICU) | Time Period |
|---|---|----------------------|
| Lack of prompt to review CVL | a) Empower nurses to prompt review of lines > 14 days b) Documentation of daily line review | Aug 2021 to Nov 2022 |
| Rotating MOs & Variability in Full Barrier Precaution Practices | a) STOP CLABSI Poster b) On-the-Floor Supervision by Trained Seniors c) Just-in-time Onboarding of MOs d) CVC PPE Poster | Sep 2021 to Jan 2022 |
| Inconsistent monitoring of practices | a) Central Line Insertion Audit b) Central Line Maintenance Audit c) Performance Feedback & Learning | Feb 2022 |
| Inadequate data sharing and dissemination. | CLABSI chart on display in tea room | Sep 2022 |
| Tackle high risk patients | Octenisan Wipes | Dec 2021 |



Outcomes & Impacts

TTSH Hospital Overall CLABSI Rate

| Year | 2020 | 2021 | 2022 | 2023 (up to Aug) |
|--------------------|-------------|-------------|-------------|------------------|
| Annual CLABSI Rate | 1.82 | 2.05 | 1.88 | 1.07 |
| No. of CLABSI Case | 14 | 18 | 15 | 5 |

A significant reduction in CLABSI infections over the course of the project.

CLABSI Rates (in all ICUs) with Interventions (Year 2020 to Sep 2023)

