

Vanitha Malar Nachiappan, Angelica Peter John
Intensive Care Unit, Institut Jantung Negara

BACKGROUND

It is common for all ICU patients to require at least one type of Central Venous Catheter (CVC) per patient. This is because patients in ICU becoming increasingly complex, with multiple comorbidities requiring significant complex medical needs. However, CVCs are a major risk factor for CRBSI, the most common Healthcare Acquired Infection (HAI) which can lead to serious complications, including sepsis and death. Despite adopting to the existing Central Venous Line (CVL) bundle and other infection prevention & control measures, the prevalence of CRBSI was significantly on the rise in the year of 2020.

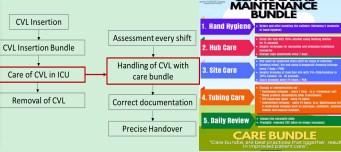
OBJECTIVES

Reduce the prevalence of CRBSI in ICU by 20% in the early 2022 by implementing a 12-month comprehensive CRBSI reduction program and Central Line Maintenance Bundle (CLMB).

METHODOLOGY

1. CENTRAL LINE MAINTENANCE BUNDLE (CLMB)

- Control line bundle:**
1. Hand hygiene
 2. Maximal barrier precaution upon insertion
 3. Chlorhexidine Skin Antiseptis
 4. Optimal catheter site selection
 5. Daily review of line necessity and line care



2. HAND HYGIENE CAMPAIGNS



1 month hand hygiene campaign conducted every quarterly

Hand hygiene gatekeeper for each cubicle in ICU

3. DISINFECTANT CAP : SPECIAL APPROACH



Disinfectant cap usage for all the long staying patients

4. CHG TRANSPARENT DRESSING : ESSENTIAL PRACTICE



Application on CHG transparent dressing for all the newly inserted line starts from OT

5. UTILIZING ADENOSINE TRIPHOSPHATE TEST (ATP) FOR ENVIRONMENTAL CLEANING AUDIT

- To monitor the effectiveness of cleaning and sanitation procedure on the surfaces of randomly selected ICU equipment
- The amount of ATP on a surface measures the level of micro-contamination on that surface.



Daily change of kidney dish and injection tray

Scheduled cleaning & disinfection process of the Blood warmers

6. ENVIRONMENT CLEANING: SPRING CLEANING, DOCUMENTATION

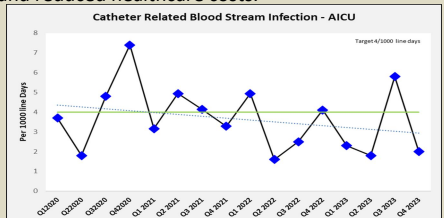
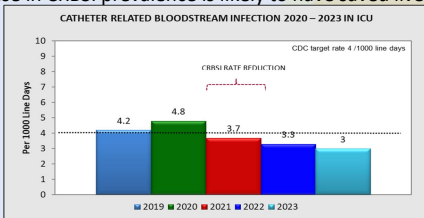


Spring cleaning on every 2 weeks of patient stay

Signage/ documentation on cleaning

RESULTS

Overall CRBSI prevalence effectively decreased by 23% in the year after implementation of the program. Pre intervention CRBSI prevalence was 4.8/1000, as compared with 3.7/1000 after intervention. The decreased CRBSI prevalence was sustained with the total reduction of 31% by end of 2022 (3.3/1000 line days). This decrease in CRBSI prevalence is likely to have saved lives and reduced healthcare costs.



CONCLUSION

The standardized CRBSI reduction program with consistent CLMB care led to a significant, sustained decrease in CRBSI in ICU. These findings suggest that the program has been an effective way to prevent CRBSI in ICU. Further research is needed to replicate the findings in other settings and to identify the most effective components of the program.

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References:

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