

Reducing the Rate of Central Line Associated Blood Stream Infection (CLABSI) in the MICU: Clinical Microsystem Project

Sponsor : Prof. Micheal Richmond **Coach :** Dr. Jameela Alkuwaiter **Team leader:** Dr. Hani Jaouni
Authors: Majed Hajieh , Emad Almomani, Joji. Cheryl Rogers, C. Abraham, Marie Rebecca Quinn, Roopa Amilda Coria, Dr. Wael Abdaljawad, Dr. Muhsen Shaheen, Mohammad Ismail, Brian Collado Racela

Background/ Introduction

Central venous catheters (CVC) are becoming an integral part in the management of ICU patients. Although a CVC can be life-saving, but it also can be a source of serious and potentially lethal blood stream infection (Central Line Associated Blood Stream Infection, or CLABSI). CLABSI can also cause prolongation of hospital stay, increased cost, resistance to antibiotics and higher mortality rates. In order to decrease the current CLABSI rate in MICU to the new NHSN bench mark of 0%, a multidisciplinary Clinical Microsystem Team was established to review current practice and implement evidence based changes as required.

Aims/objectives

The goal of this project is to continuously decrease and maintain the MICU CLABSI rate to 0%

Methods

- Staff and patient/family surveys
- Fishbone analysis
- CVC flow chart
- Risk assessment score
- FOCUS – PDCA

Discussion/Action taken

By analysis of the data collected by different methods and tools, we found many contributing factors that led to the high rates of CLABSI, and these factors were:

- More than 60% used femoral site for central line insertion in total central line days
- Non-adherence to Infection Control Practices/Policies and Procedures
- Non compliance of central line insertion bundle
- Poor hand hygiene compliance
- 2% Chlorhexidine in 70% alcohol skin prep and swabs were not readily available
- Incomplete central line insertion pack contents
- Lack of dedicated CVC insertion procedure trolley
- Full body drape required for CVC insertion not available
- Not enough communication and collaboration among health care workers

Using the results of the above data and Focus PDCA methodology the following steps were implemented:

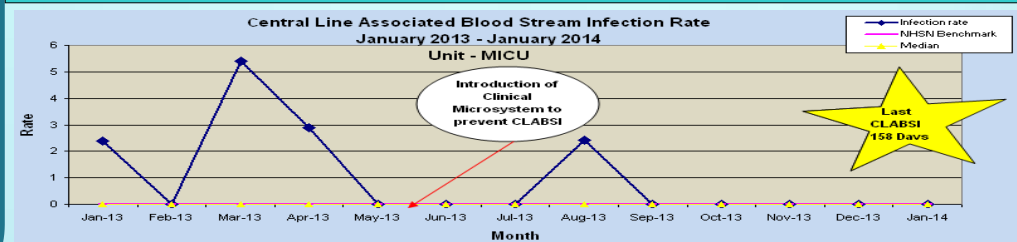
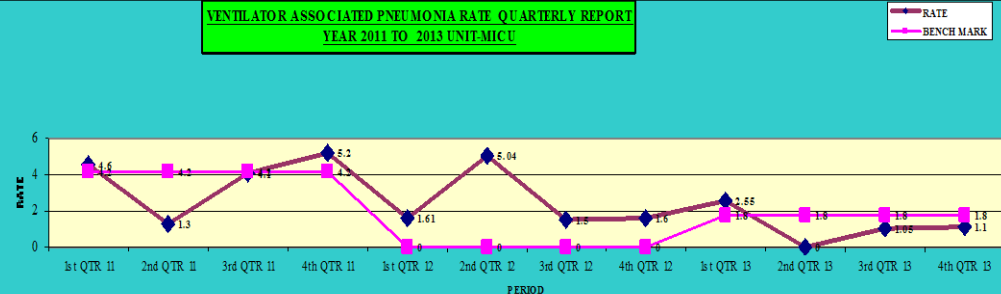
- Revising and updating the CVC insertion
- Implement a CVC maintenance bundle
- Staff education re. care bundles and new equipment
- Revision of CVC insertion kit
- Standardization of equipment and consumables
- Culture change towards cooperation and communication
- Dedicated CVC insertion trolleys

Results

Rate of CLABSI in MICU has been reduced significantly and maintained at 0% since September 2013 (one case in the last 9 months).



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Lessons learned/Critical success factors

- Spirit of team working leads to improved outcomes
- A systematic way of collecting data for analysis will identify gaps in practice and areas that require improvement and updating
- Full compliance of CVC bundle elements lead to low rate of CLABSI
- Importance of clinical Microsystem projects in solving complicated clinical problems

References

- CDC guidelines 2012
- IHI recommendations and guidelines 2013