

# Adoption of New Best Practices Eliminates CLABSI in Bone Marrow Transplant Unit

**Pam Farris, RN, MSN, OCN**  
**Wendy Mosier, RN, ADN**



**Presented at APIC 2011 Annual Conference**

June 27–29, 2011  
 Baltimore, Maryland

## Background and Significance

Central line associated blood stream infections (CLABSI) increase hospital costs, extend length of stay (LOS) and may be deadly for some patients. Bone Marrow Transplant (BMT) patients are particularly vulnerable and at higher risk of CLABSI due to a compromised immune system. The CDC reports over 80,000 CLABSI's occur in intensive care units (ICU) per year alone. The cost for extra healthcare needed to fight CLABSI's is between \$34,508 to \$56,000 per case. In an effort to reduce CLABSI in the University of Mississippi Health Care BMT unit, nurses sought to minimize CLABSI by implementing two methods to reduce CLABSI.

## Problem

In 2009, the CLABSI rate for the BMT unit at University of Mississippi Health Care (UMHC) was 5.30 (17 infections/3018 central line days). From January 2010 through August 2010, the rate was 3.62 (7 infections/1935 central line days), despite multiple attempts to eradicate them through the use of education, environmental practice changes and use of new products. The suspected source for the infections was intra-luminal contamination. Additionally, during that same time period, confirmed cases of vancomycin resistant enterococcus (VRE) increased.

## Objective

To implement innovative best practices to reduce CLABSI using Maxplus®, a needleless positive pressure valve connector, in combination with SwabCap®, a passive disinfection device.

## Method

Nursing staff on the BMT unit reviewed policies, best practices and products associated with the reduction of CLABSI. Based on these findings, in August 2010, the following changes were implemented:

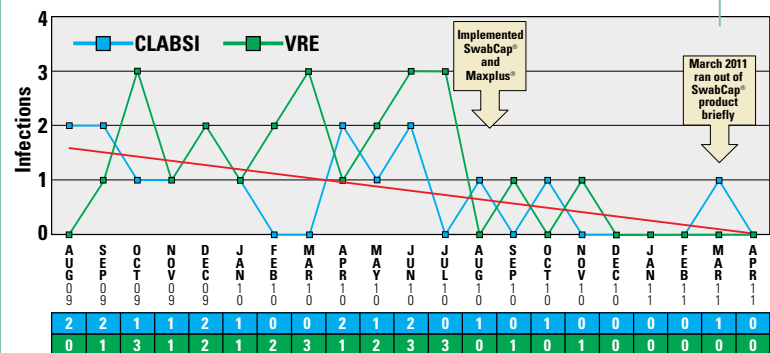
- BMT unit nurses became certified by the UMHC Institutional Review Board
- Policies were developed on how to obtain and document blood culture samples
- Positive pressure luer activated device (MaxPlus®) implemented
- Passive disinfection technique (SwabCap®) implemented
- BMT nurses received education on product use
- Data collection began September 2010

- Surveillance cultures were obtained on all patients entering the BMT unit *and* when a new central line was placed, to determine hospital acquired versus community acquired infection
- Positive blood cultures were recorded and documented along with the central line days and number of patient days (adults and pediatrics)



## Results

- CLABSI infections decreased after implementation of best practices.
- CLABSI rate after starting the use of SwabCap® and MaxPlus® was 1.04 infections per 1,000 central line days (2 infections/1915 central line days).



- Data revealed surprising finding of no VRE infections after four months of implementation of SwabCap® and MaxPlus®
- The rate of VRE January 2009 -Aug 2010 (pre-SwabCap®) was 5.2 infections per 1,000 patient days, (28 infections/5,387 pt days).
- VRE rate after starting the use of SwabCap® and MaxPlus® is 0.53 infections per 1,000 patient days (1 infection/1,864 pt days) .

## Recommendations

- Passive disinfection techniques along with positive pressure luer-activated devices can reduce CLABSI in vulnerable populations and should be used with patients with central line access.
- Concurrent data review during implementation and after implementation is critical to determine effectiveness and discovery of unidentified indications.