

Evidence-Based Device for Disinfecting IV Connectors Proves Effective Addition to Anti-Bloodstream Infection Practices and Education

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AVA 2011

25th Annual Scientific Meeting
San Jose, California
October 3–6



Purpose

To minimize central-line-associated bloodstream infections (CLABSIs), our hospital implemented the Institute of Healthcare Improvement central line bundle, joined two national preventive education initiatives coordinated by Johns Hopkins Hospital, and began bathing critically ill patients with chlorhexidine gluconate (CHG). This reduced the CLABSI rate to below the national average but did not eliminate infections.

The hospital's infection control team suspected inconsistent disinfection of IV connectors might at least partially account for the remaining infections. The customary method for scrubbing connectors with alcohol is not always followed by nurses, especially when they feel pressured by other responsibilities. At St. Francis, staff compliance with scrubbing was insufficient, even after repeated education.

Project Description

The infection control team suggested that an evidence-based device called a disinfection cap would thoroughly disinfect connectors. It would also potentially eliminate the variation issues with scrubbing and could facilitate compliance with connector disinfection. After a successful trial, the device was implemented hospital-wide in April 2010.



Disinfection cap protects IV connector and bathes connector top and threads in 70% IPA.

Major Outcomes

CLABSIs dropped by 62.6%, comparing January 2009–March

2010 (pre-implementation) to April 2010–June 2011 (latest data available).

Disinfection Cap: Pre-Implementation vs. Post-Implementation Data

	Pre-Implementation Period Jan. 2009–Mar. 2010	Post-Implementation Period Apr. 2010–June 2011	Most Recent Post-Implementation Period Jan. 2011–June 2011
CLABSIs/Catheter Days	19/15463	7/15162	1/6296
CLABSI rate per 1,000 catheter days	1.23	0.46	0.16
Percentage change from Pre-Implementation Period	NA	62.6% reduction	87% reduction

The rate from January–June 2011 was 0.16/1,000 line days, an 87% decrease compared to January 2009–March 2010. The disinfection cap was the only preventive product change made after March 2010. The overall drop in infection rate is therefore attributable to the device.

Conclusions/Implications for Practice

- Older preventive practices and education may be insufficient to prevent CLABSIs, unless supplemented by evidenced-based preventive technologies.
- If CLABSI rates are unsatisfactory, manual disinfection of IV connectors should be considered as a factor contributing to infection, because the method is prone to variation and noncompliance.
- A disinfection cap can be an effective addition to manual disinfection and should be supported with further education if CLABSI rates remain high.

Limitations

Prospective observational study following an intervention. Not a randomized controlled trial.

Disclosure Statement

Excelsior Medical is reimbursing the author for travel and hotel expenses for the conference.