STUDY SUMMARY

Significantly decreased rate of catheter-related bloodstream infections (CRBSIs) after discontinuation of a luer access device (LAD) at an academic medical center

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PURPOSE

University Medical Center (UMC) is a 359-bed acute care tertiary hospital affiliated with the University of Arizona in Tucson, Arizona. UMC switched from the Clave® needlefree connector to the SmartSite® needlefree connector in October 2003. Between 2004 and 2007, the facility experienced a steady increase in rates of CRBSIs. A decision was made to discontinue the SmartSite device and return to the Clave connector. The objective of this study was to compare the rates of CRBSIs before and after the return to the Clave and subsequent conversion to MicroClave®.

MATERIALS AND METHODS

CRBSIs were identified using CDC-NNIS definitions. There were no changes in policies or procedures for accessing the device, or methods of surveillance. UMC began reinstating the Clave connector in September 2007. Staff was educated over several weeks, and surveillance of CRBSIs began in October 2007. Mid-year in 2009, UMC converted to the MicroClave connector hospital-wide. In addition, aggressive campaigns were launched to improve hand hygiene compliance and adherence to central line change protocols.

RESULTS

Rates in CRBSIs declined by 43% following the reinstatement of Clave connector technology. Between the first and second quarters of 2008, following conversion of the Bone Marrow Transplant Unit to the use of the MicroClave, CRBSIs declined by another 47%. Hand hygiene compliance improved overall from 55% to 97% compliant.

Change in ICU CRBSI Annual Rates 2003-2009*

DEVICE	Clave**	SmartSite	SmartSite	SmartSite	SmartSite	Clave	MicroClave
YEAR	2003	2004	2005	2006	2007	2008	2009
CRBSI RATE***	3.13	3.88	4.22	5.09	5.96	2.83	2.64

*Excluding NICU ** Clave discontinued 10/2003 ***per 1000 catheter days

CONCLUSION

CRBSIs are a major detriment to patient safety and the financial health of the facility. The literature contains studies attributing poor hand hygiene, connectors, and failure to follow protocols as primary causes of increased infection rates. What must always be kept in mind is that more than one factor can be at work. All facilities should conduct bloodstream infection surveillance and track rate trends. And, whenever changes are made in an IV system, the impact of such changes should be evaluated early.