



Increased Catheter-Related Bloodstream Infection Rates After the Introduction Rates After the Introduction of a New Mechanical Valve Intravenous Access Port

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Flaws in the Study:

- A. The PPMV device was not used according to the manufacturers' instructions for use. "Along with the entire administration set, both the MV and PPMV device were changed every 96 hours." The manufacturer of this particular PPMV device actually recommends that the device be changed more frequently based on number of devices accesses rather than hours.
- B. Synchronization of the starting and stopping times for the PPMV group from all the data collection sites (ICU's) is questionable. As reported by the authors the begin use and end use dates from the various ICU's involved in the data collection were different and as such could effect the overall reported rate of BSI
- C. Synchronization of the collection sites (ICU's) so the reported data was evenly and equally reported for both the PPMV and MV groups. With various ICU's being included in the pooled data at different dates throughout the study period the number of ICU's and types of ICU's in the pooled data may have been different for each group. Because there are well known differences in the BSI rates associated with different types of ICU's the time period when a particular ICU was placed in the pooled data may affect the reported results. This is evidenced by spike in overall infection rate which occurred at the same time the Neuro ICU began to use new PPMV device in mid October 2004, six months after the begin date for data collection.
- D. The communication points out an increase in polymicrobial CRBSI's associated with gram negative bacilli, gram positive cocci, and yeast during the PPMV period but does not discuss the possible conditions or co-infections that may have been present in the patient population during this time period that could have contributed to this increase.

What was studied/reported:

1. Maragakis et al. "In the present study we report a temporal association between the introduction of a new PPMV access port and increased CR-BSI rates in our ICU's."

Conclusion:

2. "Healthcare facilities need to be aware of this possible association between the new technology and increases in healthcare associated infections."

Connectors Studied: Clave (before product) and Smartsite + (after product)

Limitations to Study:

3. "It must be noted that the data in this study are limited because they are observational, controlled, and from a single study site. Exact dates of the implementation of the use of the PPMV device were not available from some ICU's. In addition, there is variation in the CR-BSI rates over time, and many factors, such as catheter care, can affect these rates."

Product deficits identified by Author:

4. "MV devices have intricate access surfaces that are more difficult to disinfect than simpler split septum models. The fluid path in the MV devices has moving parts and at least 1 of the MV devices has internal corrugations that may serve as reservoirs and foster growth of microbial contaminants. Some of the devices have been noted by healthcare personnel to have incomplete flushing of blood from the fluid channel, and some are opaque, so that this would not be readily apparent to the user."

Further Research Suggested:

5. "More study is needed to compare the effects that MV technology (with and without positive-pressure feature) and other closed-system technology (such as the split-septum devices) have on patient outcomes."

References Cited:

6. Hall et al. "reported a 61% increase in nosocomial BSI rate after introduction of a new MV intravenous port at the University of Virginia."(Interlink to Ultrasite)