



A Study of the Effects on Bacteremia and Sharps Injury Rates after Introduction of an Advanced Luer Activated Device (LAD) for Intravascular Access in a Large Hospital Setting

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Flaws in the Study:

- A. This was an observational, before and after study at a single site.
- B. This study does not discuss differences or similarities in the medical condition of patients in each population.
- C. Various types of catheters with varying number of lumens were used in the study. It is unknown if the two groups remained homogeneous throughout the study period as it relates to catheter types.
- D. Microorganisms varied between the before and after study groups which could indicate other factors were influencing study results.
- E. Compared to similar observational studies comparing needleless vascular access device performance, this report appears to exhibit a higher level of scientific control.

What was studied/reported:

1. *“The study summarized here attempts to determine the effects on BSI and SI rates when using an advanced LAD combined with direct observations to measure protocol compliance with surface antisepsis.”*

Conclusions:

2. *“The results of this study suggests that use of an advanced LAD device in coordination with adherence to proper infection control practice does not contribute to increases in either BSI rates or sharps injuries.”*

Connectors Studied: Interlink (Before) to Flolink (MaxPlus) (After)

Limitations to the Study:

3. The author did not note any limitations.

Product Deficits Identified by Authors:

4. *“The complexity of the design appears to be associated with an increase in bacterial transfer in many of the currently manufactured mechanical valves.”*

Product Qualities Identified by Authors:

5. *“The LAD in this study was reviewed by several internal committees, including the Products Evaluation Committee, on which both Infection Control and Bio-Medical Engineering serve. Review of information on the device indicated several features which assisted in the approval process; a smooth, flat surface devoid of any significant crevices, no interstitial space; a dual seal design; a positive fluid pulse that eliminates clamping during flush procedures; and high flow rates.”*

References Cited:

6. Maragakis et al. *“Maragakis and colleagues at John Hopkins Hospital reported before/after rates of 1.50/2.40 in adult ICU patients when switched from a mechanical valve without positive pressure to one with positive pressure. Although 70% alcohol was cited as being used, compliance with using this protocol was not indicated.”* (Clave to Smartsite Plus)
7. Salgado et al. *“Salgado and colleagues reported a BSI increase from 1.79 infections per 1000 catheter days to 5.41 when SSDs were replaced with a LAD.”* (Interlink to Smartsite)
8. Rupp et al. *“Similar outcomes were reported by Rupp and colleagues when a switch was made from an SSD to a positive displacement LAD.”* (Interlink to Smartsite Plus)