
Abstract:

Background/Purpose - Although annual rates of catheter-related bloodstream infections (CR-BSI) in a comprehensive cancer center were below the national average, further reductions were sought. Research indicates that contamination of a catheter’s intraluminal pathway is a major cause of CR-BSI. Connectors are the gateway to the intraluminal pathway and studies link positive displacement, negative displacement, and split septum connectors to CR-BSI.

Project Description - The infusion therapy team piloted a zero fluid displacement (ZFD) connector based on the design of the ZFD, which appeared uniquely suited to CR-BSI prevention. A product trial was performed in intensive care units to compare the CR-BSI rates associated with the current split septum connector to the ZFD connector. The design was quantitative and quasiexperimental.

Results - During the trial, CR-BSI rates decreased from 4.2 (2,331 catheter days) with the split septum connector, to 0.4 (2,477 catheter days) with the ZFD connector. Six months after institutional implementation of the ZFD connector there were zero CR-BSI in the intensive care units across 4,424 catheter days, despite the complexity and acuity of a largely
immunocompromised oncology patient population. The previous 6 months with the split septum the CR-BSI rate was 2.24 across 4,920 catheter days.

Conclusions – Our institution’s success suggests that protecting the intraluminal pathway with a properly designed connector may be more crucial to the prevention bundle than is widely understood or practiced. Other hospitals may achieve comparable results by implementing a similar device.

Thank you to our partners for supporting IVTEAM