

Rosenthal VD. Probability of Developing a Central Vascular Catheter Associated Bloodstream Infection When Comparing Open and Closed Infusion Systems in Argentina. In: Proceedings and Abstracts of the 8th Annual Meeting of the International Federation of Infection Control 2007 Oct 18-21; Budapest, Hungary; 2007. p. 35.

## Probability of Developing a Central Vascular Catheter Associated Bloodstream Infection When Comparing Open and Closed Infusion Systems in Argentina

V.D. ROSENTHAL<sup>1</sup>

1- Medical College of Buenos Aires, Argentina.

### OBJECTIVE:

Determine probability of developing central vascular catheter associated bloodstream infection (CVC-BSI) when comparing open (plastic semi rigid container) and closed infusion systems (Viaflex®) in 4 ICUs in Argentina.

### METHODS:

An open label, prospective cohort, active healthcare-associated infection surveillance, sequential study was conducted in adults with CVC in place  $\geq 24$  hours. NNIS definitions were used for device-associated infections. Probability of developing CVC-BSI was compared between open and closed system periods. Time to first CVC-BSI was examined in sequential 3-day intervals and analyzed using log rank test and graphically using Kaplan Meier curves. . Simple life table conditional probabilities are presented graphically to explain changing risk of CVC-BSI over time.

### RESULTS:

From Aug99 to Mar02, 979 patients were enrolled. Compliance with CVC site care ( $\geq 86\%$ ) and hand hygiene ( $\geq 66\%$ ) was achieved. Open period CVC-BSI rate was 10.0 CVC-BSI per 1000 CVC days and 3.5 during closed period (RR=0.34, 95% CI=0.15–0.77, P=0.007). Six clinical sepsis events occurred in open period versus zero in closed period. In closed period, conditional probability of acquiring a CVC-BSI was relatively constant (0.0% days 2-4 to 0.0% days 11-13). In open period, conditional probability of acquiring a CVC-BSI was higher in each interval compared to closed period, ranging from 2.3% days 2-4 to 1.0% days 11-13. Chance of a patient acquiring a CVC-BSI was significantly decreased (76%) in closed period (Cox proportional hazard ratio 0.24, P=0.001).

### CONCLUSION:

Adoption of a closed infusion system resulted in significant reductions of cumulative probability of developing a CVC-BSI.