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## Closed intravenous systems for central vascular access: A difference maker for CLABSI rates in neonates?

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**Background:** Infants in neonatal units are susceptible to numerous potential iatrogenic risks. One key concern is Central Line-Associated Blood Stream Infection (CLABSI). To ensure patient safety and reduce the incidence of CLABSI toward zero, numerous evidence-based clinical interventions and product innovations have been implemented. Nevertheless, sustaining zero CLABSI for sustained periods remains challenging.

**Purpose and outcome:** The purpose of this study was to evaluate the impact on CLABSI rates of introducing a preassembled closed Intra-Venous (IV) administration set in a neonatal intensive care unit.

**Method and setting:** This was a retrospective observational analysis of routinely collected anonymized IV therapy infection data in a NICU. The study period was from January 2019 through June 2020.

**Results:** Nine-hundred eighty five patients with a Epicutaneo-Caval Catheter (ECC) were included (456 legacy IV set, 529 closed IV set). Patient demographics were comparable between the two groups. ECC dwell time was the only IV characteristic associated ( $p=0.04$ ) with CLABSI. Mann-Whitney U-test demonstrated significant differences between the two sets for CLABSI complication events ( $p=0.031$ ). Prior to using the closed IV administration sets (January 2019–September 2019) the mean monthly CLABSI rate was 2.87 (/1000 device days). This figure declined to 0.22 (/1000 device days) afterwards (October 2019–June 2020). Zero CLABSIs were observed during January to June 2020.

**Conclusion:** Utilization of a pre-assembled closed IV administration set was associated with a reduction in CLABSI rates. The study results suggest that using a pre-assembled closed IV set concurrently with evidence-based central line infection control interventions can help attain extended periods of zero CLABSI.

### Biography

Matheus ('Roland') van Rens has over twenty years clinical experience in neonatal nursing and holds a MA in Advanced Nursing Practice, from Erasmus University, the Netherlands. He has worked as an advanced neonatal nurse practitioner, performing complex vascular access procedures, developed, and delivered multi-professional education activities and carried out clinical research in Europe and more recently in the Middle East. Latterly as a Clinical Director of Nursing for the New-born Intensive Care Unit (NICU) at Women's Wellness and Research Center, Qatar. His research engages with issues around improving neonatal care, most notably around the broad topic of vascular access. With his international research collaborators and co-authors, he has presented at international conferences and published several referred journal articles concerning neonatal vascular access, infusion therapy and related technology. Currently, he is preparing for his PhD study in the Netherlands.