Central Line Infection Rate Reduction: An EBP Project
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Problem: In 2008, Neonatal Intensive Care Unit (NICU) Central Line Associated Bloodstream Infection (CLABSI) rates were above the national Vermont Oxford Network benchmark. The goal was to decrease central vascular catheter infection rates through implementation of an EBP project. A Plan-Do-Study-Act design was utilized for implementation of evidence-based guidelines.

Evidence: CLABSI is a known cause for increased morbidity, mortality, and financial burden for NICU families, with estimated costs of $10,530 per CLABSI. Current practices pose as sources central line contamination, including frequent line manipulation, keeping lines longer than medically indicated, reuse of multi-dose vials, gaps knowledge, and long-term Total Parenteral Nutrition administration.

Strategy: An interdisciplinary team, including Infection Prevention, Quality Improvement, and NICU, reviewed infection rates and developed a reduction plan. Review of literature research and consultation with adult units was conducted for identification of infection reduction practices. The Centers for Disease Control and Prevention recommendations were the EBP guidelines adopted.

Practice Change: Education of practice changes was conducted. Changes included switch from positive pressure to neutral pressure ports, non-sugar fluids for TKO central lines, no multi-dose containers, and cleansing ports for 10 seconds before access. After nine months, secondary education included continued diligence of sterile technique for central lines. An antiseptic skin preparation of 2% chlorhexidine gluconate in a 70% isopropyl alcohol base was utilized for cleansing of skin for infants >27 weeks gestation or > 7 days old (off label use). Checklists for central line handling were implemented.

Evaluation: Daily culture reports were reviewed. Infection rates were 8.8/1000 catheter days at the initiation of the project. Infection rates at nine months post-intervention were 3.9/1000 catheter days. Infection rates after the second initiation of interventions dropped to 0/1000 catheter days.

Recommendations: Diligence in maintaining sterility with central line insertion and maintenance has proven successful and should guide efforts in infection prevention.

Lessons Learned: Implementation of a multifaceted central line infection prevention bundle within our NICU has substantially decreased CLABSI rates.

Bibliography