A Standardized Approach to CLABSI Elimination
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**Problem:** Central venous access devices are integral in treating pediatric malignancies. Hospital-acquired central line associated blood stream infections (HA-CLABSIs) are complications of therapy and significant sources of morbidity and mortality.

**Evidence:** Prolonged, frequent neutropenia plus long-term use of indwelling access devices are bacteremic risks in patients with hematologic/oncologic disease (Urrea et al., 2004; Adler et al., 2006).

**Strategy:** In 2006, the National Association of Children’s Hospitals and Related Institutions (NACHRI) researched best practice in central line maintenance in the Pediatric Intensive Care (PICU) setting. Successful reduction of HA-CLABSIs raised question if similar adaptations would elicit comparable effects in the pediatric hematology/oncology (hem/onc) population.

**Practice Change:** Historic HA-CLABSI rates on the inpatient hem/onc unit at a large pediatric facility were determined via retrospective review of medical records. In order to eliminate HA-CLABSI, the following were implemented: central line maintenance bundles, developed by NACHRI Hem/Onc CLABSI Collaborative Faculty; staff and family education; weekly compliance audits; and use of central line maintenance carts. Root Cause Analyses were performed for each HA-CLABSI, and reinforcement provided based on findings.

**Evaluation:** HA-CLABSI rates were evaluated per Centers for Disease Control Guidelines.

**Results:** Retrospective analysis (2006 – 2008) revealed a mean HA-CLABSI rate of 5.42 infections per 1000 central line days. Organization-wide implementation of PICU maintenance efforts began in 2009, eliciting a reduction to 2.67/1000 line days. Hem/onc-specific CLABSI reduction interventions occurred in 2010, prompting further decrease to 1.82 infections per 1000 central line days.

**Recommendations:** Significant reduction was seen in HA-CLABSI with implementation of standardized maintenance bundles, staff and family education, and use of central line maintenance carts. Factors other than maintenance techniques likely play into prevalence of CLABSIs in the pediatric hem/onc population, prompting investigation into primary and secondary sources of infection.

**Lessons Learned:** Staff compliance with maintenance bundles was erratic by audits of self-disclosure, ranging from 50 to 100% adherence. Further education and reinforcement, as well as addressing possible environmental or self-contained contaminants are essential.

**Bibliography:**
