

## **Evidence-Based Practice Decreases Catheter Related Infections in PICU**

**Jennifer Hinrichs, MSN, RN, CCRN, [jhinrichs@clarian.org](mailto:jhinrichs@clarian.org)**

**Riley Hospital for Children**

### **Problem:**

Central Venous Catheter (CVC) related bloodstream infections (BSI), in the PICU, doubled from unit benchmark of 5 infections per 1000 CVC days during third and fourth quarter of 2004. CVC lines were entered for blood sampling multiple times daily. Arterial lines did not allow for closed system sampling, and CVC care showed variance. Patient PICU stay increased, as did hospital cost.

### **Evidence:**

A literature search determined implementing the IHI BSI Bundle as best practice in caring for CVCs. BSI leads to increased hospitalization and cost for patients. A closed system arterial line set-up showed a decrease in BSI.

### **Strategies:**

A multidisciplinary group reviewed evidence and agreed on practice changes.

### **Practice Changes:**

The VAMP Jr (Venous Arterial blood Management Protection System) was added to arterial lines, replacing a 3-way stopcock system maintaining a closed, needleless system. The VAMP Jr provides a system to obtain a non-contaminated specimen with a self-sealing, needleless Z-site sampling port.

Chlorahexidine skin preparation for all central access insertion and dressing changes replaced betadine skin preparation.

A CVC insertion kit was compiled to place CVC's at the bedside. This kit contains all necessary supplies, including maximum barrier supplies, required to place a CVC.

Hand Hygiene program was implemented increasing awareness of the importance of handwashing in relationship to infection and cross contamination.

### **Evaluation:**

Infection Control tracks BSIs per CDC guidelines.

### **Results:**

Initial BSI rate/1000 CVC days during second quarter 2004 was 10 –17. Successive interventional strategies over an 8-month period decreased the PICU BSI rate by 88%. Third and fourth quarter 2005 data shows less than 1 BSI/1000 CVC days per month.

### **Recommendations:**

- PICU task force to identify BSI risk
- Hospital task force to develop system wide interventions
- Share unit data with staff nurses – celebrate accomplishments
- Continued use of practice changes