

# Central Venous Catheter-Associated Complications in Pediatric Patients with Acute Myeloid Leukemia

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**Introduction.** Central venous catheters (CVCs) are mainstays of pediatric cancer treatment but can cause complications, including local-site infections and central-line-associated bloodstream infections (CLABSIs). Analyzing CVC-associated complication rates may inform future decisions about CVC choice. We hypothesized that tunneled-cuffed catheters (tunneled) have higher rates of CLABSIs than implanted ports (ports) and ports have higher rates of local-site infections than tunneled.

**Methods.** A retrospective chart review identified patients diagnosed with acute myeloid leukemia (AML) at Children's Mercy Hospital from 2010-2022. Demographic data and CVC details were collected. CVCs were categorized as tunneled, port, peripherally inserted central catheter (PICC), or other. One-tailed t-tests compared rates of CLABSIs and local-site infections per 1000-line days for port and tunneled catheters. ANOVA compared rates of non-infectious complications per 1000-line days for the three CVC types.

**Results.** Ninety patients identified included 48 females, 42 males; median age 7.54 years. Tunneled averaged 10.1 CLABSIs and 1.56 local-site infections per 1000-line days, and ports averaged 4.18 CLABSIs and 3.08 local-site infections per 1000-line days. T-tests showed significantly higher rates of CLABSIs for tunneled compared to ports ( $t = 1.99$ ,  $df = 139$ ,  $p = 0.049$ ), but a nonsignificant difference in rates of local-site infections. Non-infectious complications occurred 32 times, and ANOVA showed a significant effect of CVC type on instance per 1000-line days ( $F = 6.17$ ,  $df = 2$ ,  $p = 0.003$ ). PICCs caused significantly more than ports ( $p = 0.026$ ) and tunneled ( $p = 0.003$ ).

**Conclusions.** In this single center review, the choice of tunneled catheter increased risk of CLABSI but not local-site infections. The choice of PICCs increased the risk of non-infectious complications.