

Efficacy and Safety of Mini-midlines, Midlines and PICCs in a Pediatric Surgical Hospital in Uganda: A Prospective Study

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Background

Intravenous access is essential for hospitalized paediatric patients. Short peripheral cannulas (SPCs) have a limited dwell time (24 hours; ERPIUP Consensus, 2021), often requiring repeated insertions. **Peripherally Inserted Catheters (PICs), including mini-midlines, midlines and PICCs**, offer **longer dwell times**, facilitate completion of intravenous therapy, particularly in **children with difficult intravenous access** and are associated with **fewer complications** than centrally inserted central catheters (CICCs). Despite widespread use in high-income countries, **PICs adoption in paediatric care remains limited in many African settings**.

Objectives

To evaluate the **efficacy and safety** of introducing **mini-midlines, midlines, and PICCs** in paediatric patients at the **EMERGENCY Children's Surgical Hospital in Entebbe, Uganda**, following adaptation of international vascular access guidelines to the local context.

Materials and Methods

A prospective cohort study was conducted. **Children** aged 0–18 years **requiring intravenous therapy for more than four days or with a DIVA score ≥ 4** were enrolled, while patients requiring SPC or CICC were excluded. **International vascular access guidelines were adapted to the local setting**, incorporating recommendations for catheter insertion, maintenance and complication management. All devices were inserted under **ultrasound guidance**. Catheter securement was achieved using adhesive sutureless devices and highly breathable transparent dressings.

Results

Between February and December 2025, 45 paediatric patients (mean age 3 years 3 months; median age 1 year 5 months) underwent ultrasound-guided PIC placement, including **mini-midlines (n=15), midlines (n=26) and PICCs (n=4)**. **Mean catheter dwell time was 11 days** (median 9; [3–27]). Overall, **89% of catheters remained functional until therapy completion**; 5 were removed due to dislodgement. **In 18 infants, 2 Fr devices remained functional in 89.4% of cases** (mean 10.4 d). **No catheter-related bloodstream infections or symptomatic thromboses** were observed.

Conclusion

Peripherally inserted catheters appear to be a safe and effective option for paediatric vascular access in surgical settings when **international guidelines are adapted to the local context**. **High therapy-completion rates and the absence of major complications** support their role in **improving paediatric vascular access management**. The introduction of cyanoacrylate adhesive for catheter securement may further reduce catheter dislodgement. Larger prospective studies are warranted.

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