Clinical Audit of PICC and Midline Management: Identifying Quality Gaps and Advancing Best-Practice Implementation

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Background

Intravascular catheter infections account for approximately 10% of nosocomial infections; surveillance targeting complication reduction should be systematic. Healthcare professional adherence to evidence-based best practices significantly influences vascular access device outcomes.

Objectives

To conduct comprehensive clinical audit evaluating healthcare professional adherence to evidence-based best practices in PICC and midline positioning, management, and removal across medical wards.

Methods

Structured clinical audit with direct observation by 11 nurses with advanced vascular access competencies. Eight medical wards observed with 42 total observation hours (October-November 2019). Eleven standardized checklists developed covering: patient assessment, peripheral/central catheter positioning, blood sampling, infusions, dressing changes, surveillance, device removal. Observations recorded as presence/absence of criteria with structured debriefing after each 3-hour session.

Results

412 observations conducted on 130 patients across eight medical wards. Comprehensive findings identified critical compliance gaps: (1) hand hygiene protocols observed in 70% (except dressing changes at 100%); (2) patient assessment forms present in 95.2% but incomplete in 43%; (3) appropriate device selection in only 59% of cases; (4) connector disinfection techniques suboptimal; (5) device removal documentation in only 40%; (6) medical-nursing documentation 70-90% depending on practice. Inappropriate peripheral cannula use remains prevalent; systematic device necessity assessment not yet routine practice.

Conclusions

Study identified significant areas for practice improvement despite generally positive adherence patterns. Recommended intervention: structured field-based training (FCS) addressing identified gaps, integrating workplace context and professional expertise. Training improves compliance with best practices, enhances professional competencies, and ensures safer, more effective vascular access care delivery.