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BACKGROUND

Ultrasound-guided peripheral intravenous (UGPIV) insertion is an established technique for patients with difficult intravenous access – common in paediatric patients. UGPIV insertions account for most procedures by the vascular access service at this Canadian paediatric tertiary care centre.

**UGPIV insertions
= 65% of IV insertions
~450 per month**



Workflow variation



Inconsistent methods of probe protection



Probe manipulation on key-site

The Canadian Vascular Access Association (CVAA) 2024 Standards highlight ANTT® as the standard of care in IV insertion. While ultrasound guidance improves vascular access success, it introduces additional challenges to maintaining ANTT®:

PURPOSE

The purpose of this prospective quality improvement initiative was to determine whether a transparent integrated probe barrier dressing, combined with procedure standardization and education, improves workflow and ANTT® adherence during UGPIV insertion.



METHODS

The prospective quality improvement initiative applied the Plan-Do-Study-Act framework with pre- and post-implementation observational audits of UGPIV insertions. A select group of nurses (6) within the vascular access service were included in the training and observational audits. Post-implementation feedback was collected on usability and clinician satisfaction.

Observational audits and data collection pre- and postimplementation:

Pre-implementation audits (n=26) of ANTT® adherence for UGPIV insertions revealed:

- Inconsistent adherence to ANTT® poor key-part and key-site protection
- Varied methods of probe protection, if at all
- Inadequate skin antisepsis
- Missed hand hygiene opportunities
- Opportunities for partner coaching

Standardized workflow redesign including:

- Dedicated stainless steel tray
- Integrated probe barrier dressing
- Defined hand hygiene moments
- Timing of skin antisepsis

Multi-modality education and training:

- Hands-on workshop with task trainers
- 1:1 bedside training
- Just-in-time coaching

RESULTS

Marked improvements in adherence to ANTT® across all domains measured following implementation of the standardized workflow.

High clinician satisfaction with the integrated probe barrier dressing ease of use across paediatric patient populations.

PRE-IMPLEMENTATION

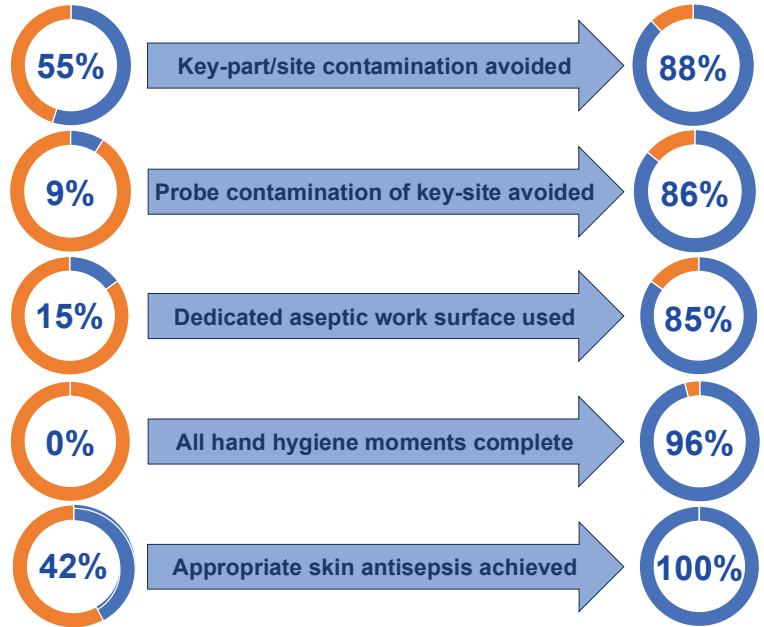


POST-IMPLEMENTATION



Pre-Implementation (n=26)

Post-Implementation (n=25)



PRACTICE IMPLICATIONS



Standardized workflow redesign improves adherence to enhance ANTT® elements during UGPIV insertion among paediatric patients



Combining an integrated probe barrier dressing, defined hand hygiene moments, adequate skin antisepsis and a dedicated sterile aseptic field reduces opportunities for key-part and key-site contamination and mitigates risks of phlebitis and catheter related infection



Workflow supports safe, consistent ultrasound practice in a fast-paced high-volume paediatric – expanded training for all ultrasound proficient IV inserters



Ongoing auditing and monthly reporting, including infection rates, reinforces adherence to ANTT® practices, supports maintenance of competency and correct product use



CONCLUSIONS

The positive outcomes of this standardized workflow offers a scalable strategy across paediatric and adult populations. Use of the integrated probe barrier dressing as the standard of practice, along with the other bundled elements, align with vascular access safety and infection-prevention priorities.

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