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#### Reference:

Malyon, L., Ullman, A.J., Phillips, N., Young, J., Kleidon, T., Murfield, J. and Rickard, C.M. (2014) Peripheral intravenous catheter duration and failure in paediatric acute care: A prospective cohort study. *Emergency Medicine Australasia*. October 23rd. .

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#### Abstract:

**OBJECTIVE:** Children admitted to hospital commonly require peripheral intravenous catheters (PIVCs) for treatment. This study sought to address a gap in the literature about current practice in the securement and dressing of PIVCs in paediatric acute care, and to ascertain the duration and failure of these devices.

**METHODS:** A prospective cohort study conducted at the Royal Children’s Hospital in Queensland, Australia. All patients aged 0-15 years, who presented to the ED between 16 July and 16 October 2012, and had a PIVC inserted prior to emergent admission to the hospital

were included.

**RESULTS:** Of 458 participants, median device duration was 29 h (IQR 13-58 h), and ranged from less than 1 h to 16 days. One quarter (113/456, 24.8%) of PIVCs were removed due to device failure, presenting as: infiltration (65/456, 14.3%); accidental dislodgement (23/456, 5.0%); blockage (12/456, 2.6%); phlebitis (7/456, 1.5%); or 'other' (6/456, 1.3%). PIVC securement and dressings were predominantly bordered polyurethane dressings and splints (n = 457/458, 99.8%). PIVC placement in the antecubital fossa, in comparison to the hand, was significantly associated with an increased risk for failure (P = 0.03). No other patient and device characteristics had a significant association with device failure (P > 0.05). The median dwell time of PIVCs that failed was significantly longer than the PIVCs that did not fail (44.0 vs 25.5 h; P = 0.002). Less than half (53/113, 46.9%) of failed catheters were replaced with a new PIVC.

**CONCLUSIONS:** Observed failure rates were high for a clinically essential device; however, there is no established rate of acceptability against which the results can be benchmarked against to facilitate effectiveness of practice. Many PIVCs appeared to remain in place longer than needed. Dressing and securement practice was homogenous. PIVC placement in the antecubital fossa should be minimised to reduce the risk of paediatric PIVC failure.

**Thank you to our partners for supporting IVTEAM**



