



Modifiable risk factors should inform education and inserter skill development to reduce the currently high rate of PIV failure” Marsh et al (2017).

Abstract:

**BACKGROUND:** Almost 70% of hospitalized patients require a peripheral intravenous catheter (PIV), yet up to 69% of PIVs fail prior to completion of therapy.

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**OBJECTIVE:** To identify risk factors associated with PIV failure.

**DESIGN:** A single center, prospective, cohort study.

**SETTING:** Medical and surgical wards of a tertiary hospital located in Queensland, Australia.

**PARTICIPANTS:** Adult patients requiring a PIV.

**MEASUREMENTS:** Demographic, clinical, and potential PIV risk factors were collected. Failure occurred if the catheter had complications at removal.

**RESULTS:** We recruited 1000 patients. Catheter failure occurred in 512 (32%) of 1578 PIVs. Occlusion/infiltration risk factors included intravenous (IV) flucloxacillin (hazard ratio [HR], 1.98; 95% confidence interval [CI], 1.19-3.31), 22-gauge PIVs (HR, 1.43; 95% CI, 1.02-2.00), and female patients (HR, 1.48; 95% CI, 1.10-2.00). Phlebitis was associated with female patients (HR, 1.81; 95% CI, 1.40-2.35), bruised insertion sites (HR, 2.16; 95% CI, 1.26-3.71), IV flucloxacillin (HR, 2.01; 95% CI, 1.26-3.21), and dominant side insertion (HR, 1.39; 95% CI, 1.09-1.77). Dislodgement risks were a paramedic insertion (HR, 1.78; 95% CI, 1.03-3.06). Each increase by 1 in the average number of daily PIV accesses was associated (HR 1.11, 95% CI 1.03-1.20)-(HR 1.14, 95% CI 1.08-1.21) with occlusion/infiltration, phlebitis and dislodgement. Additional securement products were associated with less (HR 0.32, 95% C-0.46)-(HR 0.63, 95% CI 0.48-0.82) occlusion/infiltration, phlebitis and dislodgement.

**CONCLUSION:** Modifiable risk factors should inform education and inserter skill development to reduce the currently high rate of PIV failure.

Reference:

Marsh, N., Webster, J., Larson, E., Cooke, M., Mihala, G. and Rickard, C.M. (2017) Observational Study of Peripheral Intravenous Catheter Outcomes in Adult Hospitalized Patients: A Multivariable Analysis of Peripheral Intravenous Catheter Failure. *Journal of Hospital Medicine*. October 18th. .

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