



St John

Paramedic insertion of peripheral intravenous catheters, unused catheter rates, and influencing factors: A retrospective review

Eleanor Golling, St John WA

Dr Nigel Barr, University of the Sunshine Coast

Professor Thea van de Mortel, Griffith University

Dr Peta-Anne Zimmerman, Griffith University





Background

PIVC insertion one of the most common procedures

- High rates of PIVCs insertion and unused PIVCs in ED patients (Ambulance inserted PIVCs usually excluded)
- Paramedic international studies – insertion rates 21-58% and 39-72% remain unused

Limited data for paramedic PIVC rates in Australia

- Mason et al (2020) - QAS data 20.3% insertion rate. Unused data not collected
- Evison et al (2021) – Single site ED in QLD unused rate of 39.5%



Aim

Investigate the incidence of paramedic inserted PIVCs, unused PIVCs and factors that influenced practice.

Methods

Retrospective review of electronic patient care records for Western Australian ambulance service patients attended in 2020. Patient, environmental, and paramedic characteristics were explored using logistical regression.

Patient	Environment	Paramedic
Age	Operational region	PIVC site
Gender	Day or night	Insertion attempt
Chief complaint		Insertion success
Problem urgency code		Blood collection



Results

Descriptive

- **187,585** records were included
 - **20.3%** had a PIVC inserted
 - **44%** remained unused
-
- **82.3%** insertion success (84.1% v 80.3% males v females)
 - **81.2%** - First time success
 - **R cubital fossa** – most common site

Influencing Factors

PIVC Insertion	Unused PIVCs
Male	Older age
Cardiac, abdominal and musculoskeletal conditions	Respiratory, cardiac and neurological conditions
Higher patient acuity	Paramedic years of experience
Metropolitan location	PIVC site



Recommendations

Review Clinical Practice Guidelines

Clinical Education

Clinical Leadership

Research

Conclusion

First large-scale study on unused rates

Many PIVCs inserted by paramedics may not be clinically indicated.

Currently no clearly defined clinical indication criteria for PIVC insertion for paramedics in Australia.

Further research needed into effective interventions.

