



Vein Occupancy Ratio and Rates of Venous Thromboembolism in patients with a PICC

Rebecca Sharp¹ Melita Cummings² Adrian
Esterman¹ Carol Grech¹ Andrea Fielder¹
Antonina Mikocka-Walus³

¹ University of South Australia ² Royal Adelaide Hospital

³ University of York

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Financial Disclosures

The authors have no relevant financial relationships.

Background

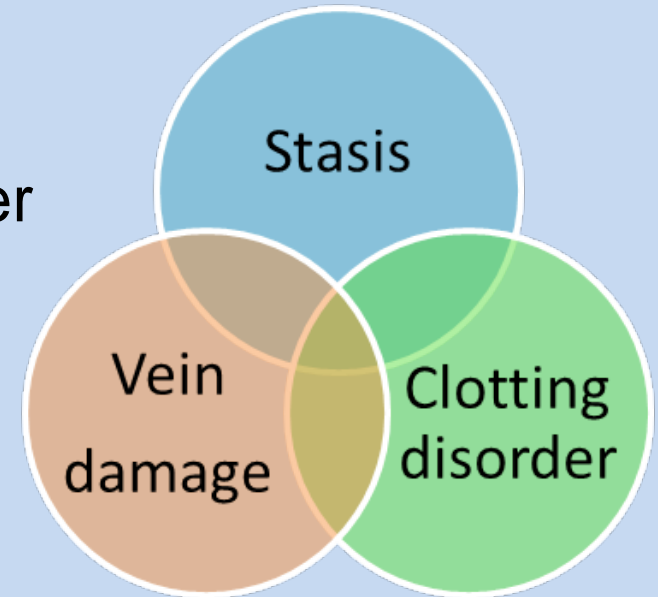
-VTE - Virchow's triad

- Increased risk of VTE with larger catheters

(Grove and Pevec 2000; Evans 2010; Marnejon 2012; Evans 2013; Chopra 2014)

- Larger multi-lumen PICCs
– clinical reality

-Some suggest occupy
no more than 33-50% of vein



**What is a safe vein
occupancy ratio?**

Method

- 163 Adults awaiting PICC insertion recruited

- Vein diameter at insertion site measured using ultrasound

- Follow up 8 weeks Ultrasound & CT reports (27 lost to follow up)

- Outcome measure = **Symptomatic VTE** (PE or superficial/deep vein thrombosis)

Vein occupancy ratio =

$$\frac{\text{PICC diameter}}{\text{Vein diameter}}$$

Results

136 Participants



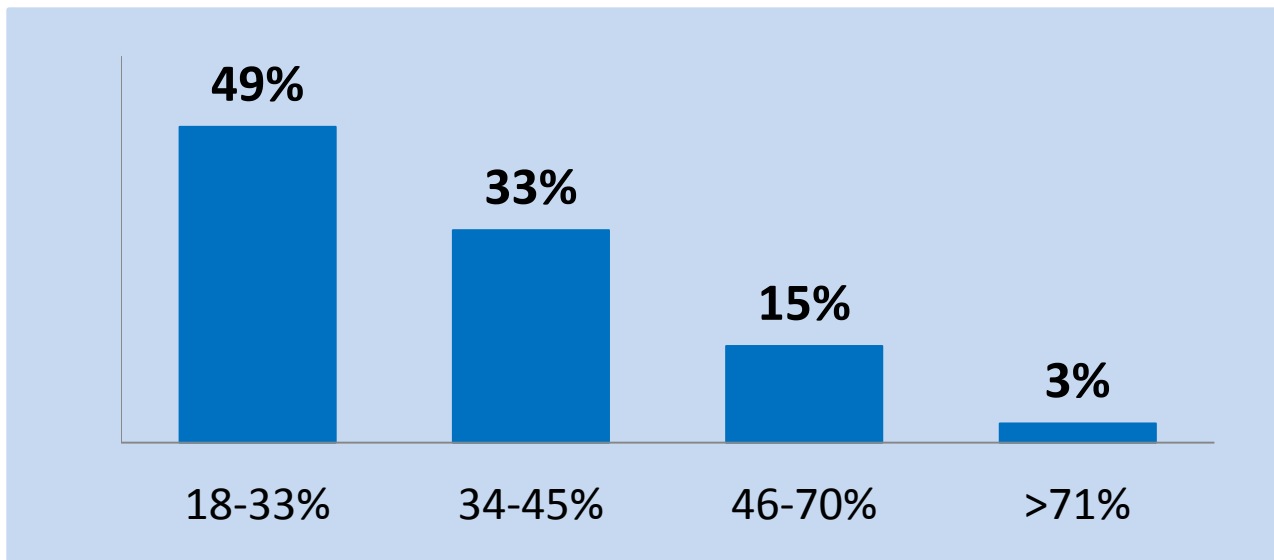
- Cancer
- Infection
- Other



46%



54%



Vein occupancy ratios

4 cases of confirmed VTE

2 – DVT

1 – SVT

1 – PE (with probable DVT but included as PE only)

All participants with a VTE had a malignancy and received chemotherapy

45%

vein occupancy ratio was the ideal cut off point to maximise sensitivity and specificity

(AUC 0.761; 95% CI 0.681- 0.830; Sensitivity 75; Specificity 83)

With a vein occupancy ratio >45% participants were **13** times more likely to suffer VTE (RR 13, p=0.022; CI 1.445-122.788)

Discussion

Recommendation • • • • • • • • • • • • • •



Low number of VTE – PICC nurse practice
Cancer patients

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