

Vascular access device (VAD) securement in neonates and children

Professor (Dr) Amanda Ullman

WoCova 
7th World Congress on Vascular Access

Different devices

e.g., umbilical catheters, smaller sizes



Different anatomy

e.g., skin layers, adiposity

Different conditions

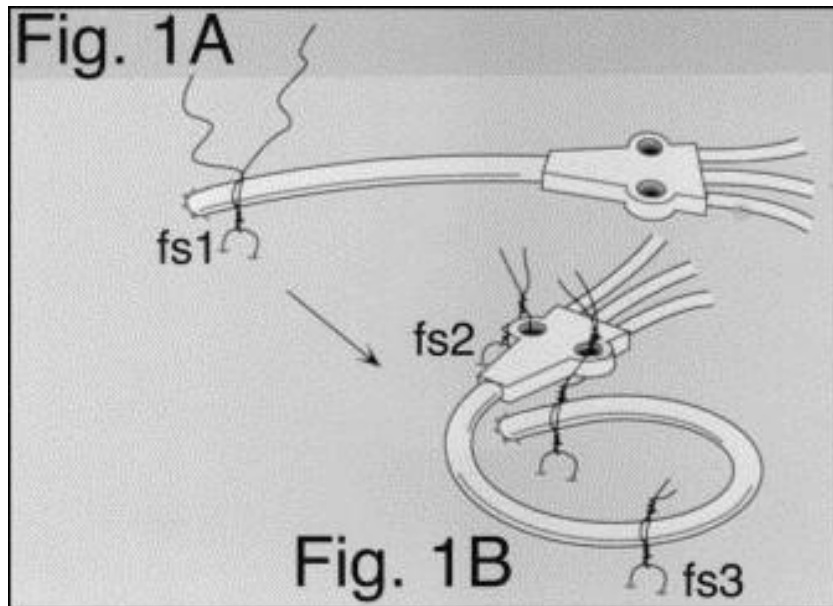
e.g., congenital cardiac abnormalities

Different complication risk

e.g., infections

Children are not little adults





Trusted evidence.
Informed decisions.
Better health.

Title Abstract Ke

Cochrane Reviews ▾

Trials ▾

Clinical Answers ▾

About ▾

Help ▾

Cochrane Database of Systematic Reviews | Review - Intervention

Gauze and tape and transparent polyurethane dressings for central venous catheters

✉ Joan Webster, Donna Gillies, Elizabeth O'Riordan, Karen L Sherriff, Claire M Rickard Authors' declarations of interest

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<https://doi.org/10.1002/14651858.CD003827.pub2>

⚠ This is not the most recent version

➔ view the current version
04 May 2016

Pre 2005

Clinical Trial

> [J Vasc Interv Radiol. 2002 Jan;13\(1\):77-81. doi: 10.1016/s1051-0443\(07\)60012-8.](#)

Sutureless securement device reduces complications of peripherally inserted central venous catheters

Alvin J Yamamoto ¹, Jeffrey A Solomon, Michael C Soulen, James Tang, Kim Parkinson, Richard Lin, Gregory J Schears

Affiliations + expand

PMID: 11788698 DOI: [10.1016/s1051-0443\(07\)60012-8](#)

Poor security = VAD failure

Peripheral IVs

- Presents as dislodgement, occlusion, infiltration
- Globally 38% PIVC fail (Indarwati, 2020; McIntyre 2022)

UVCs

- Globally, **37% UVC migrate / dislodge**
- 38 per 1,000 catheter days (Gibson, 2021)

PICCs

- Globally, 5% dislodge or migrate
- 1.42 per 1,000 catheter days (Ullman, 2015)

CVADs

- Globally, 3.5% non-tunnelled, 8.8% tunnelled dislodge (Ullman, 2015)

Cost and sequelae

- >\$1M AUD per 1,000 CVADs (Ullman, 2022)
- Impact healthcare experience

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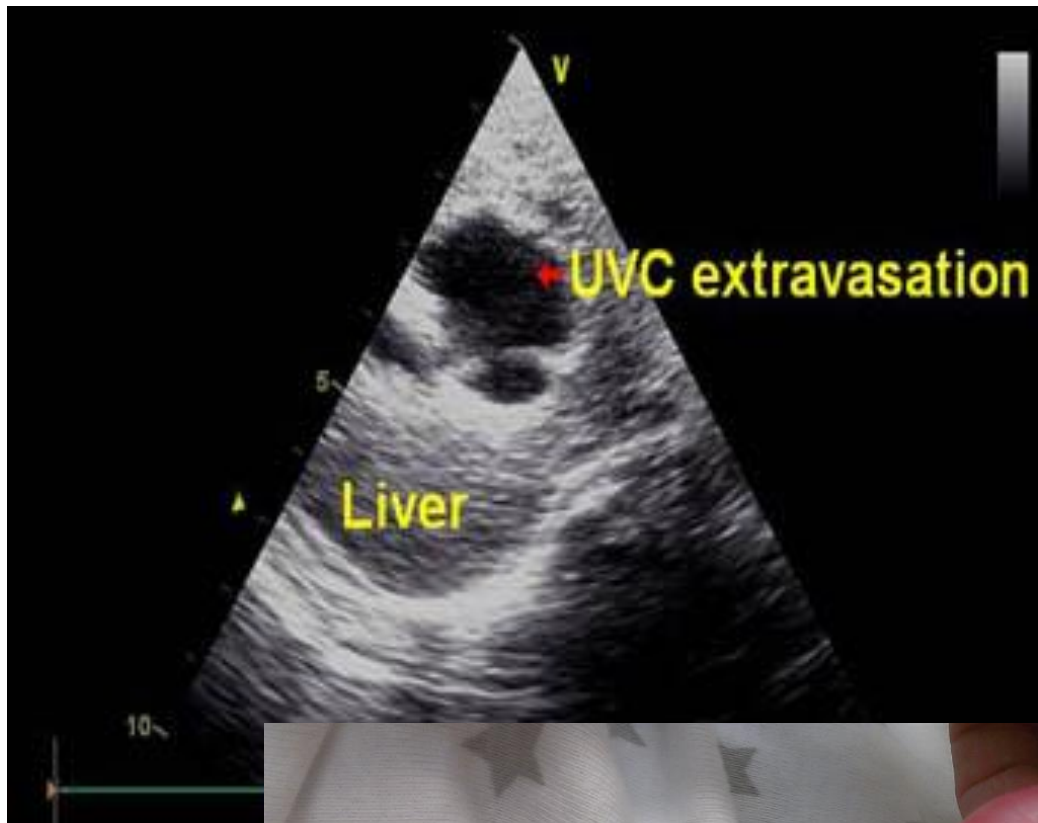
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Paediatric VAD
dislodgement
presentations

Sequelae can
be **devastating**

Clinical Trial

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“Although SSD was associated with fewer total complications (42 vs 61), this difference did not achieve significance.

However, there were significantly fewer PICC-related bloodstream infections in the SSD group (2 vs 10; P =.032). One securement-related needle-stick injury was documented during suturing of a PICC.”



Infection



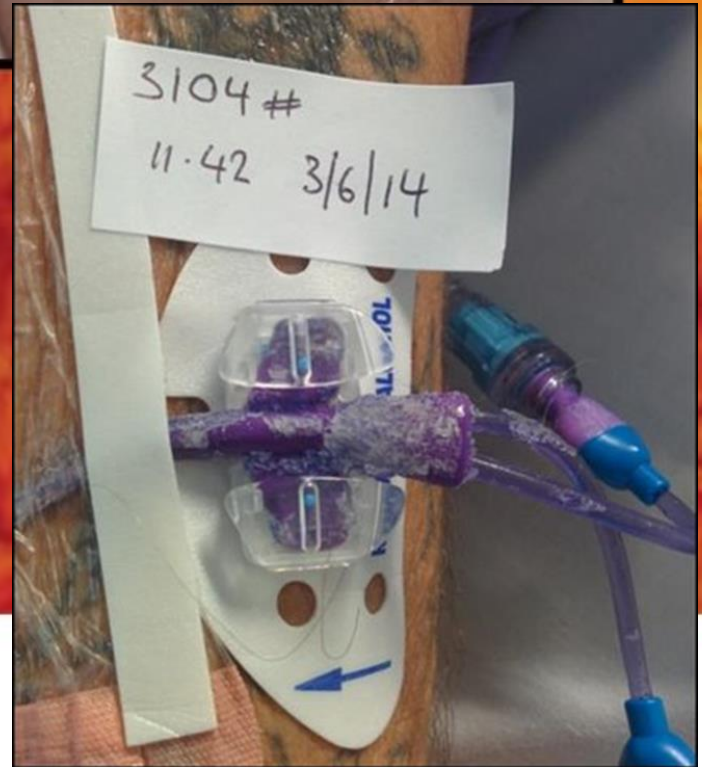
Skin tear

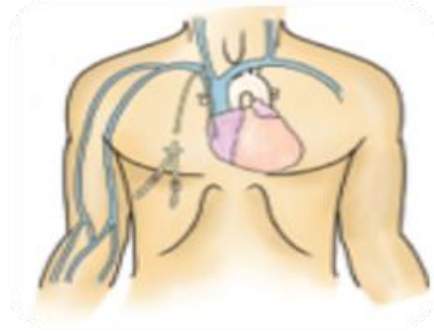
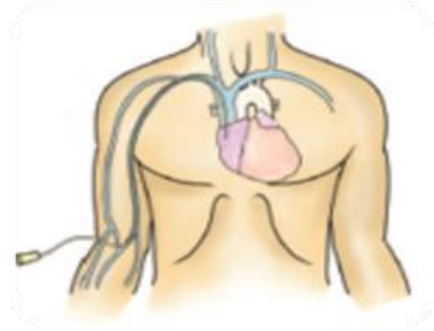
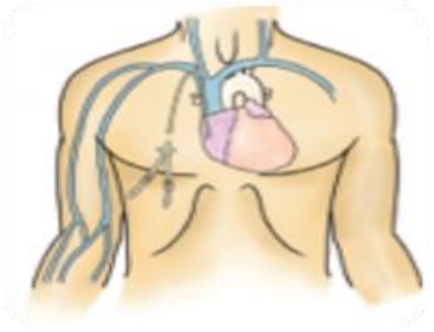


Dermatitis



The last 10 years of innovation in
paediatric VAD securement







Smile - Secure my intravenous line effectively: A pilot randomised controlled trial of peripheral intravenous catheter securement in paediatrics

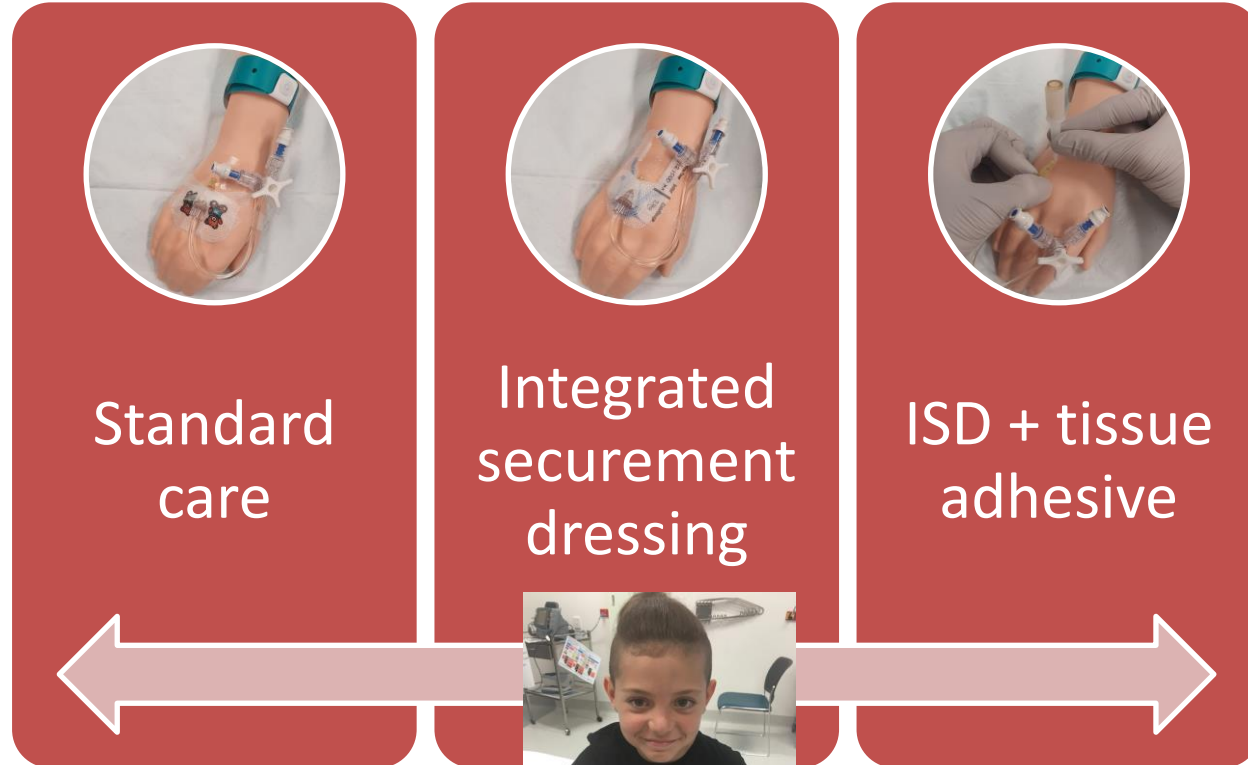
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Jessica A. Schultz^{a,b,c}, Hui (Grace) Xu^{b,d,g}, Michelle J. Bauer^b, Nicole Marsh^{b,c,e},
Emily N. Larsen^{b,e}, Paula Cattanch^{a,b}, Amanda J. Ullman^{a,b,c,e}



PRELIMINARY DATA: PRECARE RCT



PRELIMINARY DATA: PRECARE RCT



Standard care

Integrated securement dressing

ISD + tissue adhesive



2 Australian regional mixed (adult / paediatric) EDs
363 children: 6m – 8 years PIVC >24 hours



Emergency Medicine Foundation



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PRELIMINARY DATA: the SECURED trial

Population: 306 children
(neonate-18 years) with
PICC ($\geq 3\text{Fr}$) or tunnelled
non-cuffed CVAD ($\geq 3\text{Fr}$)

Interventions: (1) Sutureless
securement device (SSD)
versus (2) Sutureless anchor
securement

Primary outcome: Catheter
dislodgement (partial
[$>2\text{cm}$ external movement]
and complete)



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PACKAGE DEALS

SAVE SAVE SAVE



Where and how we insert, matters.
How we use these technologies together, matters.



We deserve

- ✓ Excellence in technology
- ✓ Nimble to changing demands
- ✓ Capacity to rapidly evaluate performance
- ✓ Get high performing technologies into our practice, with our children

