Ultrasound Guided IV Access

Preparation

1. Ultrasound Preparation

- **Equipment:** USS machine, probe cover, gel or water
- **Probe**: linear, marker on same side as screen (your left)
- **Pre-set**: vascular or superficial
- **Image optimisation:** depth, Res/Gen/Pen, gain, TGC, centre-marker
- **Local anaesthetic cream to insertion site**

2. IV equipment: Alcohol wipe, Tourniquet, Cannula, IV tubing, extension, NaCl 0.9% flush, Tegaderm, tapes and board to secure

3. Patient and equipment position

- Direct line of sight from your position, catheter direction and USS screen
- Good patient hold is key

Technique

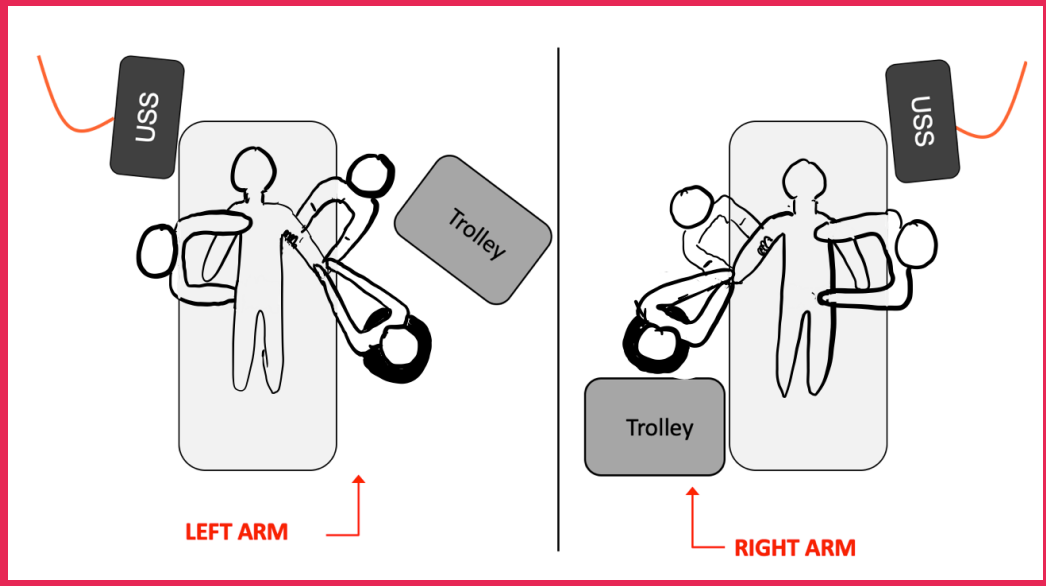
4. Choose a target vein and pre-scan to determine length and direction

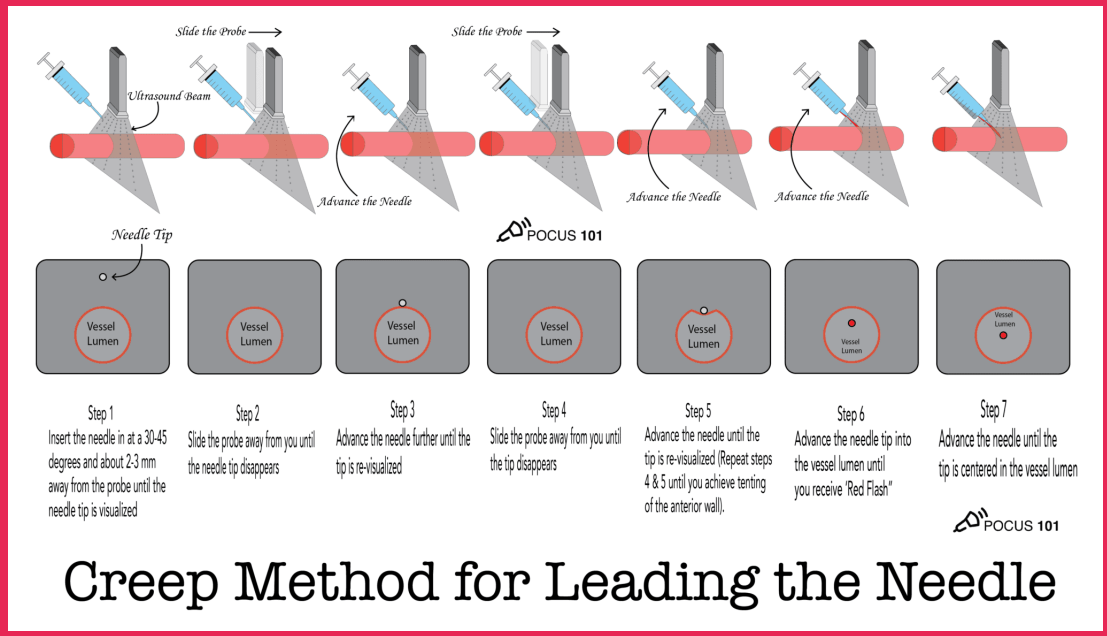
- Straightest, longest, biggest, best ergonomic direction
- Stay away from arteries and nerves if possible
- Make a mental note of depth from skin

5. Short-axis technique for needle insertion using creep

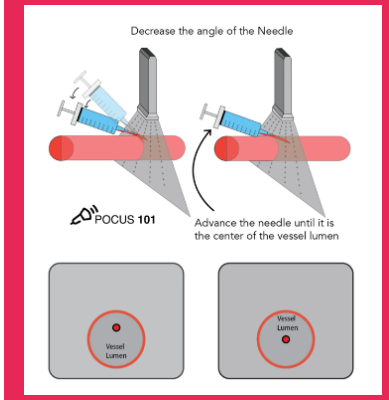
- Centre vessel in middle of screen and insert cannula needle 2-3mm away from transducer at 30-45 degree angle, stop insertion as soon as needle tip appears on USS monitor
- Slide the probe away from the needle tip until it disappears
- Advance the needle tip until it appears on the screen then stop
- Repeat sliding USS probe away and then advancing until needle is seen in vessel
- Decrease the angle of the needle and advance it until it is in the centre of the vessel lumen
- Secure cannula as usual

Resource images from Gold Coast Children's Hospital and POCUS 101





Creep Method for Leading the Needle



Updated June 2020.
Feedback Welcome:
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The DIVA Key

Difficult IntraVenous Access

	Low Risk	Medium Risk	High Risk
Consider Whether Intravenous Therapy is Necessary?			
1. Acuity	No clinical urgency (>2h)	Time critical (<2h)	Urgent
2. Appearance	Multiple visible/ palpable veins	Few visible/ palpable veins	Nil visible/palpable veins
3. Alerts	Previous easy access	Multiple attempts required in past	Documented alert and/or US guidance required in past
4. Admissions	Previously well or mild illness	Multiple admissions and/or comorbidities	Severe comorbidities and prolonged hospital care
5. Age	> 3 years	< 3 years	< 18 months History of prematurity
6. Anxiety	Minimal anxiety	Moderate anxiety	Severe anxiety and/ or documented needle phobia
Overall Risk Should Determine Initial Inserter			
7. Ability	**Developing** <100 paediatric insertions <50% first pass success Minimal US skills	**Confident** 100-800 paediatric insertions 50-80% first pass success Developing US skills	**Advanced** >800 paediatric insertions >80% first pass success Proficient US skills
Escalation Pathway			
8. Ascend	**Developing Inserter** From Treating Team 2 Attempts Max	**Confident Inserter** +/- Ultrasound Guided 2 Attempts Per Inserter	**Advanced Inserter** Preferably US Guided

Max 2 Attempts Per Inserter From Any Level
Max 4 Attempts Overall -> Escalate to Advanced Inserter

VAMS (7am-3pm)	0407175301
Anaesthetist	x4511
PICU Reg	x4441 / x4442

Always Consider Procedural Support

Four Promises For Every Child
1) Numbing cream
2) Sucrose or breast feed
3) Comfort position
4) Distraction

Consider for Anxious Patients
Inhaled Entonox® or Quantiflex®
Enteral midazolam and/or clonidine
Refer to procedure CHQ-PROC-00303, CHQ-PROC-62111