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# **IV cannulation**

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## **An educational resource**

Improve technique  
Gain confidence  
Avoid common pitfalls

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# Introduction

## Who this resource is for?

- Midwives and other current cannulators having mixed success
- Staff that would like to improve their cannulation technique
- Staff / students learning IV cannulation – this pack can also serve as a teaching aid

## What is this resource for?

- Improve IV cannulation knowledge and skills
- Improve confidence and success with IV cannulation
- Teach appropriate use of intradermal lignocaine to effectively minimise pain due to cannulation

## Why are IV cannulae important?

- IV access for administration of:
  - Drugs
  - Fluids
  - Blood
- IV access allows blood sampling on insertion
  - Pre-eclampsia bloods
  - Baseline Haemoglobin / platelets, renal function
  - Blood group
  - Innumerable others

## Why are large bore IV cannulae important in birth suite?

- They allow for rapid administration of fluid / blood / multiple other medications in the event of obstetric emergencies
- 16 gauge (16G) IV cannulae (IVCs) are harder to insert, but are important!

***With a little learning and some more practice, insertion of 16G cannulae in obstetric patients will seem more simple, less painful, and your patients will thank you for your skill***



# IV CANNULATION

## POSITIONING

- Get the patient in a comfortable position
  - Sitting
  - On bed, laying down or at 45° incline
- Consider placing a pillow (with a greenie) under the patient's arm – it helps them relax their arm



## PREPARATION

- Prepare your equipment and have it all at hand before starting
- Lignocaine pre-drawn in a small syringe with a 26G needle
- Cannula, bung, IVC dressing
- Blood sampling equipment
- Saline flush

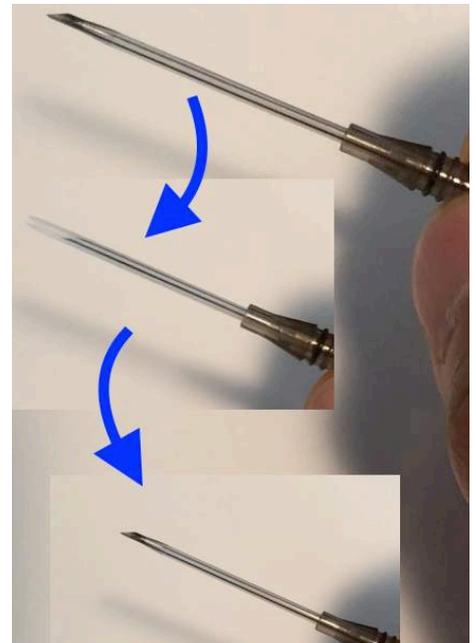
### **Loosen the cannula sheath prior to starting**

- Prevents avoidable difficulty when advancing sheath during cannulation



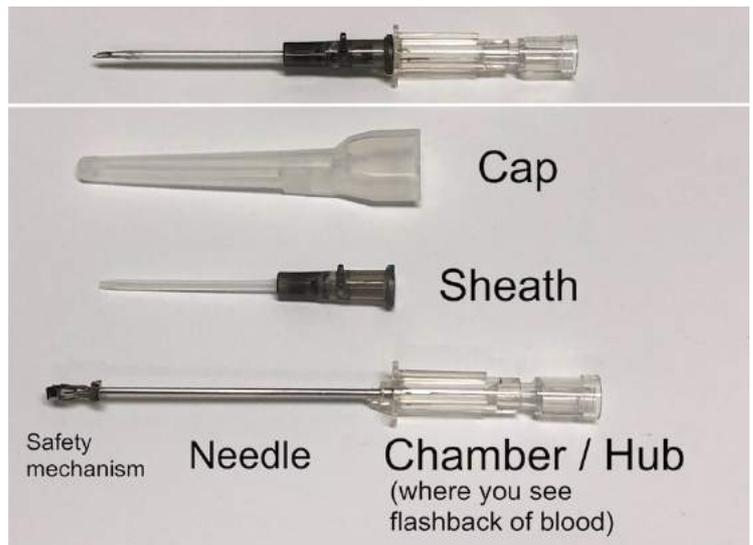
### **Find the BEST vein**

- Best veins:
  - Straight
  - Big (full)
  - Y-fork
- Find the BEST vein to give yourself the BEST chance at success
- Don't just go for the first vein you find, unless its big full and straight!



## INSERTION TECHNIQUE

### Components of a cannula



### How to hold the cannula

- Hold the cannula between your thumb and index finger at the hub
- Your hand should be positioned above / behind it
- Use your other fingers to stabilise your hand against the patient



### -- INSERTION --

- 1) Tether the skin with other hand to prevent vein from moving aside
- 2) Infiltrate local anaesthetic (see below)
  - a. Done while traction is on skin as improves accuracy of local anaesthetic placement
- 3) Angle cannula at approximately 30° to skin
- 4) With an up-facing bevel, penetrate skin at a slow but constant pace until flashback is seen
- 5) Flatten cannula out to about 0-10°, very slightly advance needle further (approx. 3-5mm)
  - a. Should still be seeing flashback (unless chamber is already full)
- 6) Advance sheath over needle until its hub abuts the skin
  - a. Should feed easily
- 7) Occlude vein *above* where sheath ends (the vein is more compressible than the sheath)
- 8) Remove needle
  - a. When using safety 16G/18G cannulae:  
ensure the safety mechanism does not pull the sheath out
- 9) Attach bung and secure with dressing
- 10) Draw blood if needed, then flush with saline

### KEY POINTS

- *Tether skin*
- *Once flashback obtained, flatten out and push needle in a slightly further before advancing sheath*

## Insertion technique for IV cannulation – images



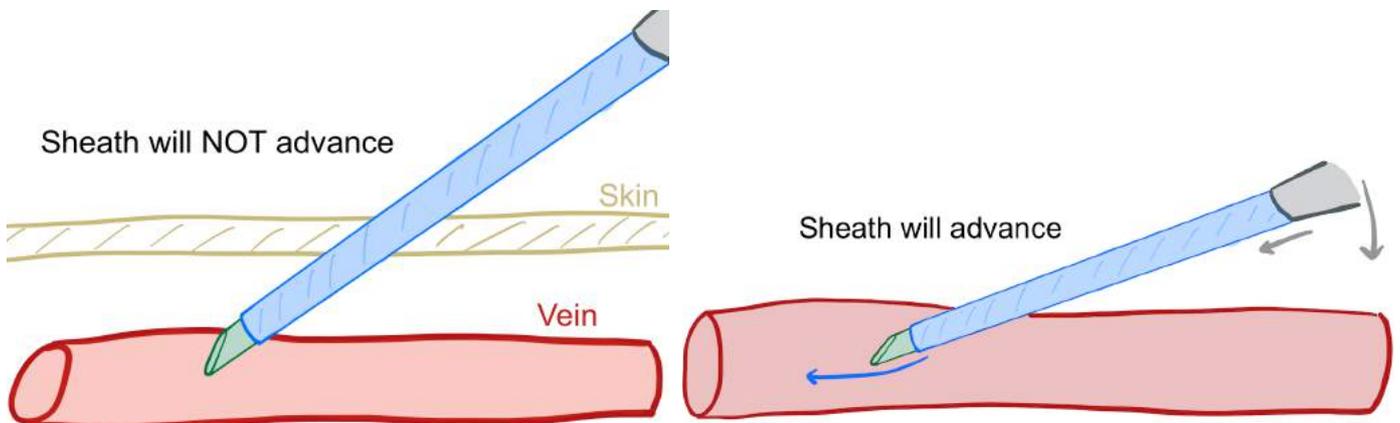
## COMMON DIFFICULTIES

### Missing a better vein

- Always find the BEST vein!

### Obtain flashback but cannot advance sheath

- Typically occurs when the bevel is in the vein, but sheath is not in the vein (see pictures below)
- Solution: bring sheath back to hub, advance needle in slightly further, then advance sheath



### Vein moves, causing you to miss (no flashback)

- Best avoided with good positioning, and tethering the skin prior to insertion
- Remember to penetrate the skin slowly but steadily, with the bevel pointing up (so sharpest point of the needle touches the vein first)

### Cannot draw blood

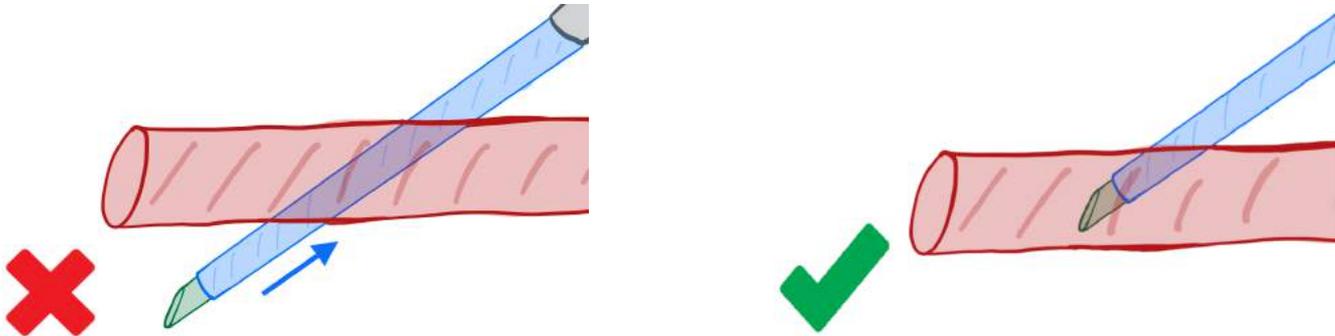
- Sometimes IV cannulae will not aspirate, leave it in situ if it flushes appropriately

### Excessive pain

- If there is no flashback and the patient is in more pain than expected, cease procedure and reassess (or use a different site)

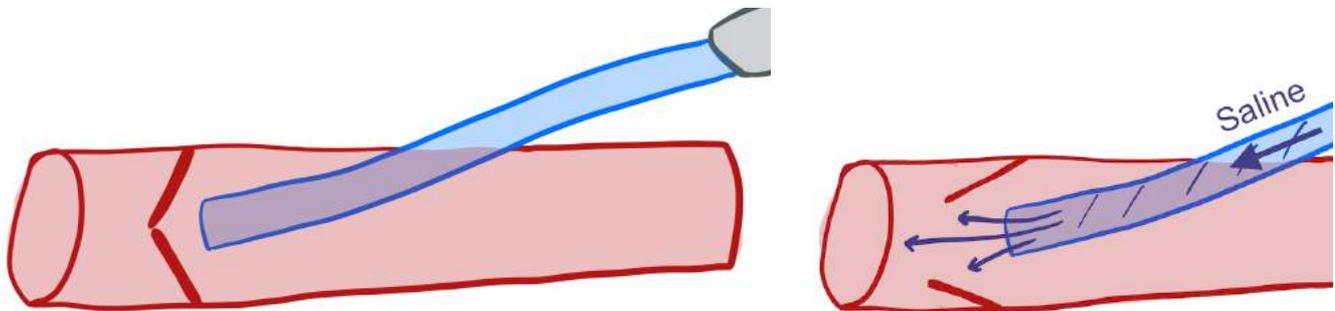
## Transection

- When the needle is inserted too far and goes through the vein (it has transected the vein)
- If the chamber is not full, it will stop filling
- Solution: Pull the needle back until you see blood filling the chamber again, then advance sheath
- if there is rapid swelling (bleeding), pull the IVC out and apply pressure.



## Hit a valve

- Typically the sheath will advance in the vein somewhat before resistance is encountered
- Solution: attach the bung to the sheath's hub, attach saline syringe, advance sheath forward while flushing saline into the vein (this opens the valve)
  - Do *not* force the sheath in
  - Stop if pain is experienced by the patient



## LOCAL ANAESTHETIC FOR CANNULATION

There is evidence showing that local anaesthetic (LA) is beneficial for analgesia with insertion of IV cannulae as small as 22 gauge. Thus, it follows that its use for 16G and 18G cannulae is indicated.

When performed with good technique, the LA infiltration is usually almost painless, and cannulation is very well tolerated by most patients, even those with needle phobias.

### **INTRA-dermal injection of LA**

- Where lignocaine is injected *into* the skin rather than underneath it
- It stings much less than LA injection underneath the skin
- Only a tiny amount of LA is able to be infiltrated (approx. 0.1 – 0.2ml!)
- You will see the skin blanch exactly where the LA is infiltrated
  - This marks the spot for the needle to enter
- You will usually not see a bleb with intradermal infiltration of such a small amount of LA

### **-- Technique --**

- 1) Draw lignocaine 1% into a small syringe (1 or 3 ml syringe)
- 2) Attach a tiny needle (26G)
- 3) How to hold the syringe:
  - a. Hold the needle by the plunger so you are ready to inject
  - b. Stabilise your hand / fingers against the patient
- 4) Warn the patient with neutral terminology  
e.g. "I am injecting the local anaesthetic now"
- 5) Insert **ONLY** the bevel of the needle into the skin at a shallow angle
- 6) Inject
  - a. If there is lots of resistance you are in the correct spot
  - b. Stop when a small blanch in the skin appears (approx. 3-4mm in size)
  - c. Usually approx. 0.1-0.2ml



