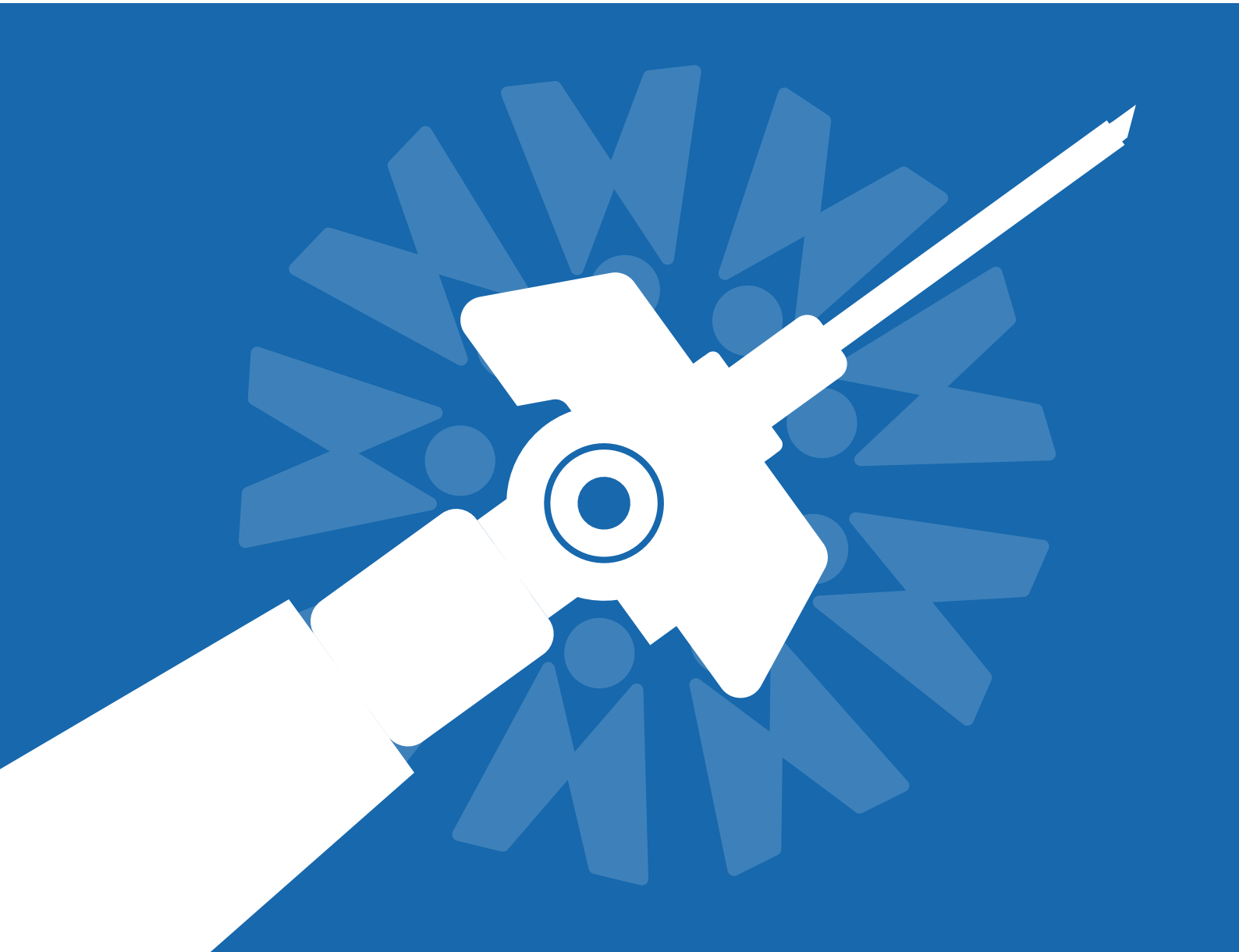
Adam Dobson
Stephanie Harper
Simon Hatton

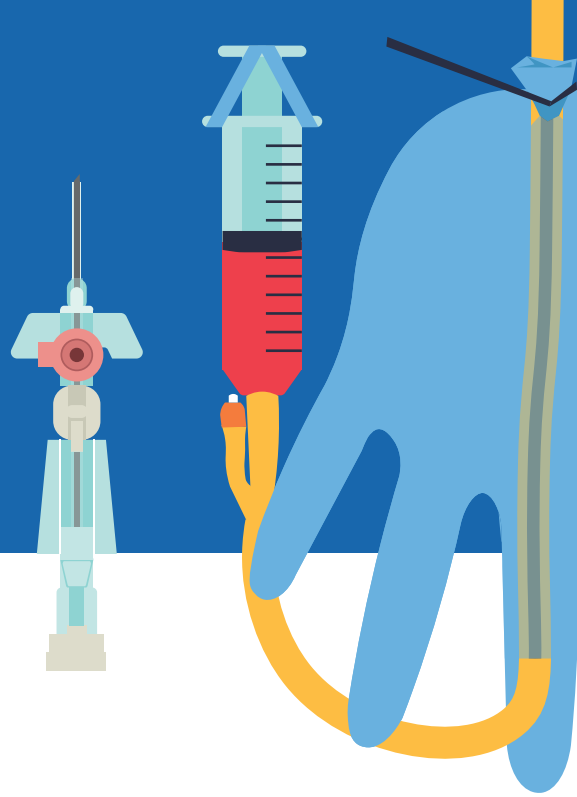
NHS
Manchester University
NHS Foundation Trust

6 Step

Cannula Insertion Training



Guide to assembling the model

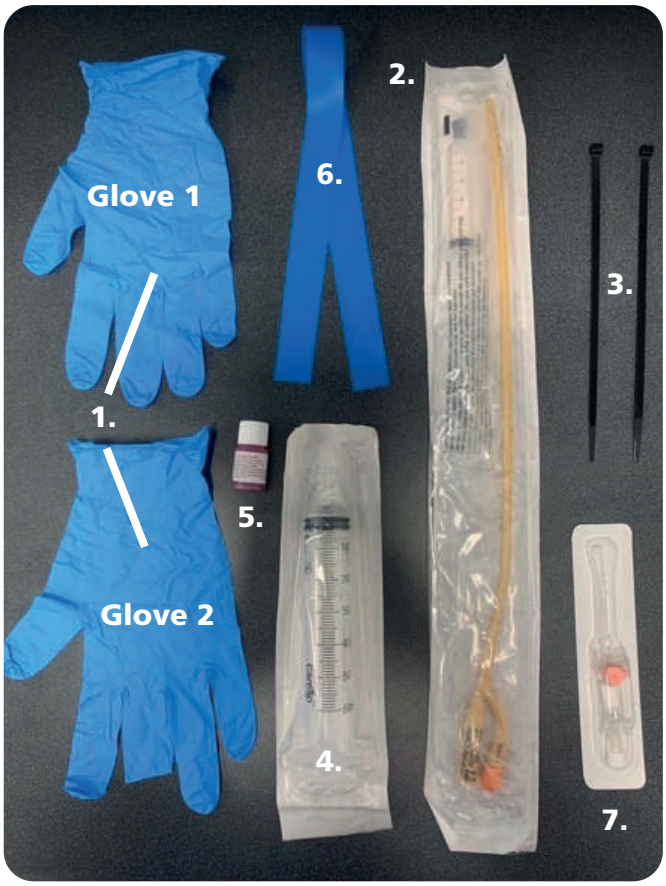


The Model:

The aim of creating this model is to enable realistic cannula simulation immediately before a learner has the opportunity to cannulate a patient. The model is quick to assemble using equipment that is available in theatre areas.

Equipment list:

1. **2 x nitrile gloves:** one with middle finger tip removed (glove 2)
2. **Urinary Catheter**
3. **2 x cable ties**
4. **50 ml Bladder syringe**
5. **Red stain (used for chlorhexidine)**
6. **Rubber Tourniquet**
7. **Cannula**



Note: Kit can be disassembled and syringe and catheter re-used at the end of a teaching session to save waste and minimise cost.

Assembly:

1. Don one glove onto your own hand. Then the second glove (with finger-tip removed) over the first glove. Then remove the gloves together

2. Thread the catheter through the middle finger hole so it sits between both gloves. Insert in the orientation shown

3. Fill the inner intact glove with warm water and seal both gloves tightly with a cable tie

4. Fold the end of the catheter over and occlude the loop tightly with a second cable tie

5. Half fill the bladder syringe with water mixed with a small quantity of red stain

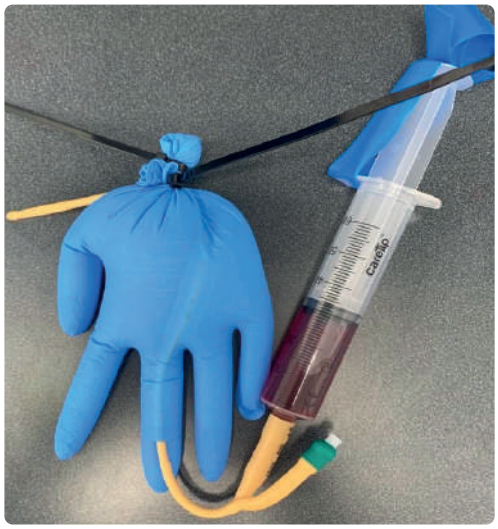
6. Insert the syringe firmly into the catheter. Get assistant to apply VERY GENTLE pressure to the plunger manually, or if solo by using the tourni-quet

Use this link:

https://vimeo.com/1078247731/8c29bd0bb1?share=copy

to see a assembly demonstration video

Completed model

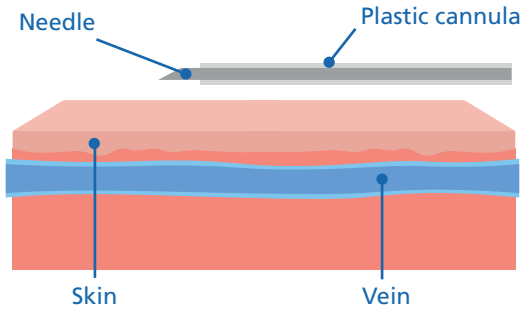


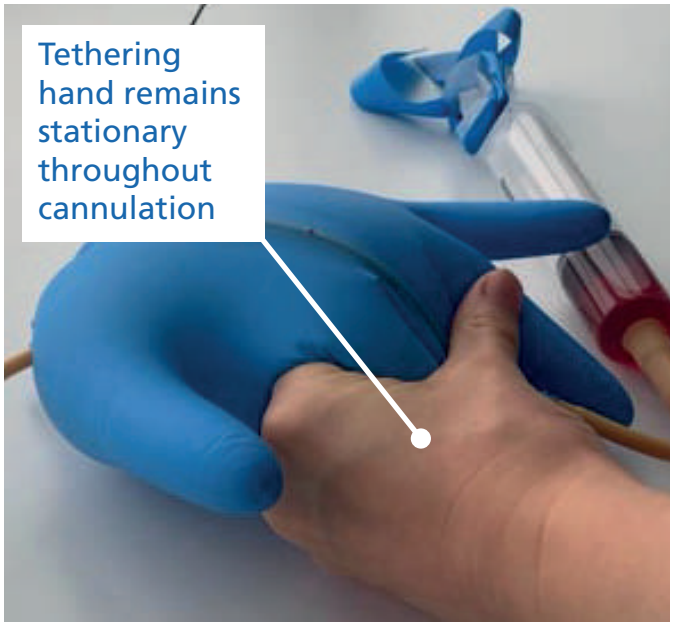
6 Step Guide:

1.

Tether the vein by providing gentle traction with the thumb of your non-cannula hand.

Note: Position the thumb so it does not prevent flattening of the cannula seen in step 3

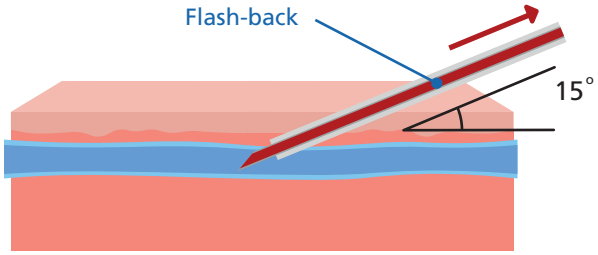


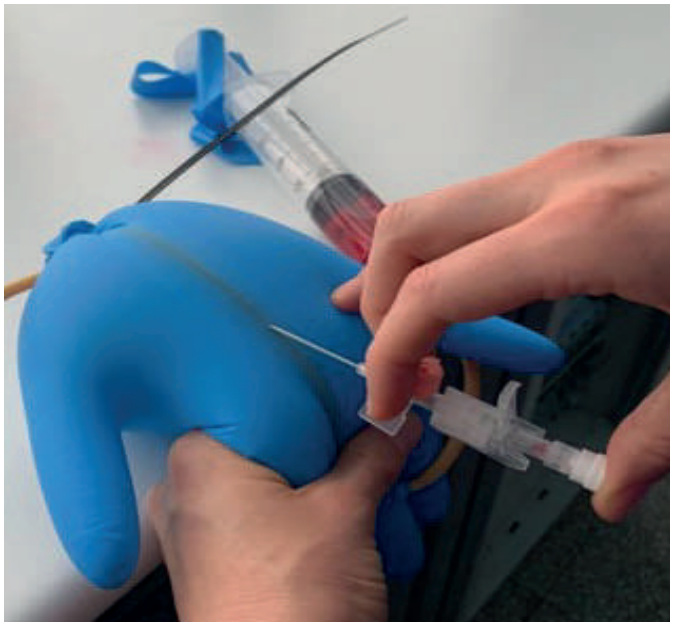


2.

Enter the vein and confirm flash-back

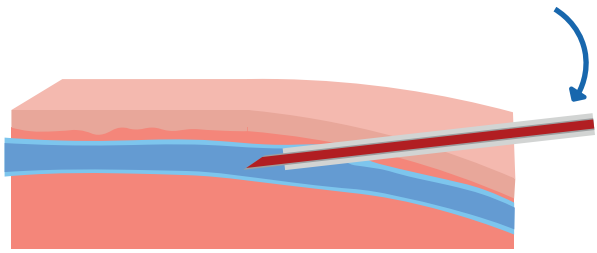
Note: premature withdrawal of the needle at this point would leave the cannula outside of the vein (see diagram)





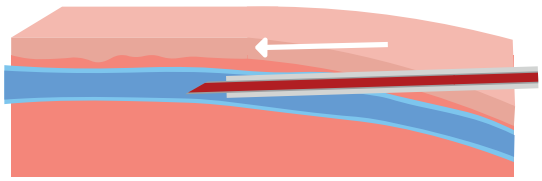
3.

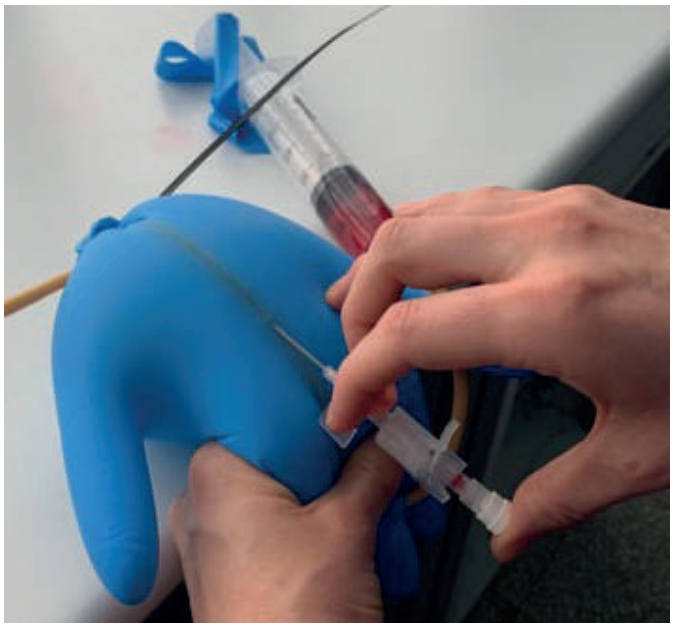
Flatten the angle in line with the trajectory of the vein to avoid advancing through the posterior wall of the vein during the next step.



4.

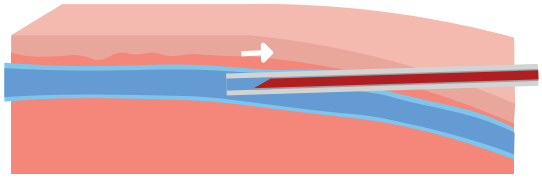
Advance the needle approximately 0.5cm to ensure that the plastic cannula is fully within the vein.

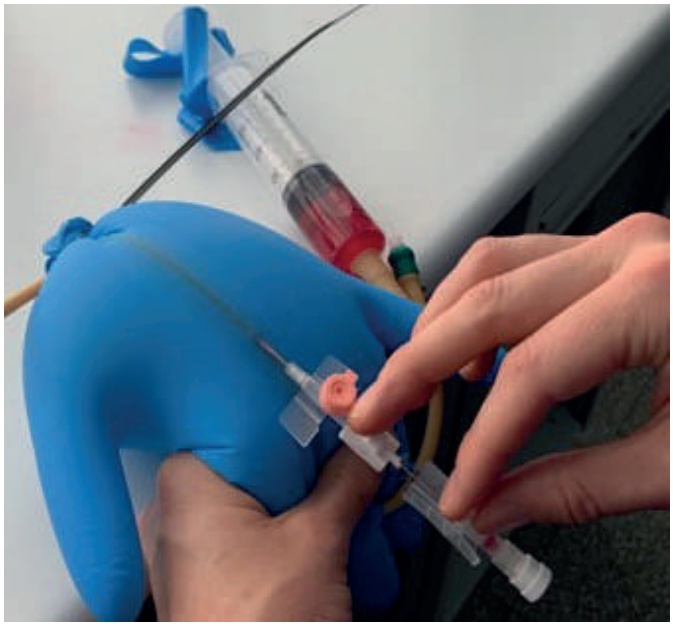




5.

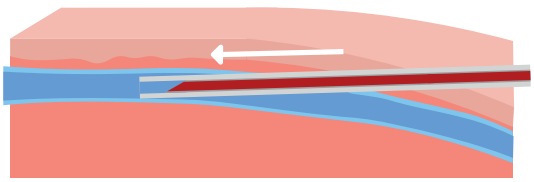
Partially withdraw the needle into the cannula so that the leading part is the blunt cannula tip.





6.

Advance the cannula up the vein using the cannula port.



Created by:
David Buckley
david.buckley@mft.nhs.uk

Medical Illustration
medical.illustrationsouth@mft.nhs.uk

Top tips:

- Following insertion of the cannula, the needle may then be removed avoiding blood spillage and cannula disruption by following the video URL link (right) to explain how this is best achieved

https://vimeo.com/919148985

- Optimise the vein: tourniquet on early, gently rubbing / tapping and hanging hand low, below the level of the heart.
- Vein selection – do not try to put a large cannula in a small vein.
- Note the distance between the end of the plastic cannula and the needle to understand the need to advance further after obtaining flashback, before withdrawing the needle within the cannula
- Ensure tourniquet tight enough to occlude outflow of blood from veins but not inflow from artery – check to see pulse still palpable.
- When locating veins, ask patient to open and close fist to encourage venous filling.
- Ensure correct placement by flushing with saline through injection port. No localised swelling or pain should be observed.

Demonstration Videos:

https://mft.nhs.uk/medical-education/training-resources/

Demonstration on model

Demonstration on person