CANNULATION

Siting an Intravenous Cannula

This is the second most common invasive procedure for patients in hospital

(Dougherty 1996)
**General points**

- Intravenous cannulae are used for patients in whom constant venous access is required for IV infusion or frequent intravenous injections, or as part of an urgent resuscitation.
- The cannula is left in situ, but may be sealed off with a rubber bung through which access is possible at any time if the cannula is not for continuous infusion.
- Peripheral cannulae should be resited if signs of phlebitis/infection are present. Otherwise re-site as per hospital policy—generally leaving in place no more than 72 hours.

**Communication and preparation**

- Always introduce yourself and explain what you are going to do and why. Outline how you will perform the procedure, and ask if there are any questions.
- Check the patient's identity bracelet for their name and ID number.
- Make sure that you have the patient’s verbal consent before you start, and remember to wash your hands and wear disposable gloves. Consent is only valid if given voluntarily and accompanied by an adequate explanation; allowing your patient to make an informed choice. Verbal consent is considered adequate for invasive procedures that carry ‘low risk’ (DOH 2001).
- This can be a painful procedure, so you need the patient's full cooperation if possible. Only attempt cannulation 3 times at one sitting, as it hurts, and you may lose the patient's cooperation.

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**Equipment List**

You will need to gather the following equipment. Note that there are different types of cannula systems and although the main variations are marked here, you should always check what is available in your clinical area. As a general rule you will need to collect:

<table>
<thead>
<tr>
<th>Plastic tray and alcohol wipe (or cardboard disposable tray)</th>
<th>Green needle or blunt needle device for drawing saline in to syringe</th>
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</thead>
<tbody>
<tr>
<td>Cannula of appropriate size</td>
<td>Bung / stopper device</td>
</tr>
<tr>
<td>Tourniquet</td>
<td>Adhesive dressing</td>
</tr>
<tr>
<td>Alcohol wipe (or solution) for skin prep</td>
<td>Alcohol hand rub</td>
</tr>
<tr>
<td>5ml or 10ml syringe</td>
<td>Gloves of appropriate size</td>
</tr>
<tr>
<td>5ml ampoule 0.9% saline</td>
<td>Sharps bin</td>
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</tbody>
</table>
Choosing the vein

- Place the arm in a comfortable position and apply the tourniquet below the elbow. Make sure you are standing or sitting comfortably, and the patient is sitting or lying down. Prepare your equipment in a newly cleaned plastic tray using ANTT.
- Cannulae are best sited in wide straight veins away from joints. There is one of these on the radial side of the wrist. Apply the tourniquet four fingers width above the desired site.
- Find the vein by feeling over its presumed position. Get a feel for its size and check the direction in which it is running.

Palpate Vein

Inserting the cannula

- Ask the patient to open and close the fist to promote venous filling.
- Clean the skin with a chlorhexidine-based solution/alcohol wipe (Pellowe et al. 2004) and allow to dry.
- Change or alco-wipe gloves as per ANTT protocol and do not re-touch area.
- Open the cannula carefully and ensure the stylet within the cannula is positioned with the bevel uppermost.

Hold the patient's arm or hand and use your thumb to pull the skin taut below the intended puncture site. This will stabilise the vein before cannulation.
- Hold the cannula in line with the vein at a 10-30° angle to the skin and insert the cannula through the skin.

New cannulae should be sited proximal to any previous sites to prevent drug or fluid infusion through damaged veins (Scales K 2005).

- As the cannula enters the vein blood will be seen in the flashback chamber. Lower the cannula slightly to ensure it enters the lumen of the vein and does not puncture the posterior wall of the vessel.
- Withdraw the needle slightly and blood should be seen to enter the cannula: this confirms the position in the vein. The needle must not be re-inserted as this can damage the cannula, resulting in catheter embolus.
- Slowly advance the cannula into the vein, ensuring the vein remains anchored throughout the procedure. By applying pressure to the tip of the cannula (in vein) with the thumb, it is possible to stem the flow of blood.
- Release the tourniquet.
Inserting the cannula (cont’d)

• Dispose of the needle in the sharps’ container at the earliest opportunity. Be aware that the majority of modern cannulas have a needle safe system and a needle guard will automatically spring into place on removing the needle.

• Use a semi-permeable bung (or other bung device) to close of the cannula.

• Flush the cannula with normal saline to check patency and to ensure easy administration without pain, resistance or localised swelling.

• Secure the cannula with a moisture-permeable dressing (RCN 2003). The dressing should allow viewing of the entry site while firmly stabilising the cannula to prevent mechanical phlebitis or cannula dislodgement.

• Record the cannulation procedure in the patient notes: include device used, gauge, location, operator and number of insertion attempts.

References


Cannulation - Mock-OSCE check list

Give one mark for each of the following:

1.) Socially clean hands, Introduces oneself to the patient, checks name band
2.) Explains procedure to the patient and gets verbal consent
3.) Collects and cleans tray starting with inside first then outside
4.) Gathers the correct equipment in the tray
5.) Washes hands, opens up and assembles equipment
6.) Applies the tourniquet in the correct place
7.) Selects a vein in a desirable location
8.) Uses alcohol swab to clean skin
9.) Dons gloves
10.) Warns patient of a sharp ‘scratch’
11.) Inserts cannula at approx degree angle (25-35 degrees) to skin
12.) Gets a flashback of blood
13.) Safely inserts the cannula
14.) Removes tourniquet
15.) Removes needle from cannula
16.) Secures with tape
17.) Safely disposes of sharps in sharps bin
18.) Flushes cannula with 5mls of normal saline

Please use these clinical skills guidelines for cannulation in conjunction with the cannulation video:

http://streaming.mediar.es.ucl.ac.uk/ramgen/Clinical%20Skills/Cannulation.smil

Further Reading

