Welcome to the B. Braun Peripheral IV Cannulation Quick Reference Guide. The purpose of this booklet is to support the knowledge and training you received at the B. Braun peripheral IV cannulation training session.

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Wash hands when visibly soiled. Otherwise, use alcohol based handrub.

1. Wet hands with water
2. Apply enough soap to completely cover your hands
3. Rub hands palm to palm
4. Right palm over back of left hand with interlaced fingers and vice versa
5. Palm to palm with fingers interlaced
6. Backs of fingers to opposing palms with fingers interlocked
7. Rotational rubbing of left thumb clasped in right palm and vice versa
8. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
9. Rinse hands with water
10. Dry hands thoroughly
11. Your hands are now clean
2. VEIN SELECTION

1 = Brachial Artery
2 = Basilic Vein
3 = Ulnar Artery
4 = Ulnar Nerve
5 = Median Cubital Vein
6 = Median Nerve
7 = Radial Artery
8 = Cephalic Vein
9 = Radial Nerve
10 = Metacarpal Vein
### 3. IV CANNULA SELECTION

The smallest gauge and the shortest length to accommodate the prescribed therapy

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Crystalloid Gravity Flow Rate</th>
<th>General Use</th>
<th>Suitable Anatomical Location for Insertion</th>
</tr>
</thead>
<tbody>
<tr>
<td>14G</td>
<td>343 ml/min - 345 ml/min</td>
<td>For rapid transfusion of whole blood, blood components or viscous fluids</td>
<td>Antecubital fossa, Median cephalic (radial side), Median basilic (ulnar side), Median cubital (in front of elbow joint)</td>
</tr>
<tr>
<td>16G</td>
<td>196 ml/min - 210 ml/min</td>
<td>For rapid transfusion of blood components or viscous fluids</td>
<td>Antecubital fossa, Median cephalic (radial side), Median basilic (ulnar side), Median cubital (in front of elbow joint)</td>
</tr>
<tr>
<td>18G</td>
<td>96 ml/min - 100 ml/min</td>
<td>For infusing blood components quickly</td>
<td>Median cubital (radial aspect of forearm), Median basilic (ulnar aspect of forearm), Median antebrachial</td>
</tr>
<tr>
<td>20G</td>
<td>60 ml/min - 61 ml/min</td>
<td>For routine infusion therapies and infusing blood components or large volumes of fluid</td>
<td>Accessory cephalic (branches off cephalic vein along the ulna bone), Basilic (ulnar aspect of the lower arm along ulna bone), Cephalic (radial aspect of lower arm along radius bone of forearm), Metacarpal (on dorsum of hand)</td>
</tr>
<tr>
<td>22G</td>
<td>35 ml/min - 36 ml/min</td>
<td>Appropriate for most infusion therapies</td>
<td>Used in adults, adolescents, children, infants and geriatric patients, Commonly used in the acute and chronic care setting, May be more difficult to pierce through</td>
</tr>
<tr>
<td>24G</td>
<td>22 ml/min</td>
<td>For elderly, paediatric and neonatal patients</td>
<td>Digital veins (along lateral-distal portion of fingers), Accessory cephalic (branches off cephalic vein along the ulna bone), Basilic (ulnar aspect of the lower arm along ulna bone), Cephalic (radial aspect of lower arm along radius bone of forearm), Metacarpal (on dorsum of hand)</td>
</tr>
</tbody>
</table>
Cannulation Guideline Procedure using an aseptic non touch method

**Patient Preparation**
- Patient education
- Patient consent
- Check patient identity

**Handwashing**

**Personal Protective Equipment**

**Tourniquet Application and Vein Selection**
- Palms width (approx 10 cm) above insertion site
- Place two fingers on patient side prior to tightening
- Should be able to palpate arterial pulse distal to tourniquet
- Should not be in situ for longer than sixty seconds
- Remove once vein is located, prior to preparation of equipment
Preparation of Equipment
- Cannula - various gauges
- Disposable tourniquet
- Alcohol based hand scrub
- Skin cleaning preparation (2% Chlorhexidine in 70% Isopropyl Alcohol)
- Needlefree access device
- Sterile dressing
- Clean hypoallergenic tape
- Saline flush

Skin Cleaning
- Cleanse with skin cleaning agent (2% Chlorhexidine in 70% Isopropyl Alcohol) for 30 seconds
- Allow to fully air dry
- Do not touch the cleansed site again

Aseptic Technique
- The cleansed site should not come into contact with any item that is not sterile
- Key-Parts of equipment should not be touched or come into contact with any item that is not sterile
- Do not re-palpate the vein once site is clean

Insert Cannula
- Reapply tourniquet
- Insert cannula bevel up
- Maintain skin traction
- Observe for first and second flashbacks
- Advance into vein
- Release tourniquet
- Stabilise and occlude while removing stylet
- Attach white cap or primed needlefree access device

Dress and Secure
Apply a transparent occlusive IV dressing

Check Patency
- Flush using 0.9 NaCl in 10 ml syringe
- If resistance is felt, stop
- Observe for infiltration
5. Introcan Safety® 3

PRODUCT SPECIFICATION

PRIOR TO USE
- Ensure push plate is at top indicating needle bevel is in correct position

DURING CANNULATION
- Ensure needle is withdrawn slowly from cannula parallel to vein
- Multi use septum minimises blood back flow on every manipulation

1. Needle
2. Push Plate
3. Magnified Flashback Chamber
4. Stopper
5. Safety Clip
6. Catheter
7. Wings
8. Multi Use Septum

Scan the QR code to see an Introcan Safety® 3 Peripheral Cannulation Training video
6. Introcan Safety®

PRODUCT SPECIFICATION

PRIOR TO USE
- Ensure push plate is at top indicating needle bevel is in correct position

DURING CANNULATION
- Ensure needle is withdrawn slowly from cannula parallel to vein

1. Needle
2. Push Plate
3. Magnified Flashback Chamber
4. Stopper
5. Safety Clip
6. Catheter
7. Wings
7. Vasofix® Safety

PRODUCT SPECIFICATION

Prior to use:
- Ensure wings are flattened at hinges
- Loosen white cap prior to use

During cannulation:
- Ensure needle is withdrawn slowly from cannula parallel to vein

Scan the QR code to see a Vasofix® Safety Peripheral Cannulation Training video

1. White Cap
2. Hydrophobic Membrane
3. Grip Plate
4. Injection Port
5. Needle
6. Wings
7. Catheter
8. Safety Clip
8. FLASHBACK VISUALISATION

FIRST FLASHBACK
Visual of first flashback - blood in flashback chamber of stylet

SECOND FLASHBACK
Visual of second flashback - blood in catheter shaft

KEY STEPS AFTER INSERTION

- Connect white cap, primed needlefree access device or infusion line
- Secure cannula with transparent occlusive dressing
- Flush to check patency and observe for signs of infiltration (0.9 NaCl in 10 ml syringe)
- Remove personal protective equipment and wash hands
- Record – as per local policy
- Plan future care – check site and patency at regular intervals and document as per local policy
9. NEEDLEFREE ACCESS DEVICE

PRIOR TO USE WHEN CONNECTED

1. Open clamp

2. Disinfect and dry
   - Disinfect the device in accordance with your hospital/department protocol
   - Clean the device rigorously for at least 15 seconds in accordance with epic3* guidelines or in accordance with your local policy guidelines (Epic 3, 2013)
   - Allow the device to air dry

3. Connect and inject
   - Attach syringe or luer connection straight onto swabable membrane and secure with a clockwise twist

4. Flush

5. Detach syringe and close the clamp in accordance with manufacturers' guidelines depending on the displacement type of the device

6. Wipe and allow to dry
## 10. COMPLICATIONS

<table>
<thead>
<tr>
<th>COMPLICATION</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PUNCTURING ARTERY</strong></td>
<td>Release tourniquet</td>
</tr>
<tr>
<td>When the needle has entered the artery instead of the vein</td>
<td>Remove the device immediately</td>
</tr>
<tr>
<td></td>
<td>Apply pressure until bleeding stops</td>
</tr>
<tr>
<td></td>
<td>Provide explanation to patient</td>
</tr>
<tr>
<td></td>
<td>Do not reapply a tourniquet to the limb</td>
</tr>
<tr>
<td></td>
<td>Document in patient’s notes</td>
</tr>
<tr>
<td><strong>INFLTRATION OR EXTRAVASATION</strong></td>
<td>Assess the area distal to the cannula site for capillary refill, sensation, and motor function.</td>
</tr>
<tr>
<td>When the vein is transfixed any fluid or medication placed down the cannula will leak into surrounding tissue. Depending on the properties of the fluid/medication this leads to either infiltration or extravasation.</td>
<td>Aspirate for a blood return (according to local policy)</td>
</tr>
<tr>
<td></td>
<td>Do not flush the cannula, as this would inject additional medication into the tissue</td>
</tr>
<tr>
<td></td>
<td>Disconnect the administration set from the cannula hub, and aspirate from the cannula (according to local policy) and administer antidote, steroid, antihistamine and/or analgesia if prescribed</td>
</tr>
<tr>
<td></td>
<td>Remove the cannula as appropriate only once management plan established</td>
</tr>
<tr>
<td></td>
<td>Apply hot/cold pack as appropriate but do not apply pressure</td>
</tr>
<tr>
<td></td>
<td>Using a skin marker outline the area with visible signs of infiltration/ extravasation to allow for assessing changes.</td>
</tr>
<tr>
<td></td>
<td>Document in patient notes, complete incident form and alert medical staff. The RCN recommend the use of a standard infiltration scale</td>
</tr>
<tr>
<td></td>
<td>Estimate the volume of solution that has escaped into the tissue based on the original amount of solution in the container, the amount remaining when stopped, and rate of injection or infusion. The need for surgical consultation is based on the clinical signs and symptoms and their progression.</td>
</tr>
<tr>
<td></td>
<td>Elevate the extremity to encourage lymphatic reabsorption of the solution/medication</td>
</tr>
<tr>
<td></td>
<td>Use a different extremity for subsequent cannulations.</td>
</tr>
<tr>
<td><strong>HAEMATOMA</strong></td>
<td>Remove the device immediately</td>
</tr>
<tr>
<td>When blood has leaked from a vein/ artery into the surrounding tissue</td>
<td>Apply pressure until bleeding stops</td>
</tr>
<tr>
<td></td>
<td>If appropriate, elevate limb</td>
</tr>
<tr>
<td></td>
<td>Apply ice pack if necessary</td>
</tr>
<tr>
<td></td>
<td>Do not reapply tourniquet to affected limb</td>
</tr>
<tr>
<td></td>
<td>Document in patient’s notes</td>
</tr>
</tbody>
</table>
## 10. COMPLICATIONS CONTINUED

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</thead>
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<tr>
<td><strong>VASOVAGAL REACTION</strong></td>
<td>Call for assistance</td>
</tr>
<tr>
<td>Syncope or fainting</td>
<td>If conscious but feeling faint, ask patient to place head between their knees or lie patient down</td>
</tr>
<tr>
<td></td>
<td>Document in patient’s notes</td>
</tr>
<tr>
<td><strong>MISSED VEIN</strong></td>
<td>If appropriate withdraw needle slightly and realign</td>
</tr>
<tr>
<td><strong>PHLEBITIS</strong></td>
<td>Perform visual inspection of cannula for signs of phlebitis, documenting VIP score at least once per shift</td>
</tr>
<tr>
<td>Acute inflammation of the vein</td>
<td>VIP score 2 or greater remove cannula</td>
</tr>
<tr>
<td>May be:</td>
<td>Subsequent management of phlebitis depends on cause and severity</td>
</tr>
<tr>
<td>■ mechanical</td>
<td></td>
</tr>
<tr>
<td>■ chemical</td>
<td></td>
</tr>
<tr>
<td>■ infective</td>
<td></td>
</tr>
<tr>
<td><strong>CANNULA EMBOLUS</strong></td>
<td>Apply tourniquet to limb immediately</td>
</tr>
<tr>
<td></td>
<td>Care should be taken on placement to ensure vein dilation does not cause embolus to travel</td>
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<tr>
<td></td>
<td>X-ray and/or chest radiography</td>
</tr>
<tr>
<td></td>
<td>Locate</td>
</tr>
<tr>
<td></td>
<td>Salvage</td>
</tr>
<tr>
<td></td>
<td>Document in patient’s notes</td>
</tr>
</tbody>
</table>
11. REFERENCES AND FURTHER READING

Al-Benna, S., O’Boyle, C. & Holley, J. (2013). Extravasation Injuries in Adults. ISRN Dermatology. 856541. PMC. (accessed 06.06.18)


Infection Prevention Society. https://www.ips.uk.net/ (accessed 06.06.18)


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www.antt.org
www.hpa.org.uk
http://www.nes.scot.nhs.uk/