

Peripheral IV Cannulation Training Program

Quick Reference Guide

INTRODUCTION AND CONTENTS PAGE

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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1. Hand Hygiene

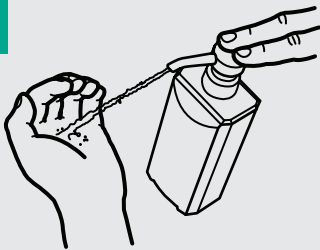
How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED



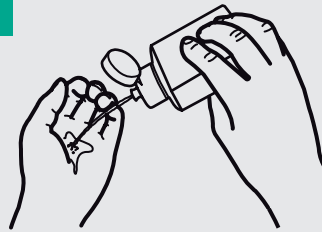
Duration of the entire procedure: 20-30 seconds

1a

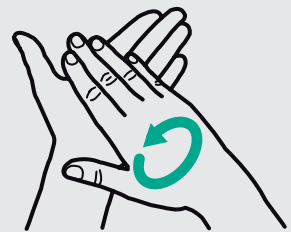


Apply a palmful of the product in a cupped hand, covering all surfaces;

1b

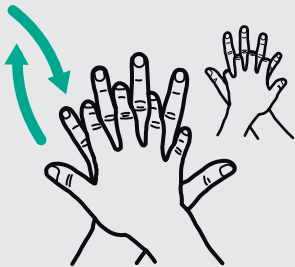


2



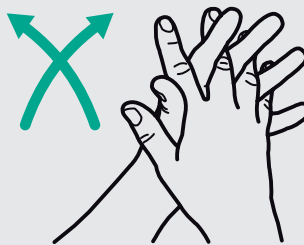
Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4



Palm to palm with fingers interlaced;

5



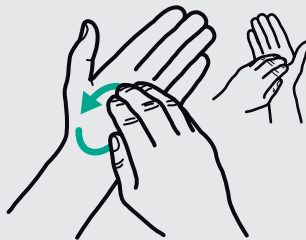
Back of fingers to opposing palms with fingers interlocked;

6



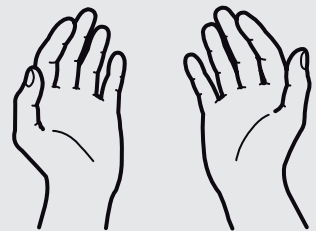
Rotational rubbing of left thumb clasped in right palm and vice versa;

7



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8



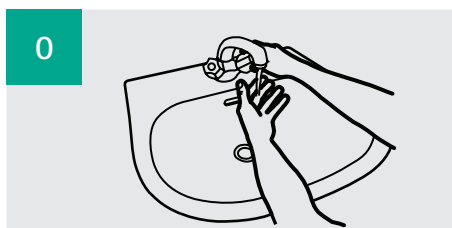
Once dry, your hands are safe.

How to Handwash?

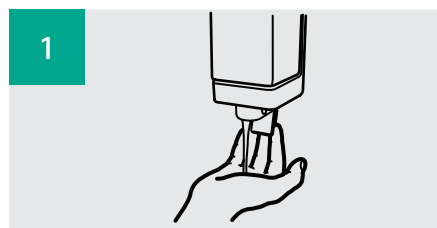
WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB



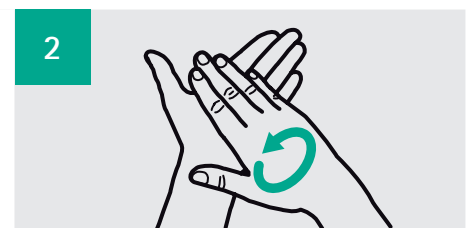
Duration of the entire procedure: 40-60 seconds



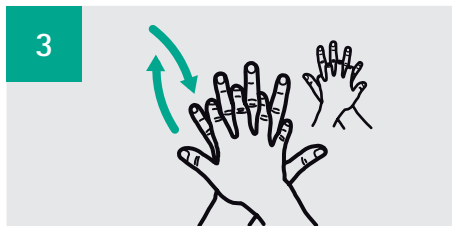
Wet hands with water;



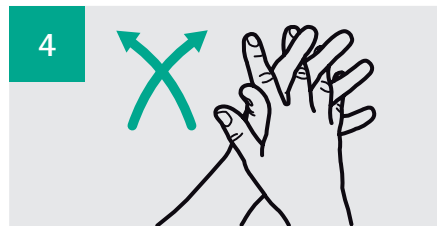
Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



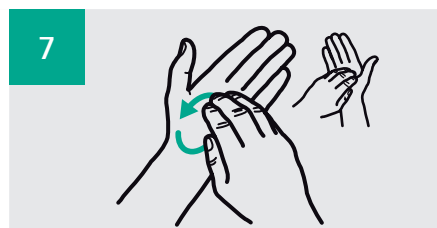
Palm to palm with fingers interlaced;



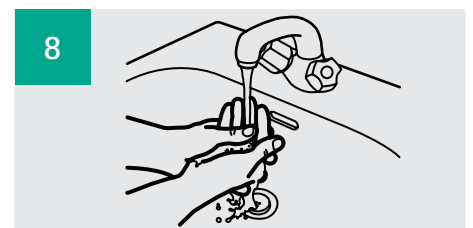
Back of fingers to opposing palms with fingers interlocked;



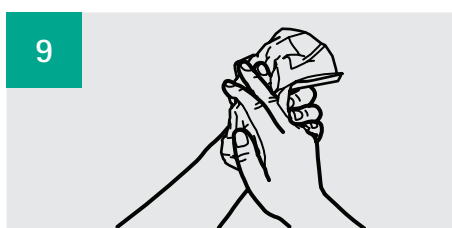
Rotational rubbing of left thumb clasped in right palm and vice versa;



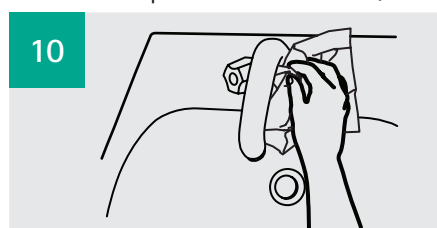
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



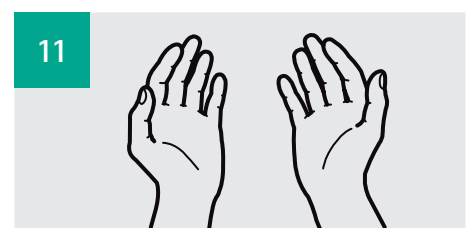
Rinse hands with water;



Dry hands thoroughly with a single use towel;



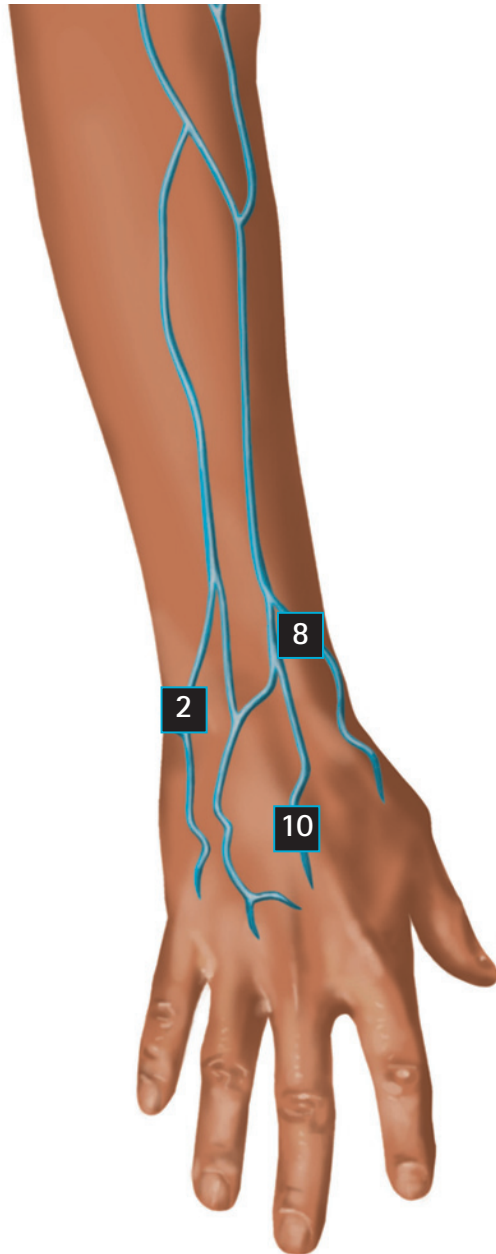
Use towel to turn off faucet;



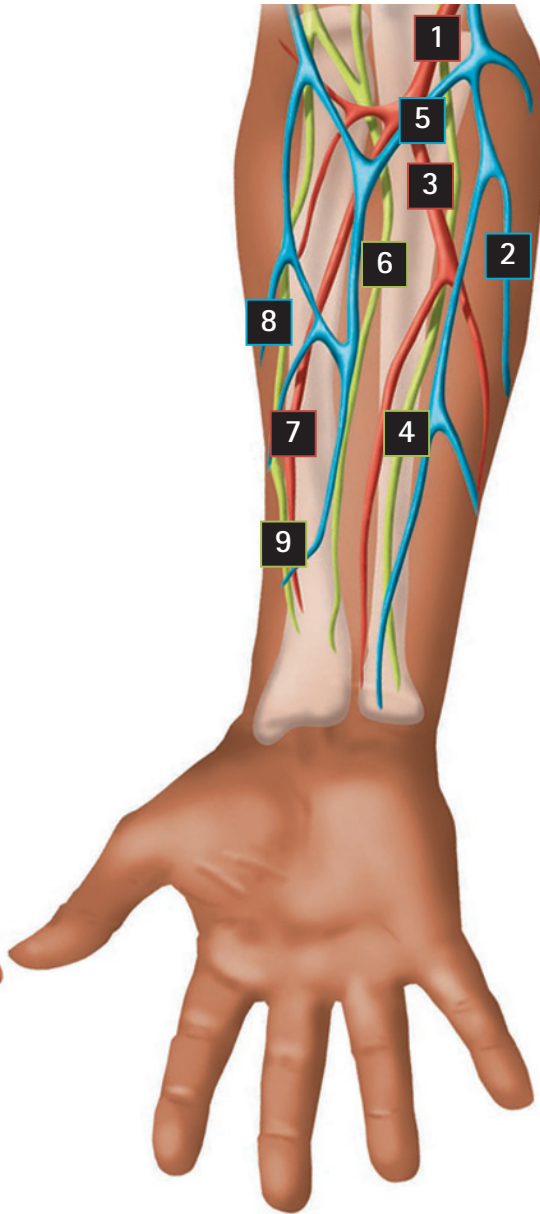
Your hands are now safe.

2. Vein Selection

Dorsal View



Ventral View



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

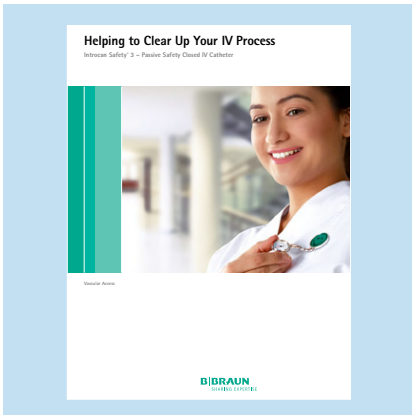
3. IV Cannula Selection

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

Flow Rate:		General Use:	Suitable anatomical location for insertion:
14G	345 ml/min – 350 ml/min	<ul style="list-style-type: none"> For rapid transfusion of whole blood, blood components and viscous fluids Often used in theatres or emergency interventions 	<ul style="list-style-type: none"> Antecubital fossa Median cephalic (radial side) Median basilic (ulmar side) Median cubital (in front of elbow joint)
16G	196 ml/min – 215 ml/min	<ul style="list-style-type: none"> For rapid transfusion of blood components or viscous fluids Often used in theatres or emergency interventions 	<ul style="list-style-type: none"> Antecubital fossa Median cephalic (radial side) Median basilic (ulmar side) Median cubital (in front of elbow joint)
18G	96 ml/min – 100 ml/min	<ul style="list-style-type: none"> For infusing blood components quickly Parental nutrition Stem cell harvesting and cell separation Large volumes of fluids 	<ul style="list-style-type: none"> Median cubital (radial aspect of forearm) Median basilic (ulnar aspect of forearm) Median antebrachial
20G	60 ml/min – 65 ml/min	<ul style="list-style-type: none"> For routine infusion therapies and infusing blood components or large volumes of fluid Patients on long term medication Patients receiving up to 2-3 litres of fluid per day 	<ul style="list-style-type: none"> 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)
22G	35 ml/min – 36 ml/min	<ul style="list-style-type: none"> Appropriate for most infusion therapies Standard for paediatrics For infusing blood components quickly 	<ul style="list-style-type: none"> Used in adults, adolescents, children, infants and geriatric patients Commonly used in he acute and chronic care setting May be more difficult to pierce tough skin
24G	22 ml/min	<ul style="list-style-type: none"> For elderly, paediatric and neonatal patients Oncology patients undergoing chemotherapy Medications, short term infusions Patients with fragile veins 	<ul style="list-style-type: none"> 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)

4. IV Cannulation Procedure

Cannulation Guideline Procedure using an Aseptic Non Touch Technique



Patient Preparation

- Patient education
- Patient consent
- Check patient identity

Hand Hygiene

It is recommended that routine hand hygiene is performed:

- Before touching a patient
- Before a procedure
- After a procedure or body substance exposure risk
- After touching a patient
- After touching a patient's surroundings

Hand hygiene must also be performed before putting on gloves and after the removal of gloves

Personal Protective Equipment

Gloves, apron and eye protection due to potential for body substance exposure

Tourniquet Application and Vein Selection

- Palms width (approx 10cm) above insertion site
- Place two fingers on patient side prior to tightening
- Should be able to palpate arterial pulse distal to tourniquet
- Tourniquet should not be in situ for longer than 2 minutes
- Remove tourniquet once vein is located, prior to preparation of equipment



Preparation of Equipment

- Sterile dressing pack/sterile field
- Cannula
- Clean or disposable tourniquet
- Alcohol based hand scrub
- Skin cleaning preparation (2% Chlorhexidine in 70% Isopropyl Alcohol)
- Needlefree access device
- Sterile dressing
- Saline flush
- Sharps bin



Skin Cleaning

- Cleanse with skin cleaning agent (2% Chlorhexidine in 70% Isopropyl Alcohol) for 30 seconds
- Allow to dry for 30-60 seconds
- Do not touch the cleansed site again

Non Touch Aseptic Method

- 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 CLEANED



Insert Cannula

- Apply skin traction
- Insert cannula with bevel up at a 25-30 degree angle
- Observe for first flashback
- Stop advancing and decrease cannula to a 10 degree angle
- Advance cannula sheath into vein observing for second flashback
- Release tourniquet
- Stabilise cannula and occlude vein while removing stylet (Note: no need to occlude vein if using an IVC with blood control feature)
- Attach needless access device

Dress and Secure

- Apply a transparent occlusive IV dressing



Dress and Secure

- Flush using 0.9 NaCl in 10ml syringe
- Stop if resistance is felt
- Observe for signs of infiltration

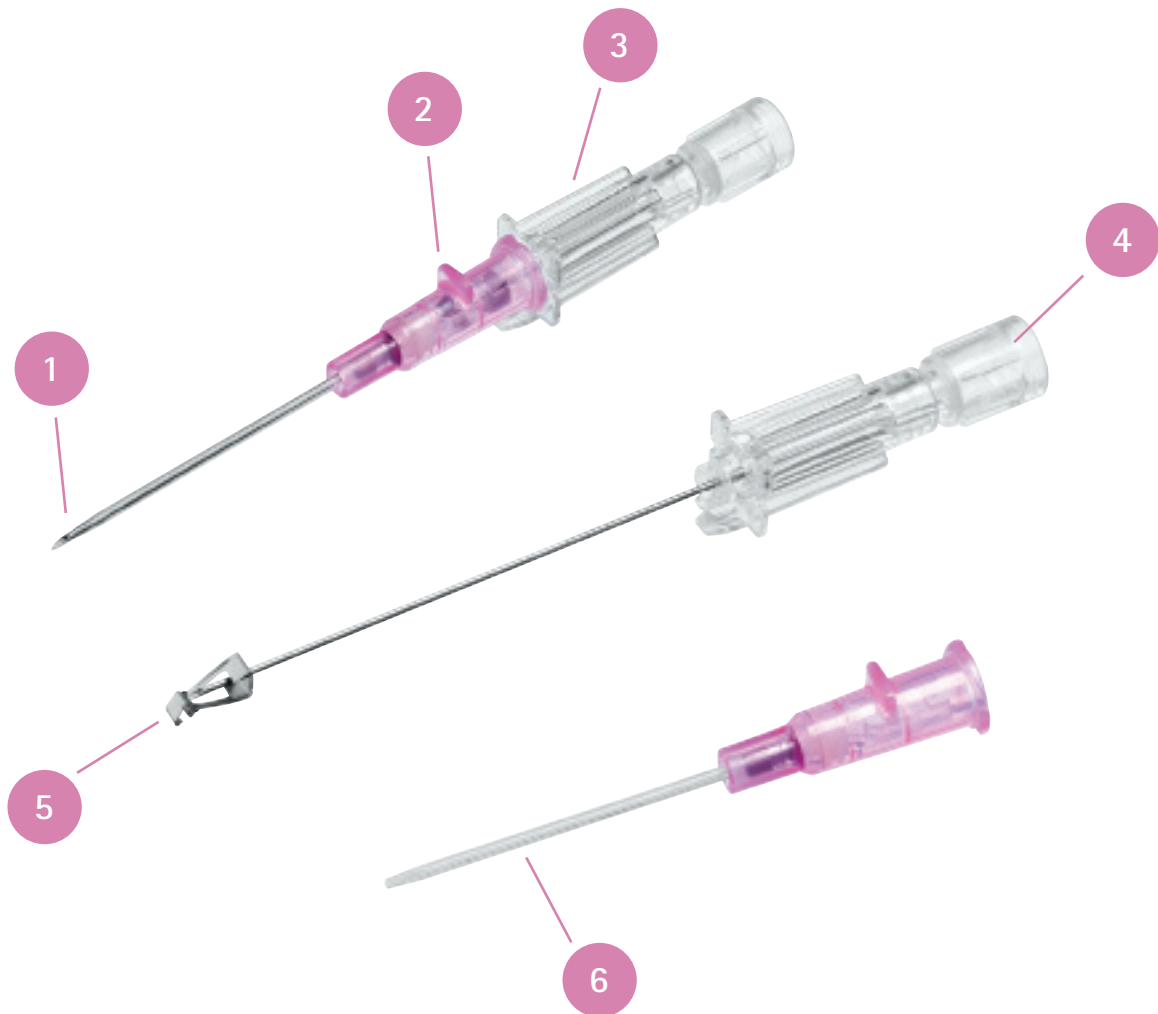
5. Introcan Safety[®]

Prior to use:

- Ensure push-off 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-Off Plate

3 Flashback Chamber

4 Blood Stop Plug

5 Passive Safety Clip

6 Catheter

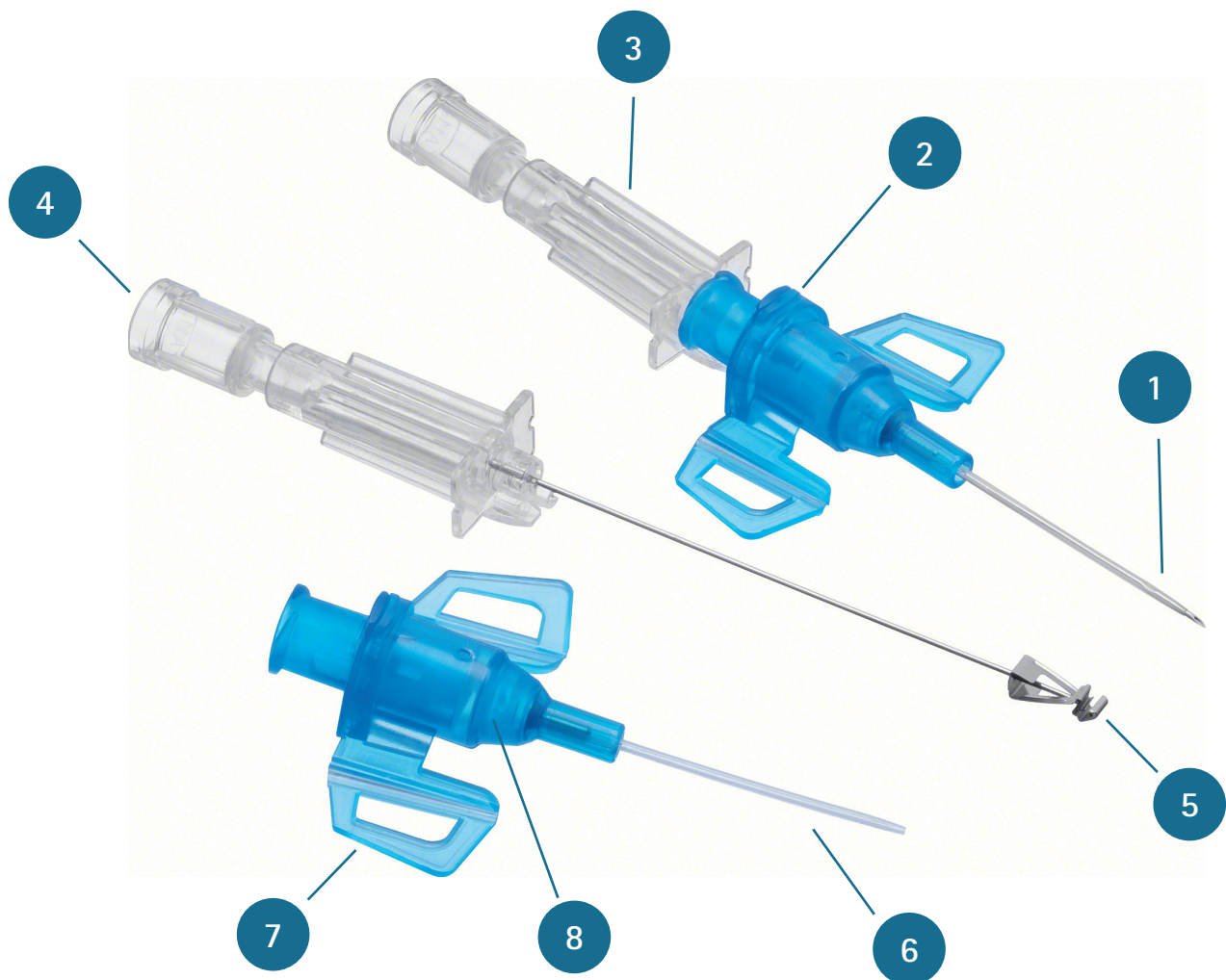
6. Introcan Safety[®] 3

Prior to use:

- Ensure push-off plate is at top indicating needle bevel is not in correct position
- Ensure wings are flattened at hinges
- Do not hold cannula by the wings when inserting device

During cannulation:

- Ensure needle is withdrawn slowly from cannula parallel to vein
- Septum within hub minimises blood exposure on multiple accesses



1 Needle

2 Push-Off Plate

3 Flashback Chamber

4 Blood Stop Plug

5 Passive Safety Clip

6 Catheter

7 Stabilisation Platform

8 Multi Access Blood Control Septum

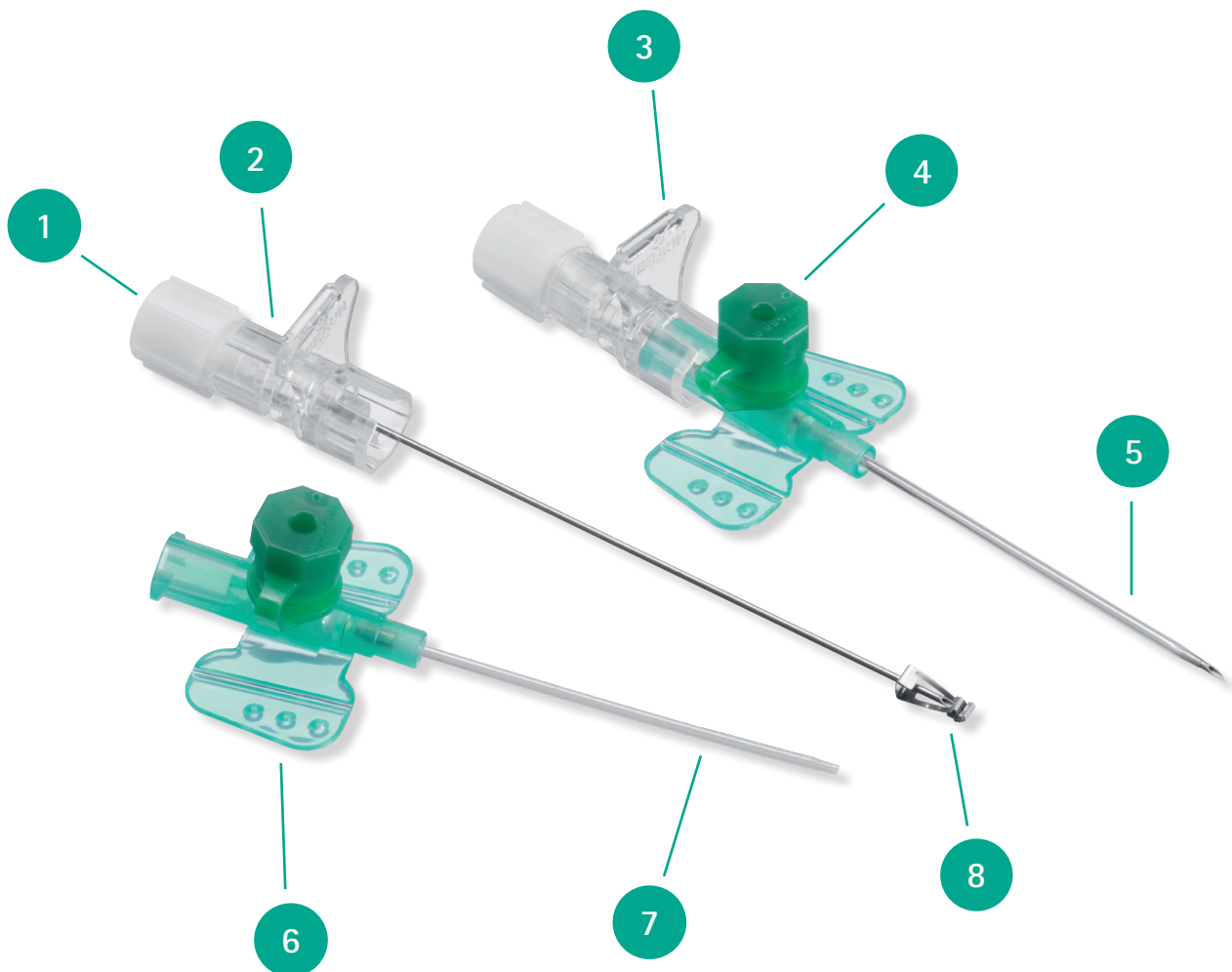
7. Vasofix Safety®

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



1 White Cap/
Closing Cone

2 Blood Stop Plug

3 Grip Plate

4 Injection Port

5 Needle

6 Fixation Wings

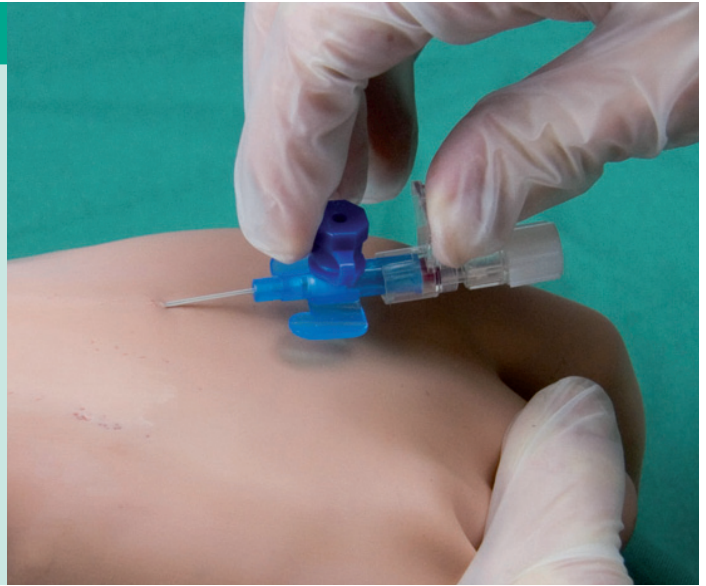
7 Catheter

8 Passive Safety Clip

8. Flashback Visualisation

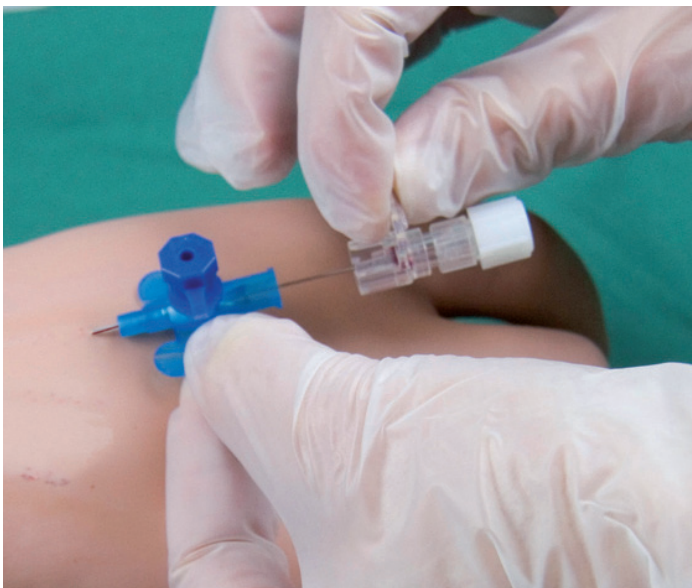
First Flashback

Blood in flashback chamber of stylet indicating that 'needle' has entered the vein.



Second Flashback

Blood in catheter shaft indicating that 'cannula' has successfully entered the vein.



Key Steps After Insertion

- Connect needlefree access device of infusion line to the catheter hub
- Secure cannula with transparent occlusive dressing
- Flush with NaCl 0.9% in 10 ml syringe to check patency and observe for signs of infiltration
- Remove personal protective equipment and wash hands
- Record – as per local hospital policy
- Plan future care – check site and patency at regular intervals and document as per local hospital policy

9. Caresite® Needlefree Valve and Extension Tubing

INSTRUCTIONS FOR USE



Caresite® valve can be used as an injection site for peripheral IV access, central venous catheters and PICCs.

Three simple steps before flushing or administering medication:

1. Wash Hands



- Use an alcohol-based handrub or antibacterial soap
- Wear gloves for IV procedure

2. Disinfect Valve Top



- Vigorously swab with disinfection pad and allow to dry, ensuring to follow local protocols

3. Attach and Disconnect



- Caresite® valve does not require clamping or a positive flushing technique to prevent reflux of blood into the catheter
- The line may be clamped after syringe disconnection if required for patient safety

10. Complications in IVC Insertion

Complication	Recommendation
<p>Puncturing Artery</p> <p>When the needle has entered the artery instead of the vein</p>	<ul style="list-style-type: none"> • Release tourniquet • Remove cannula immediately • Apply pressure until bleeding stops • Provide explanation to patient • Do not reapply a tourniquet to the limb • Document in patient's notes
<p>Infiltration</p> <p>When a non-vesicant medication/ solution leaks into the subcutaneous tissue instead of the vein</p>	<ul style="list-style-type: none"> • Stop infusion at once • Remove cannula immediately • Assess extent and volume of infusate • Treat according to local hospital policy • Document in patient's notes
<p>Extravasation</p> <p>When a vesicant medication/ solution leaks into the subcutaneous tissue instead of the vein</p>	<ul style="list-style-type: none"> • Stop infusion at once • Leave cannula in-situ • If possible, elevate limb to reduce oedema • Advise patient to exercise joints • Subsequent management depends on the drug involved and the degree of damage • Treat according to local hospital policy • Document in patient's notes
<p>Haematoma</p> <p>When blood has leaked from a vein/artery into the surrounding tissue</p>	<ul style="list-style-type: none"> • Remove cannula immediately • Apply pressure until bleeding stops • If appropriate, elevate limb • Apply ice pack if necessary • Do not reapply tourniquet to affected limb • Document in patient's notes

Complications Continued

Complication		Recommendation
Vasovagal Reaction	Syncope or fainting	<ul style="list-style-type: none"> • Call for assistance • If conscious but feeling faint, ask patient to place head between their knees or lie patient down • Document in patient's notes
Missed Vein		<ul style="list-style-type: none"> • If appropriate, withdraw needle slightly and realign
Phlebitis	Acute inflammation of the vein Which could be: <ul style="list-style-type: none"> - mechanical - chemical - infective 	<ul style="list-style-type: none"> • Perform visual inspection of cannula for signs of phlebitis, documenting VIP score at least once per shift • Remove cannula for VIP score 2 or greater to manage phlebitis according to cause and severity
Cannula Embolus		<ul style="list-style-type: none"> • Apply tourniquet to limb immediately • Care should be taken on placement to ensure vein dilation does not cause embolus to travel • X-ray • Locate cannula fragment • Salvage cannula fragment • Document in patient's notes
Localised Infection	Can be characterised by any of the following at the insertion site: <ul style="list-style-type: none"> - pain - redness - swelling - warmth 	<ul style="list-style-type: none"> • Strict asepsis during cannula insertion and care • Assess the insertion site regularly • Remove cannula from an infected site • Rotate cannula in accordance with local policy • Consider removing a cannula not in use

11. References and Further Reading

Centre of Disease Control. 2011. Guidelines for the Prevention of Intravascular Catheter-Related Infections. <https://www.cdc.gov/hai/pdfs/bsi-guidelines-2011.pdf>

Dougherty, L. 2008. Intravenous therapy in nursing practice, 2nd Edition, Edinburgh: Churchill Livingstone.

Lovejay H.P, Wilson. J.A, Pratt. R.A, Golsorkhi. M, Tingle. A, Bak. A, Browne. J, Prieto. J & Wilcox. M. 2014. epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. Journal of Hospital Infection, 86S1, S1-S70.

National Health and Medical Research Council. 2019. Australian Guidelines for the Prevention and Control of Infection in Healthcare. <https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019>

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Ray-Barruel. G, Cooke, M. Mitchell. M, Chopra. V & Rickard. C. 2018. Implementing the I-DECIDED clinical decision-making tool for peripheral intravenous catheter assessment and safe removal: protocol for an interrupted time-series study. <https://bmjopen.bmj.com/content/8/6/e021290>

Royal College of Nursing. 2016. Standards for Infusion Practise. 4th edition. <https://www.rcn.org.uk/professional-development/publications/pub-005704>

Stuart. R, Cameron. D, Scott. C, Cotsanas. D, Grayson. M, Korman. T, Gillespie. E & Johnson. P. 2013. Peripheral intravenous catheter-associated Staphylococcus aureus bacteraemia: more than 5 years of prospective data from two tertiary health services. Medical Journal of Australia; 198 (10): 551-553. || doi: 10.5694/mja12.11699

Tosini. W, Ciotti. C, Goyer. F, Lolom. I, L'He'riteau. F, Abiteboul. D, Pellissier & G, Bouvet. E. April 2010. Needlestick Injury Rates According to Different Types of Safety-Engineered Devices: Results of a French Multicenter Study. Infection Control and Hospital Epidemiology, 31:402-407.

Useful Links:

National Health and Medical Research Council
<https://nhmrc.gov.au>

Aseptic Non Touch Technique
www.antt.org

Hand Hygiene Australia
<https://www.hha.org.au>

NSQHS Standards
www.safetyandquality.gov.au/standards/nsqhs-standards

Alliance for Vascular Access Teaching and Research
<https://www.avatargroup.org.au/>

Notes

Notes

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