



Clinical Practice Procedures: Access/Intravenous – Peripheral intravenous cannulation

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Date	March, 2020
Purpose	To ensure a consistent procedural approach to intravenous – Peripheral intravenous cannulation
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Intravenous – Peripheral intravenous cannulation

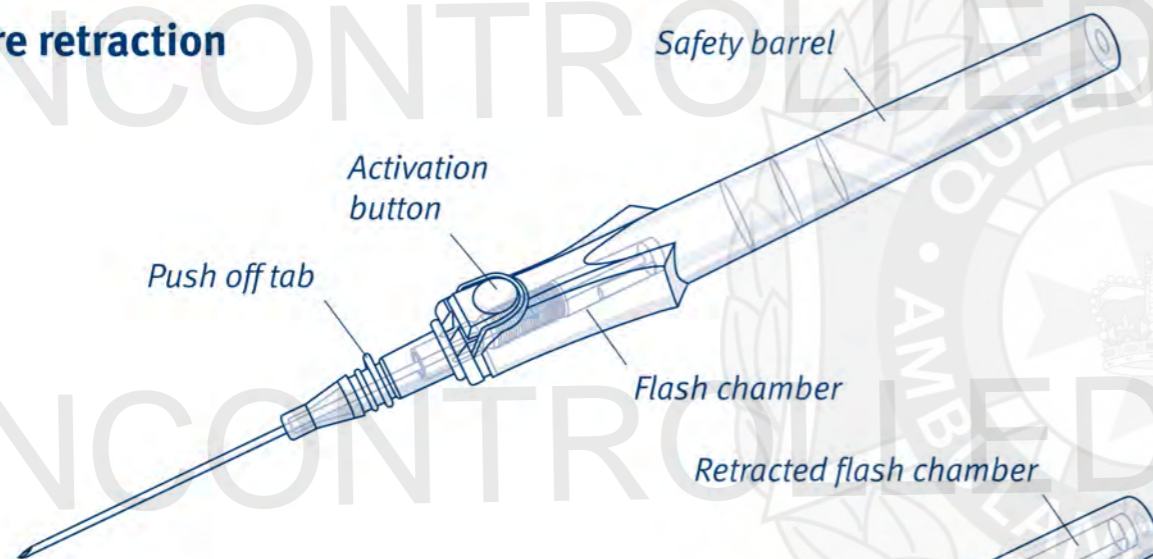
March, 2020

Peripheral intravenous cannulation (PIVC) involves inserting a catheter into the vascular system enabling the administration of medications and/or fluids.

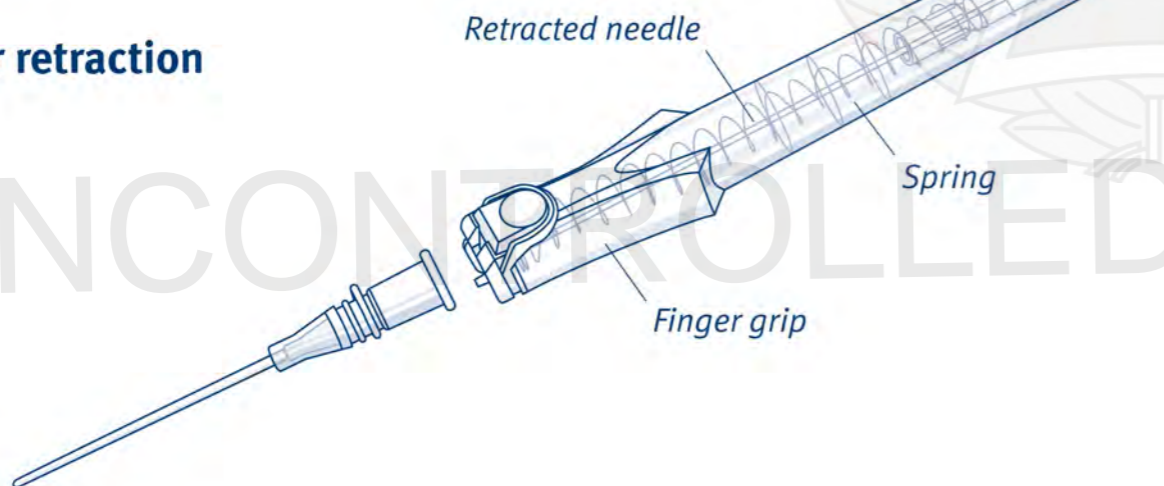
PIVC is an invasive procedure which carries a high risk of complications.^[1] Appropriate consideration must be given to its clinical requirements and if appropriate, therapy should be provided by a less invasive route.

BD Insyte™ Autogaurd™^[2] shielded IV catheters used by the QAS have a unique push-button shielding mechanism that allows the clinician to retract the needle into the safety barrel reducing the risk of needle stick injury.

Before retraction



After retraction



Indications

- Vascular access for the administration of drugs and/or fluids.

NOTE: Is there a clinical requirement for this procedure?

- Will it value add?
- Do the benefits outweigh the risks?
- Is there a simpler, less invasive alternative?
- Can it be justified at this point in time?

Contraindications

- Whenever possible avoid sites of burns, infection, trauma or significant oedema.

Complications

- Local or systemic infection
- Drug/fluid extravasation into superficial tissue
- Haematoma or haemorrhage
- Air embolus

Procedure – Intravenous – Peripheral intravenous cannulation

1. Apply required infection control measures (refer to *QAS Infection Control Framework*).

2. Identify an appropriate insertion site; options include:

Metacarpal & forearm veins

- Easily accessible in the pre-hospital environment.
- Self splinted by metacarpal or radius and ulna bones.
- Preferred veins for the non-emergent administration of medications and/or fluids.

Antecubital fossa (ACF) veins

- Preferred veins for rapid administration of fluids.
- Large veins allowing for increased cannula gauge.
- Flow may be compromised with catheter occlusion due to flexion/extension.

Foot & ankle veins

- Only to be considered as a last resort.
- Increased infection risk.

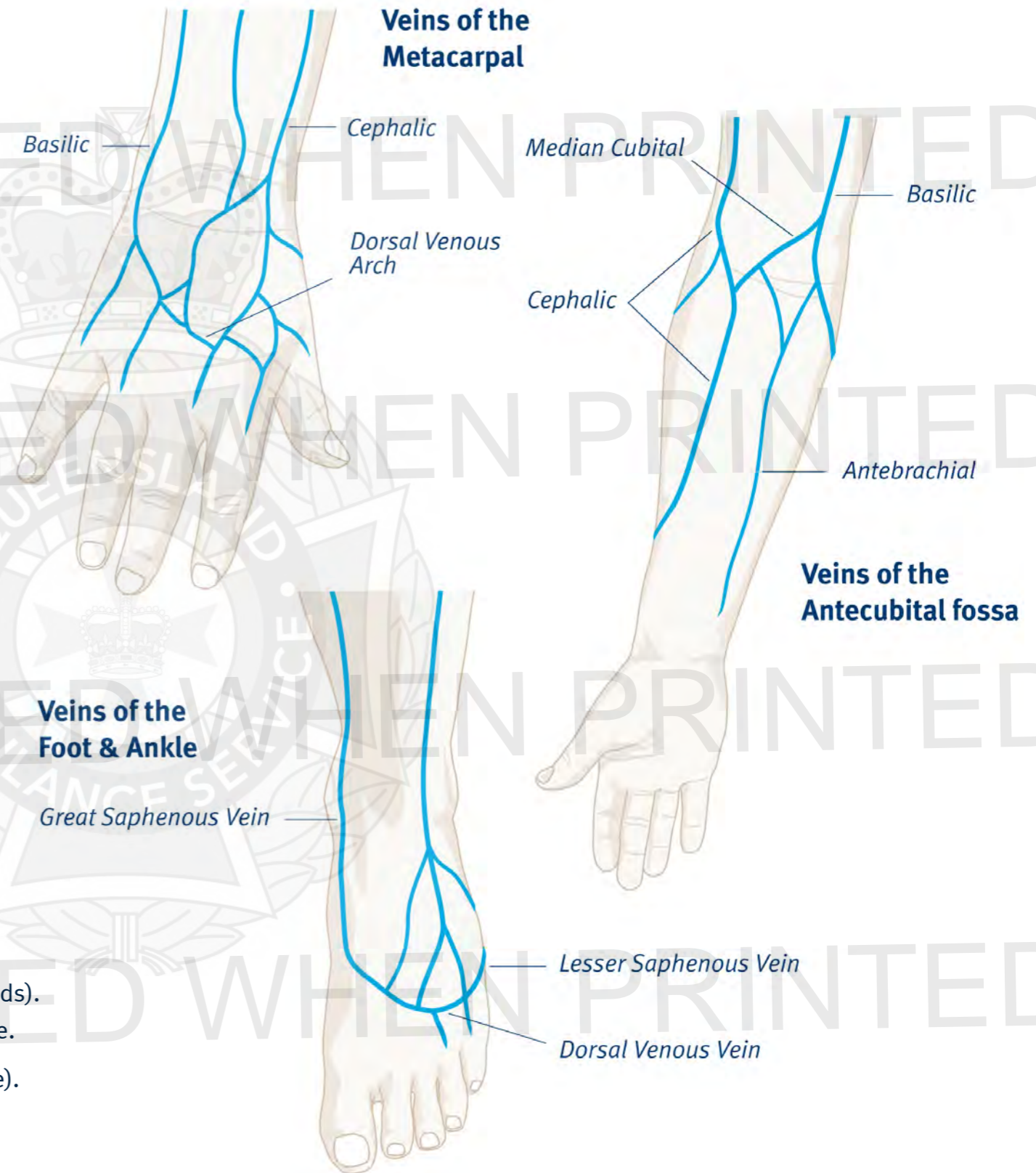
3. Apply a single patient use tourniquet to promote venous distention.

4. Palpate the vessel to exclude the possibility that it is an artery (e.g. brachial artery when cannulating the ACF).

5. Clean the intended insertion site with an appropriate antimicrobial swab using a 'back and forth' motion in two different directions (cross hatch method) for 15 seconds in each direction (total 30 seconds). A risk benefit analysis in view of the patient's condition is appropriate.

6. Allow the insertion site to completely dry (where clinically appropriate).

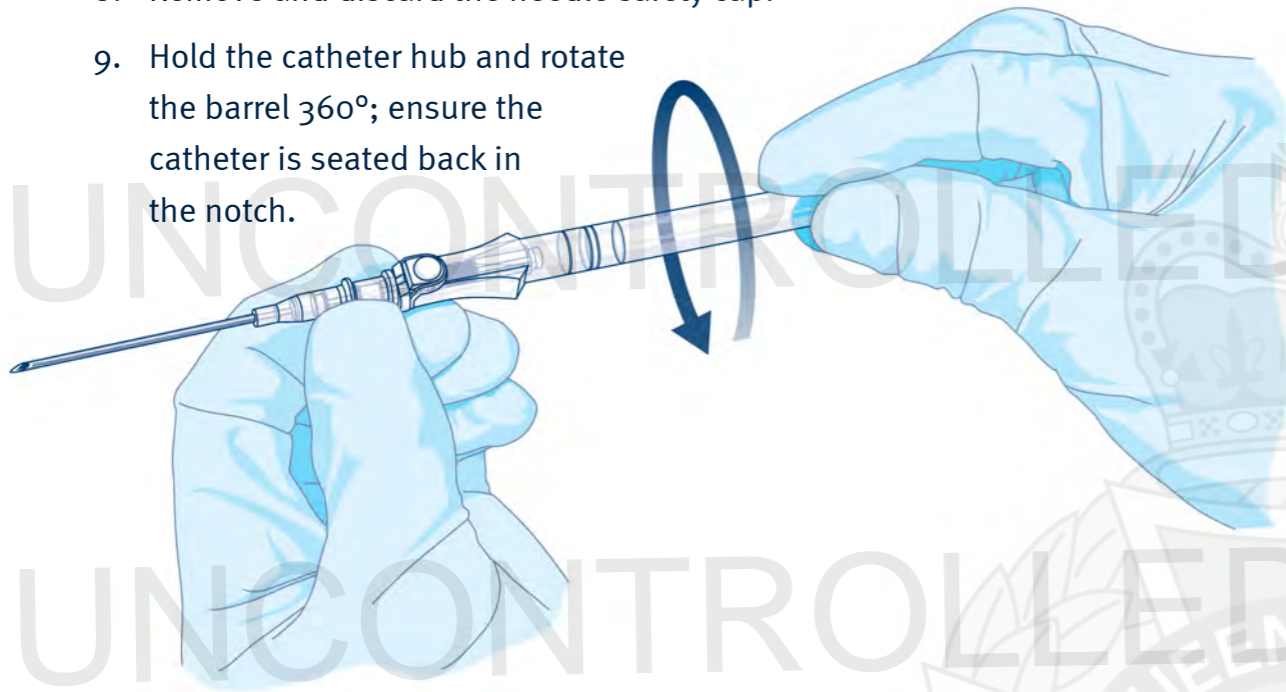
7. Identify an appropriate size cannula.



Procedure – Intravenous – Peripheral intravenous cannulation^[2]

8. Remove and discard the needle safety cap.

9. Hold the catheter hub and rotate the barrel 360°; ensure the catheter is seated back in the notch.



10. Stabilise the vein by placing a thumb below the cannulation site.

11. While holding the cannula bevel up, swiftly enter the vein at a 30° angle (or less) and observe flashback along the catheter (20, 22, 24 gauge) or behind the white button (16 and 18 gauge).

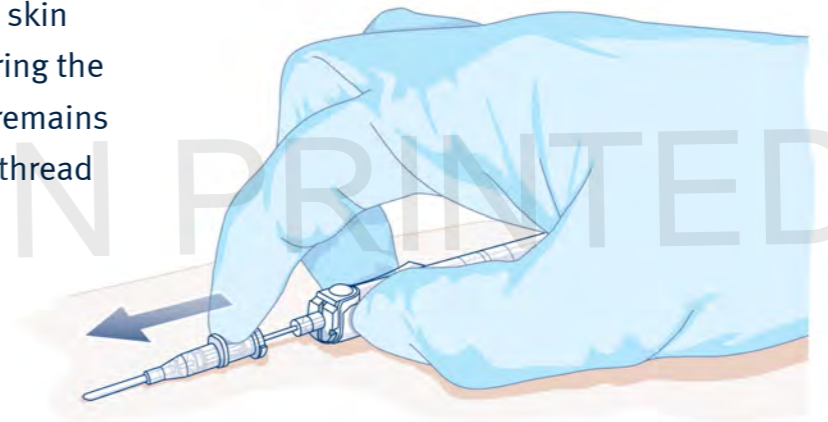
Flashback
along catheter



12. Upon visualising a flashback, lower the catheter and slightly advance the needle assembly.

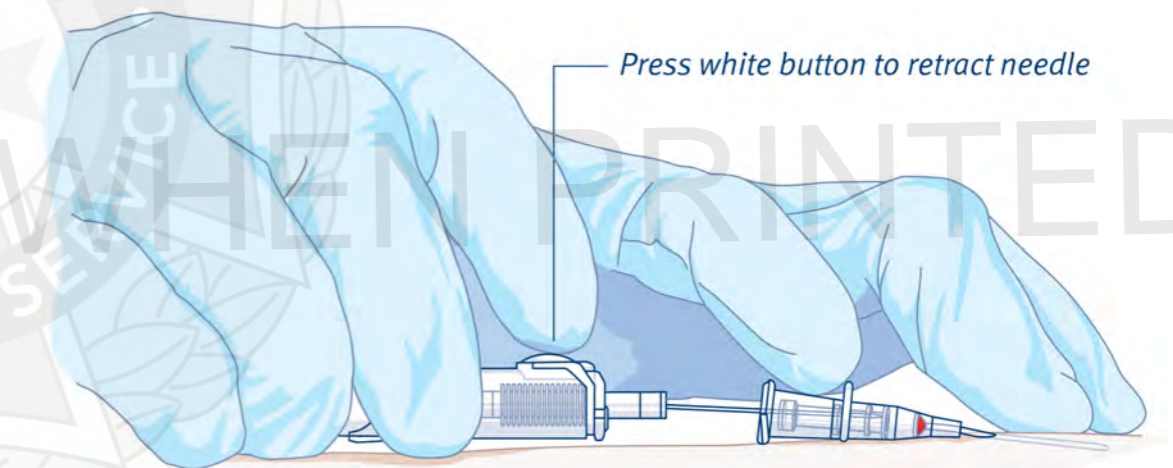
13. While maintaining skin traction and ensuring the needle assembly remains stationary; gently thread the catheter into the vein.

14. Apply gentle pressure to the distal catheter tip.



15. Release and remove the tourniquet.

16. Press the white button to retract the needle and dispose of the shielded needle immediately into a sharps container.



17. Attach a SmartSite® Needle-free valve.

18. Secure the catheter by applying a Tegaderm™ (Emergency) IV dressing.

19. Flush the cannula with sodium chloride 0.9% to ensure patency.

20. Administer medications and/or fluids as necessary.

21. Frequently monitor the insertion site for extravasation.

Additional information

- The use of medical gloves is not a substitute for hand hygiene. Hand hygiene should be performed before donning and after doffing medical gloves and immediately before and after any procedure.^[6]
- Eye protection must be worn by all clinicians. The potential of blood and body fluids exposure (especially in the face and eyes) during this procedure is **HIGH**.
- IV access should always be attempted at the most appropriate peripheral vein possible *unless indicated for major resuscitation*.
- IV access should only be implemented after all basic cares.
- The following sites are not to be used for IV access:
 - ACF when primary percutaneous coronary intervention (pPCI) is anticipated
 - lower limbs when pelvic, abdominal or thoracic trauma is suspected
 - distal to a complex limb injury
 - Limb with a fistula present
 - an area of phlebitis or cellulitis
 - when a limb has potential or existing lymphoedema (e.g. the same side as lymph node clearance).
- A PIVC that is inserted in an emergency situation, where aseptic technique has been compromised, should be replaced within 24 hrs.^[5]
- A PIVC inserted with aseptic technique is to be changed when clinically appropriate (assuming it is still needed and still patent, with no evidence of infection) and not routinely.^[6,7]
- Cannula selection is based on the following considerations:
 - minimising discomfort to the patient
 - ease of insertion
 - smallest appropriate size required to achieve desired therapeutic effect.

- The QAS supplies six sizes of BD Insyte™ Autoguard™ Blood Control shielded IV catheters.

SPECIFICATIONS				
Gauge	Length (mm)	Flow rate (mL/min)	Colour	Common uses
14	45	N/A	Orange	CHEST DECOMPRESSION ONLY
16	30	220	Grey	Chest decompression AND/OR volume replacement
18	30	105	Green	General medication AND/OR fluid administration
20	30	60	Pink	General medication AND/OR fluid administration
22	25	35	Blue	Difficult access AND/OR paediatric patients
24	19	20	Yellow	Difficult access AND/OR paediatric patients

NUMBER OF ATTEMPTS

- Cannulation attempts are limited to three, unless IV access is crucial due to case severity.

Removal instructions

1. Remove adhesive dressing.
2. Place sterile gauze over the penetration site.
3. In one continuous motion, gently pull the cannula until completely removed.
4. Inspect removed cannula for completeness (including tapered tip).
5. Apply firm pressure to puncture site for 60 seconds and confirm nil active bleeding.
6. Apply adhesive tape over gauze.