Clinical Practice Procedures:
Access/Peripheral intravenous catheter insertion

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Date	June, 2026
Purpose	To ensure a consistent procedural approach to peripheral intravenous catheter insertion.
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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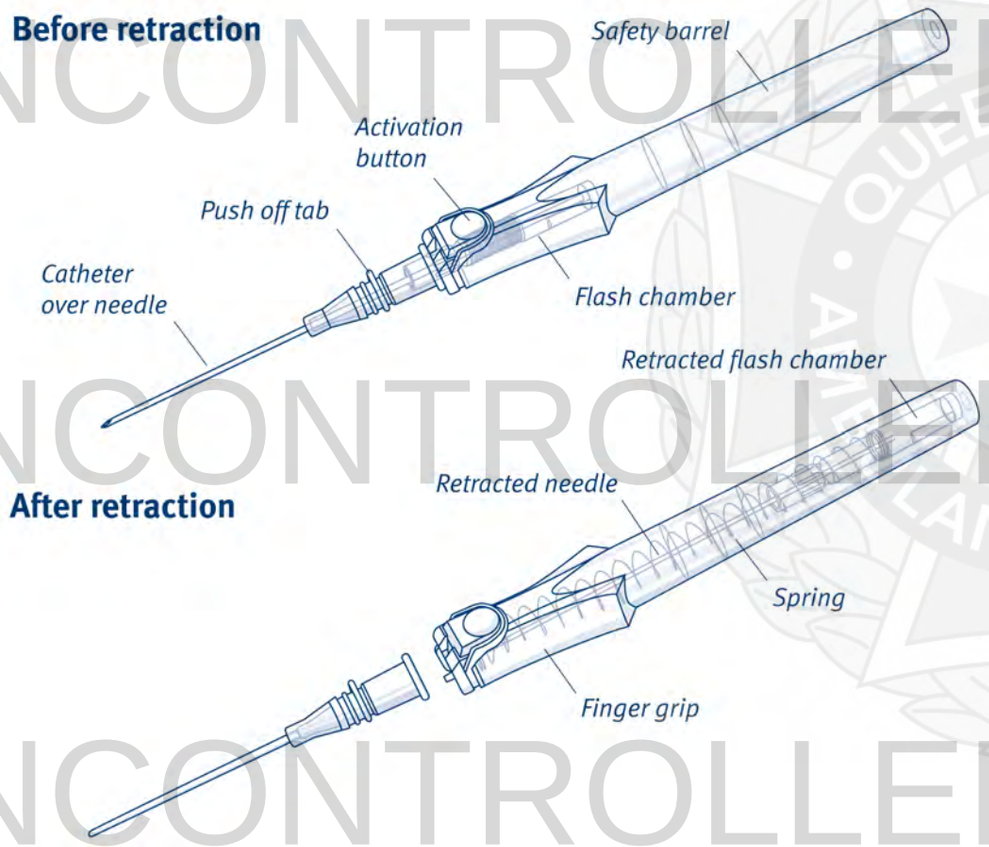
Intravenous – Peripheral intravenous catheter insertion

June, 2026

Peripheral intravenous catheter (PIVC) insertion involves inserting a small flexible catheter into the patient's peripheral vascular system through the skin. This access enables the intermittent or continuous administration of medications, hydration fluids and/or blood products directly into the bloodstream.

BD Insyte™ Autoguard™[1] BC Pro shielded IV catheters used by QAS have a unique push-button shielding mechanism that allows the clinician to retract the needle into the barrel safely without the need to compress the distal vein, reducing the risk of needle stick injury and blood exposure.



Indications

- Vascular access for the administration of medications, hydration fluids and/or blood products.

NOTE: Is there a clinical requirement for this procedure?

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

Contraindications

- Whenever possible avoid sites of burns, infection, trauma or significant oedema.
- Pre-existing medical conditions that exclude particular limbs from being used include:
  - Lymphoedema
  - Arteriovenous fistula

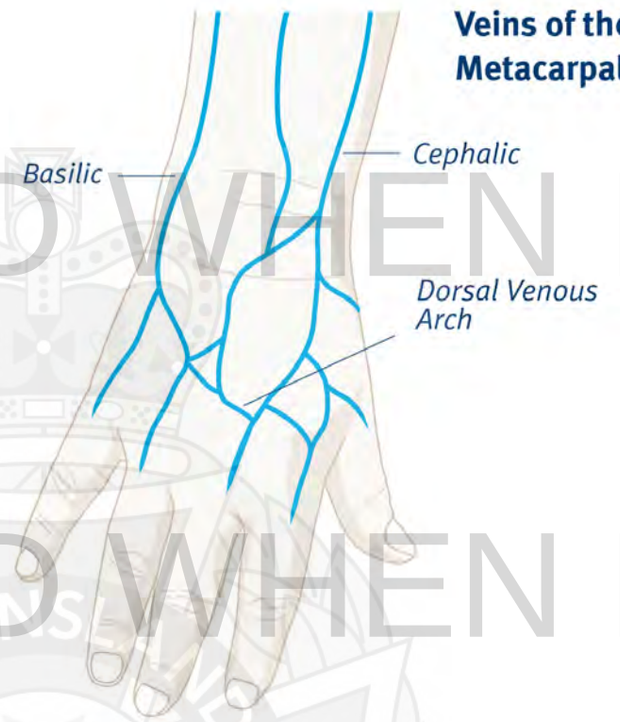
PIVC insertion is an invasive procedure which carries a high risk of complications.[2–4] QAS inserted PIVCs should only be inserted if required for the patients' immediate clinical needs.

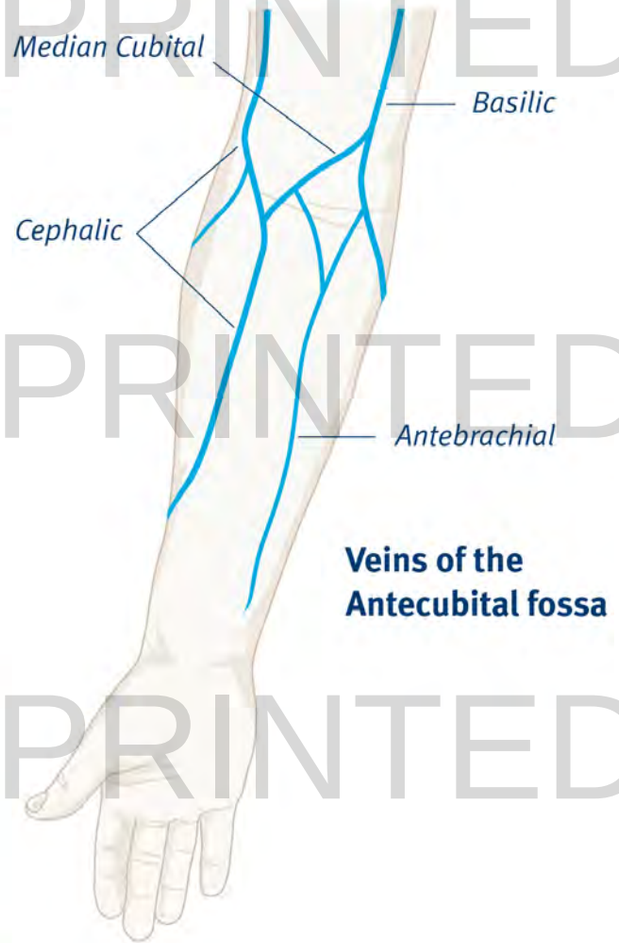
Complications

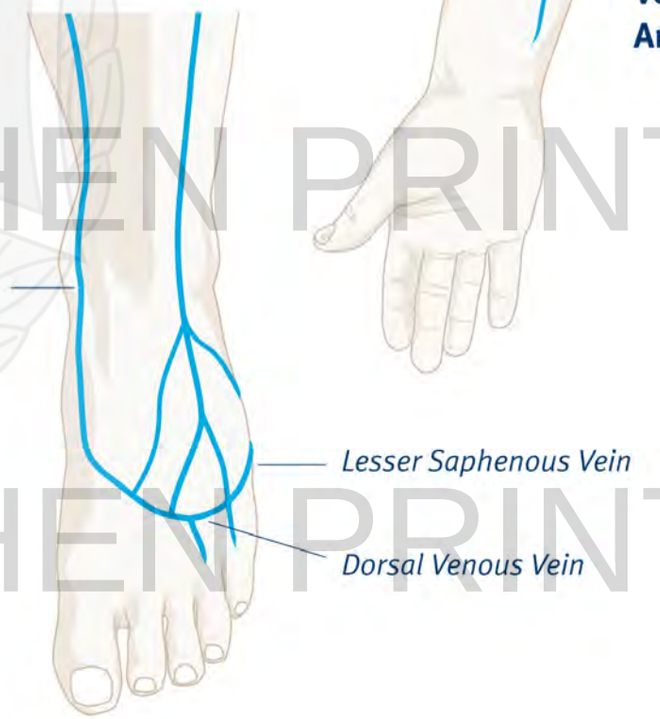
- Redness, pain or swelling of the vein
- Localised or systemic catheter or line related infections (most commonly *Staphylococcus aureus*)
- Drug/fluid extravasation into superficial tissue

PROCEDURE

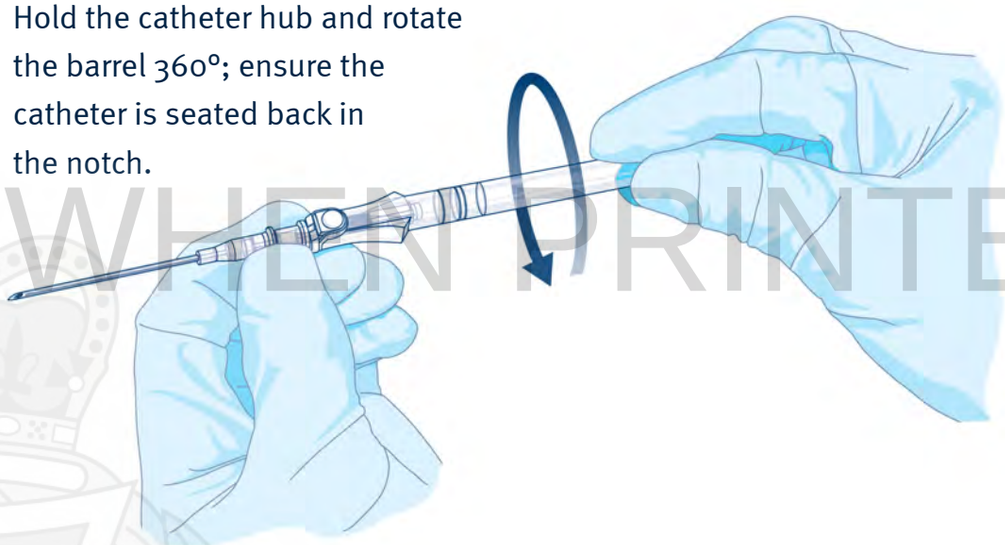
1. Undertake hand hygiene and don appropriate gloves.
2. Place equipment on a clean surface to create a general aseptic field.
3. Confirm that PIVC insertion is clinically indicated at this point and is the most appropriate route of administration for the patient's immediate clinical needs.
4. Check for allergies (e.g. chlorhexidine from an antimicrobial swab).
5. Identify the most appropriate insertion site; options include:
   a. Metacarpal & forearm veins
      i. Easily accessible in the pre-hospital environment
      ii. Self-splinted by metacarpal or radius and ulna bones
      iii. Preferred vein for non-emergent administration of medications and/or fluids.
   b. Antecubital fossa (ACF)
      i. Preferred veins for rapid administration of fluids
      ii. Large veins allowing for larger gauge catheters
      iii. Flow may be compromised with catheter occlusion due to arm flexion and extension.
   c. Foot and ankle veins
      i. Increased infection risk.
      ii. Only to be considered as a last resort.



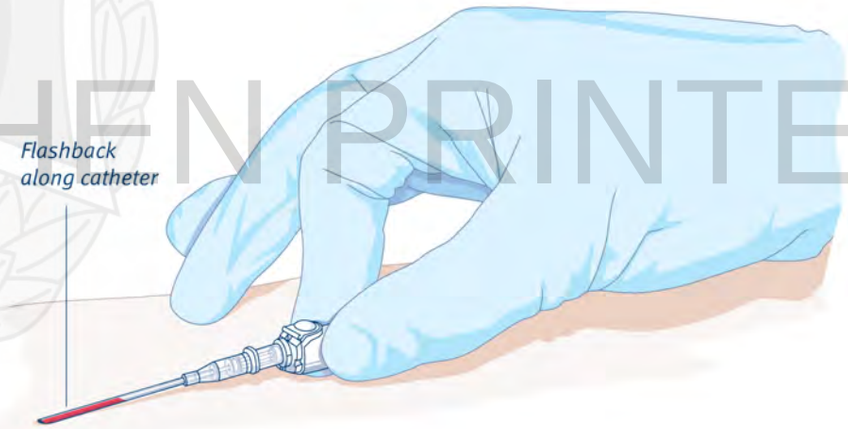




6. Assess for predictors of PIVC insertion difficulty and consider all available options to maximise first insertion success, including:
   a. The patient's ergonomics and positioning
   b. Optimising scene conditions, e.g. lighting
   c. Escalating to a more experienced clinician
   d. Adjunct supportive therapies
   e. Parental/carer support
   f. Distraction for paediatrics.
7. If clinically appropriate, ensure that the need for PIVC insertion is discussed with, and understood by the patient.[5]
8. Apply a single patient use tourniquet approximately 5 cm above the insertion site to promote venous distention (total tourniquet duration time should not exceed 2 minutes).
9. Palpate the vessel to assess suitability, exclude:
   a. All suspected arteries
   b. Veins with evidence of disease (e.g. scleroses, thromboses or phlebitis).
10. 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). For time critical situations a risk benefit analysis in view of the patient's condition is appropriate.
11. Allow the insertion site to completely dry (where clinically appropriate).
12. Identify an appropriate size PIVC (length/gauge) to meet the immediate clinical needs of the patient.
13. Remove and discard the needle safety cap.
14. Hold the catheter hub and rotate the barrel 360°; ensure the catheter is seated back in the notch.

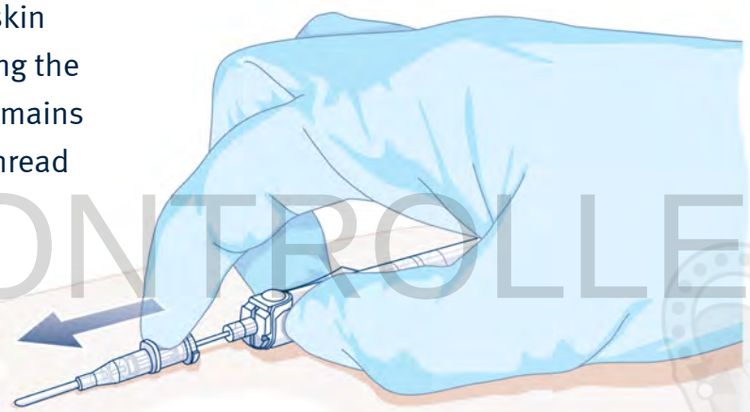


15. Stabilise the vein by placing a thumb below the insertion site.
16. While holding the catheter bevel up, swiftly enter the vein at a 30° angle (or less) and observe flashback along the catheter (20, 22, 24 gauge) or behind the white button (18 gauge).

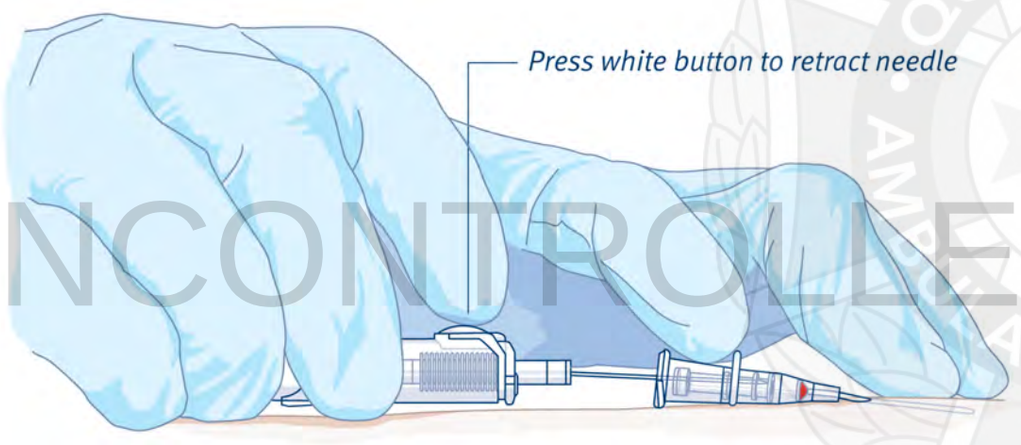


17. Upon visualising a flashback, lower the catheter and slightly advance the needle assembly.

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



19. Release and remove the single patient use tourniquet.
20. Press the white button to retract the needle and dispose of the shielded needle immediately into a sharps container.



21. Attach a SmartSite® Needle-free valve.
22. Secure the catheter by applying a Tegaderm™ 'Emergency' IV dressing.
23. Record the date and time of PIVC insertion on the IV dressing (where clinically appropriate).
24. Flush the catheter with sodium chloride 0.9% to ensure patency.
25. Administer medications, hydration fluids or blood products as required.
26. Frequently monitor the insertion site – the PIVC should be removed if it malfunctions or local site compilations are identified.
27. If clinically appropriate, provide the patient with verbal information on their role to reduce the risk of device-related complications:[5]
    a. Prevent the PIVC from being knocked or pulled;
    b. Ensure the dressing is in place and the PIVC remains dry; and
    c. Notify clinical staff if the catheter is painful or you are concerned.

Minimum eARF documentation requirements:

Insertion:

- Date
- Time
- Requirement for PIVC insertion
- Gauge/length of PIVC used
- Infection prevention and control methods used
- Name of clinician inserting PIVC
- Insertion success/failure

Removal:

- Date
- Time
- Reasons for PIVC removal
- Name of clinician removal
- Observations of the insertion site after removal.

Additional information

- This CPP has been informed by the Australian Commission on Safety and Quality in Health Care Guidelines for management of peripheral Intravenous catheters.[6]
- 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.
- 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**.
- Key parts and key sites should remain free from contamination by hand and the environment in line with aseptic technique principles.
- A new catheter should be used for each cannulation attempt.
- 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 have been performed.
- In rare instances where the Tegaderm™ 'Emergency' IV dressing fails to appropriately secure the catheter, supplementary hypoallergic micropore tape may be used to assist in securing the Tegaderm™. If applied, ambulance clinicians must ensure the patient has no known allergies and the insertion site is not obscured. The use of the Handy® gauze cohesive bandage to secure a catheter is not recommended.
- The QAS supplies four sizes of BD Insyte™ Autoguard™ BC Pro shielded IV catheters for PIVC insertion.

SPECIFICATIONS

Gauge	Length (mm)	Flow rate (mL/min)	Colour	Common uses
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

- The BD Insyte™ Autoguard™ IV catheters (14G and 16G) are **ONLY** authorised for use in emergency chest decompression.

NUMBER OF ATTEMPTS

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

Removal instructions

1. Remove the adhesive dressing.
2. Place a sterile gauze over the penetration site.
3. In one continuous motion, gently pull the catheter until completely removed.
4. Inspect the catheter for completeness (including tapered tip).
5. Apply firm pressure to the puncture site for 60 seconds or until no active bleeding is confirmed.
6. Apply adhesive tape over gauze.

Suggested local monitoring indicators:

- PIVC must only be inserted by clinicians with appropriate training and demonstrated competency.
- The proportion of patients with a QAS inserted PIVC not used for therapeutic purposes while in QAS care.