

# Peripheral intravenous catheter (PIVC): insertion

Point of care tool

The procedures described in this fact sheet are only to be performed by competent personnel and trainees supervised by competent personnel, and in conjunction with local procedures.

## Site selection

- Assess specific patient factors:
  - Pre-existing catheters
  - Anatomic deformity
  - Site restrictions (e.g. mastectomy, AV fistula)
  - Relative risk of mechanical complications
  - Risk of infection.
- Use non-dominant forearm if possible:
  - Use basilic or cephalic veins of posterior forearm.
  - Avoid lower extremity sites.
  - Avoid areas of flexion.
  - Avoid forearm in patients with impending need for dialysis.
- If venepuncture is necessary, rotate sites.

## Size of catheter

- Use the smallest gauge and shortest length PIVC that will accommodate the prescribed therapy. Consider patient factors:
  - Age
  - Condition of veins
  - Degree of cardiovascular stability
  - Intended medical or surgical interventions.
- Also consider size of target vein.
- A central venous catheter should be considered for patients with cardiovascular instability, intended extensive surgery, or requiring long-term intravenous therapy.

## Skin preparation

- If hair removal is required, this should be done using clippers (not shaved).
- Physically clean skin with soap and water if necessary prior to applying antiseptic solution.
- 2% alcoholic chlorhexidine, or 10% povidone iodine with 70% alcohol.
- Apply skin preparation solution meticulously to an area of skin approximately 10cm x 10cm, using concentric circles, for at least 30 seconds. Allow antiseptic to air dry completely.
- Do not palpate insertion site after antiseptic has been applied (unless it is re-prepped).

## Procedure for insertion

It is recommended that clinicians make no more than **two attempts** at cannulation before seeking assistance from a more experienced clinician, unless it is a medical emergency or no other clinicians are available.

It is recommended that the following steps, developed by the Vascular Access Surveillance Team (VAST) at the Princess Alexandra Hospital, are followed by clinicians to insert a PIVC using aseptic technique. Staff should also refer to locally developed procedures for PIVC insertion.

1. Assess patient. Consent patient. Explain procedure.
2. Clean trolley with alcohol/detergent wipes. Perform routine hand hygiene.
3. Collect all equipment required and check for sterility and/or expiry date.
4. Ensure patient comfort and privacy. Draw curtains around treatment area ensuring there is adequate space available in which to perform procedure. Adjust level of bed for staff member.
5. Perform routine hand hygiene. Place patient in appropriate position free from jewellery.
6. Assess and select patient vein by applying a clean tourniquet. Place protective sheet under site to be cannulated. If unable to locate vein, release tourniquet, postpone procedure and seek assistance.
7. Perform routine hand hygiene. Don appropriate personal protective equipment (e.g. apron, goggles).
8. Perform routine hand hygiene. Prepare aseptic field and equipment.
9. Aseptically prepare IV flush and prime extension set.
10. Perform routine hand hygiene. Prepare insertion site as per [Skin preparation: insertion site](#):
  - Clip hair if necessary
  - Apply skin preparation solution and allow to air dry.
11. Retighten tourniquet.
12. Perform clinical hand hygiene. Don non-sterile or sterile gloves. Sterile gloves are necessary if touching key parts and key sites.
13. Anchor vein below puncture site and insert cannula using aseptic technique.
14. Attach extension tubing, flush IV cannula and dress and secure cannula.
15. Dispose of waste into the appropriate waste bin.
16. Remove gloves and apron. Perform routine hand hygiene.
17. Return patient to a comfortable position.
18. Provide patient with information on care of cannula. Perform routine hand hygiene.
19. Document device.
20. Clean trolley with alcohol/detergent wipes. Perform routine hand hygiene.

**For more information and references refer to the full I-Care peripheral intravenous catheter guideline available from:** <https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/diseases-infection/infection-prevention/intravascular-device-management/default.asp>