Standard Of Procedure for PICC Line Insertion in ICU

Indications:

- Patients with limited peripheral access
- Long-term IV medication administration (antibiotics, antifungals)
- Continuous administration of vesicants or drugs that irritate peripheral veins (vasoactive drugs, chemotherapeutic agents)
- Delivery of hyperosmolar solutions or substances with extreme pH (total parenteral nutrition)
- Blood product infusions
- Frequent blood draws
- Patients with coagulation disorders (thrombocytopenia)
- Major anatomic abnormalities in the chest and neck that make central catheter placement difficult
- Rapid infusions

Relative contraindications to PICC line insertion

- Burns, trauma, skin infections, radiation, history of venous thrombosis at the insertion site
- Active bacteremia
- Chronic renal failure, end-stage renal disease (veins should be preserved for potential dialysis catheter placement)
- Small diameter of arm veins (smaller than 3 mm to 4 mm)
- Prior mastectomy and lymph node dissection (lymph system is compromised and unable to drain)
- Patient requires crutches (places pressure on veins of the arm)
- Persistent cough, and vomiting (increased intrathoracic pressure can lead to catheter malposition, catheter erosion or cardiac tamponade)

Equipment:

- Ultrasound and sterile probe sheath cover with ultrasound gel
- Sterile gloves and gown, mask with face shield and hair cover
- Sterile drape and towels
- Skin cleansing solution (chlorhexidine/alcohol)
- Sterile saline flushes
- Tape measure

PICC insertion kit

- PICC catheter

- Needles of varying gauges
- 10 mL syringes
- Guidewire
- Dilator
- Introducer
- Small blade
- Local anesthetic (usually lidocaine)
- Suture material
- Sterile dressing kit

Insertion technique

- Obtain consent from patient or their decision make
- Gather supplies (PREPARATION IS KEY)
- Measure patient's arm circumference; this serves as a reference to determine any arm swelling should it occur due to complications from PICC placement
- Locate which vein will be accessed for line placement; this can be done using ultrasound
- Applying a tourniquet and ensuring that the patient is adequately hydrated can also help in locating veins
- Mark insertion site using a marker or by creating skin indentation using a pen

- Measure length required to advance the catheter to the SVC/right atrial junction.
- This is commonly done by measuring from the site of insertion to the mid-right mid-clavicular line, and down to the third intercostal space.
- Perform proper hand hygiene
- Cleanse the portion of the upper arm with chlorhexidine/alcohol
- Don mask with face shield and hair cover followed by sterile gown and gloves
- Create a sterile field by placing sterile towels and draping
- Anesthetize skin (if necessary)
- Re-identify the vein using ultrasound.
- Access the vein using a needle and syringe until blood is aspirated
- Remove the syringe and advance guide wire through the needle.
- Remove the needle and confirm wire placement in vein using ultrasound
- Using the scalpel, create small nick at insertion site alongside guide wire to accommodate dilator
- Insert dilator and introducer over the guide wire
- Remove guide wire and dilator, leaving only the introducer in place
- Insert catheter through introducer and advanced to predetermined length
- Remove introducer
- Confirm proper placement of the catheter in atriocaval junction by obtaining a chest x-ray before using PICC.

Maintenance:

- the use of stabilization devices,
- frequent flushing of line with saline and heparin-containing solutions, and
- sterile dressings replaced at regular intervals,

Complications:

Infections

Catheter Malposition/Migration

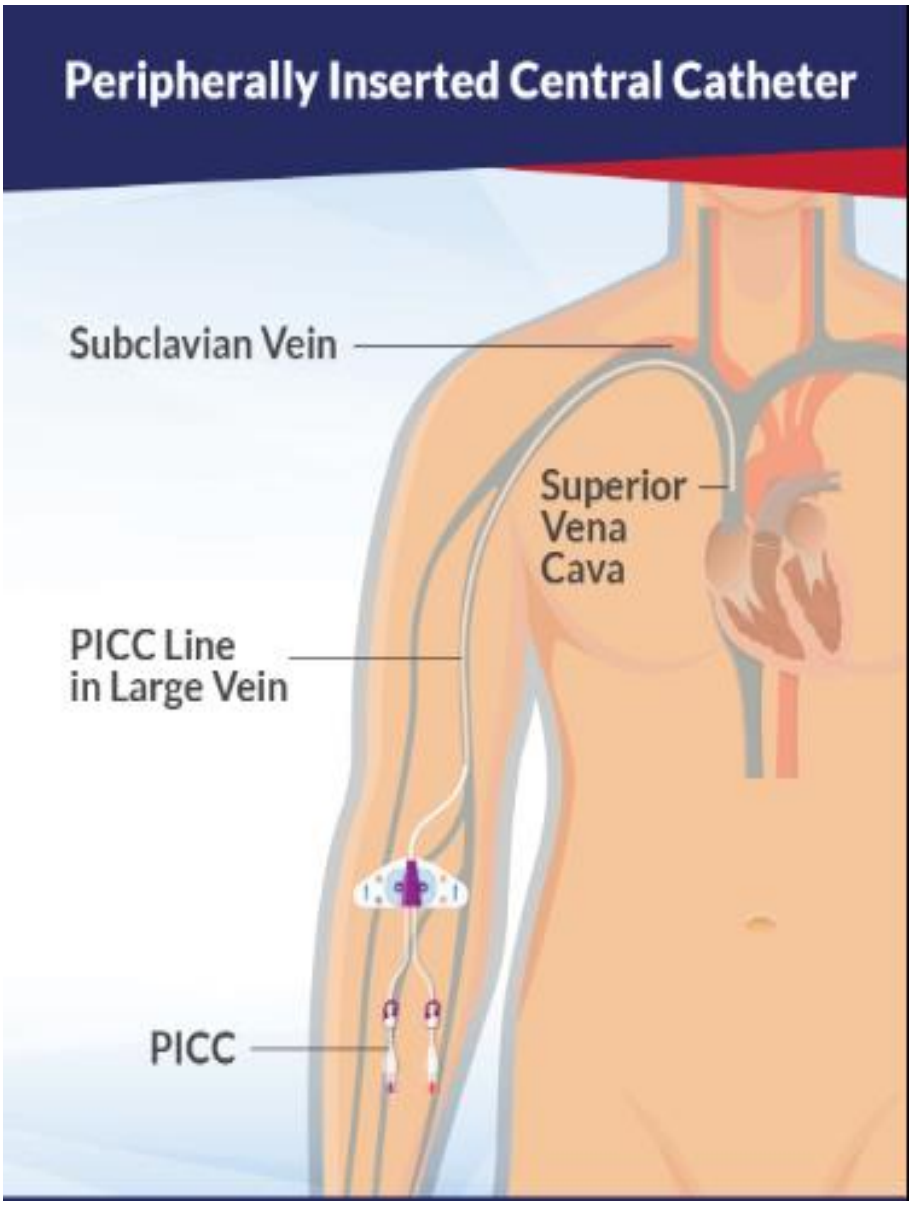
Mechanical Malfunction

Phlebitis/Infiltration

Air Embolism

Cardiac Arrhythmias

Catheter Occlusion


Peripherally Inserted Central Catheter
Subclavian Vein
Superior
Vena
Cava
PICC Line
in Large Vein
PICC

SPARSH CRITICAL CARE

PERIPHERALLY INSERTED CENTRAL CATHETER (PICC) CHECKLIST

SIGN IN *To be completed by the individual conducting the procedure prior to scrubbing*	TIME OUT *To be read out loud by the assistant before invasive part of procedure is commenced*	SIGN OUT *To be read out loud by the assistant before anyone leaves the procedural area*
☐ **Confirm all individuals have introduced themselves.** ☐ **Confirm patient identity and procedure.**	☐ **Confirm the operator is wearing hat, gown, mask, goggles and gloves after full 'scrub'.**	**Number of PICC line packs used:** *Note: if >1 pack used, check for multiple guidewires.*
Clinical setting: ☐ Elective ☐ Emergency	**Skin cleaned with 2% Chlorhexidine in 70% alcohol?** ☐ Yes ☐ No, give reason:	**Confirm:** ☐ Guidewire removed (should be witnessed by assistant). ☐ Operator disposes all sharps safely. ☐ All lumens aspirated and flushed. ☐ Caps/needle free connectors placed on all lumens. ☐ Post-insertion observations performed and recorded.
Check consent: ☐ Verbal ☐ Written ☐ Unable, document best interest decision.	**Confirm:** ☐ Sterile drapes in place. ☐ PICC and equipment open and sterile. ☐ Sign on the door/screen to prevent interruptions.	
Does the patient have a known allergy? ☐ No ☐ Yes, specify:		
Full Blood Count (FBC) reviewed: ☐ Yes ☐ No, give reason:	**Assistant to:** ☐ Apply tourniquet when required. ☐ Give patient reassurance throughout procedure.	**Confirm:** ☐ PICC line secured with StatLock®. ☐ PICC line secured with SecurAcath®.
☐ **Confirm optimum insertion site selected (inspection and/or ultrasound).**	**Ultrasound with sterile sheath being used?** ☐ Yes ☐ No, give reason:	**Confirm:** ☐ Tegaderm CHG (or equivalent) dressing applied. ☐ Documentation/pathway initiated.
Appropriate staff available: ☐ Trained operator **OR** ☐ Supervised ☐ Trained assistant present.	**Plans to confirm venous placement of introducer needle or guidewire before dilatation:** ☐ Venous return. ☐ Ultrasound.	**Chest X-ray requested?** ☐ Yes ☐ No, give reason:
Confirm: ☐ Observations performed and recorded. ☐ All equipment including ultrasound (if being used) available. ☐ Patient positioned appropriately.		**Confirm:** ☐ PICC is secure. ☐ Patient has information relating to caring for their PICC.