PICC LINES

PERIPERIALLY INSERTED CENTRAL CATHETER

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Consortium of the following stakeholders.

- ✓ Directors
- ✓ Project Managers
- ✓ Academic Simulation Educators
- ✓ Technicians

Looking at PICC lines

- Why a PICC line
- Types of PICC lines
- How to access and deaccess
- Blood sampling
- Dressing
- Removal
- Troubleshooting

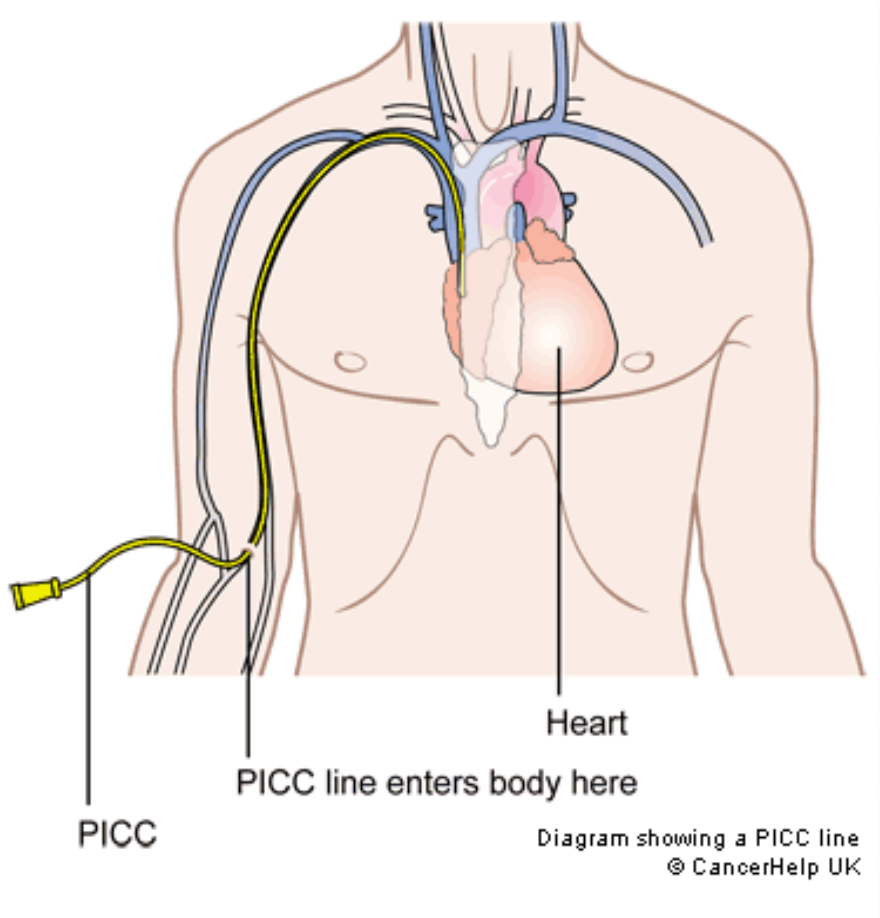
WHY A PICC LINE ?

- A PICC a peripherally inserted central catheter
- Can be used for reasons such as:
  - *Patients with poor or limited venous access*
  - *I.V. or antibiotic therapy for more than 7 days*
  - *TPN, Chemotherapy, blood transfusion, blood sampling etc*
- PICCs are also cost effective and reduce the risk of complications also satisfying for the patients

PICC location & Types

- The PICC is inserted via the peripheral veins such as , cephalic or basilic vein and advanced to the superior vena cava .

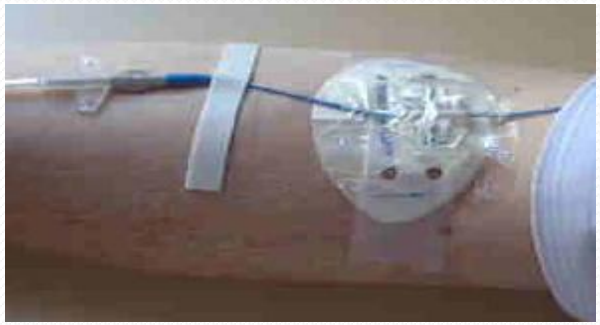
- In the distal superior vena cava is where the catheter tip sits



Types of PICC lines

Valved or closed end

Groshong PICC



- The need for Heparinised saline locking is eliminated due to the closed end preventing blood from entering the catheter and clotting.

Non-Valved or open end

- Non-Valved have an open end and a clamp attached to the catheter.

- These catheters need Heparinised saline locking under positive pressure.

Accessing

- Optimal hand hygiene before catheter maintenance
- Combined with Aseptic Non Touch Technique
- Clean the needleless connection cap with 2% chlorhexidine gluconate v/v 70% isopropyl alcohol
- Allow to dry until completely evaporated
- Connect 10ml luer lock syringe and aspirate to ensure catheter placement discard 1-2ml if line is heparin locked
- Flush lumen with 10-20 ml of N/Saline
- Flush using pulsatile action to create turbulent flow
- Connect required infusion device

Deaccessing/Heplocking

- Optimal hand hygiene before catheter maintenance
- Check flushing and locking needs prior to deaccessing
- Clean between the cap and line connection with 2%chlorhexidine gluconate v/v 70% isopropyl alcohol-impregnated swab for 60 seconds using vigorous friction.
- Flush the lumen with 10 to 20 mL of sodium chloride 0.9% using pulsatile action
- Closed end catheters do not require heparin locking
- open ended catheters instil 5 mL of heparinised saline using pulsatile action
  - if using a **non valved or negative pressure cap** instil 1mL at a time and clamp while instilling the last 0.5 mL
  - if using a **positive pressure or neutral pressure cap** do not clamp **prior to removing the syringe**.

Taking blood

- Use the same accessing technique
- Do not use a tourniquet
- Connect the vacutainer system or syringe (use 20ml luer lock) discard first 5-10ml
- If taking blood cultures you **do not** discard this it is part of the collection sample
- Once sample is collected follow usual deaccessing procedure

Dressing a PICC line

- Gather usual equipment required for aseptic technique including sterile gloves and Chlorhexidine Gluconate solution
- Optimal hand hygiene, don sterile gloves.
- Place sterile dressing towel under the catheter.
- If dry blood or organic matter is located along the catheter use gauze soaked in sterile water to clean the line from the insertion site outwards ensuring the line is secure.
- Allow the area to dry.
- Clean the insertion site with Chlorhexidine Gluconate solution, using gentle friction in a back and forth motion for approximately 60 seconds. (do not rinse off or blot excess solution from the skin)
- Clean the external length of the catheter from the exit site towards the bifurcation.
- Allow to dry until completely evaporated.
- Secure PICC stat lock or steri strips.
- Centre the transparent dressing over the exit site and apply.
- Anchor tubing and cover if required.
- Date and time the dressing change.
- Document in the medical record:
  - the length of external portion of the PICC line.
  - the condition of the site.
  - any complications.
  - follow up appointments.

Removal of a PICC

- Verify medical order to remove PICC.
- Position patient in supine position with head slightly down as tolerated. (this is to prevent air embolism)
- Follow your policy for aseptic technique
- Place plastic protective sheeting underneath the patient's arm.
- Loosen and remove occlusive dressing and fixing device or steri strips carefully and discard.
  - when removing old dressing pull in the direction up the patients arm and avoid touching the insertion site of the catheter.
- Perform hand hygiene.
- Put on sterile gloves.
- Place sterile field around catheter site.
- Clean alcohol solution, using gentle friction in a back and forth motion for approximately 60 seconds.
- Allow to dry until completely evaporated.

Removal continued

- Instruct patient to take a deep breath and hold until told to release.
- Remove catheter gently with slow intermittent traction without applying any direct pressure to the insertion site.
- If resistance is felt during the removal do not use excessive force as doing so may break the catheter.
- Stop and reposition the arm and attempt to remove again, if resistance is still present apply dressing to the insertion site and notify the medical officer or senior nurse.
- Once removed do not let the tip of the catheter touch the skin surface on removal if cultures are required.
- Inspect the integrity of the line and notify medical officer if line is not fully intact.
- Apply pressure to site with sterile combine until bleeding stops.
- Clean the insertion site with alcohol and apply occlusive dressing.
- Document in the medical record:
  - removal of line.
  - patient assessment.
  - complications.

Clinical safety notes

- Catheter related blood stream infections (CRBSI) are the most common life-threatening complication
- Published evidence shows the risk of infection is strongly correlated with the presence of bacteria on the skin. Optimal skin disinfection and hand hygiene is critical in preventing infection.(clean hands save lives)
- Do not use syringes smaller than 10 mL as they can generate pressure in the line higher than 40PSI, and therefore may damage or rupture the Central Venous Catheter.
- Do not apply a blood pressure cuff to the arm in which a PICC line is in situ as it can cause bleeding at the insertion site, retrograde blood flow, raising the risk of catheter thrombosis and occlusion.

References

- http://www.cec.health.nsw.gov.au/programs/hand-hygiene.html
- Central Venous Access Devices: Principles for Nursing Practice and Education Cancer Nurses Society of Australia (2007)
- www.eviq.org.au
- Nursing Best Practice Guideline Shaping the future of Nursing Care and Maintenance to Reduce Vascular Access Complications (revised 2008)