Long Term Central Venous Catheters (CVC)

There are three types of long term CVC:

Peripherally inserted central venous catheters (PICC) tunnelled and implanted port. All long term CVC’s can be **valved** or **non-valved** and clamped devices depending on the make of device chosen for the patient. Regardless of whether non-valved or valved central devices can be used for most drugs and fluids (see individual line restrictions) and blood taking, as long as specific procedures are adhered to (Part one, Appendix 4,12).

Peripherally Inserted Central Catheter (PICC)

A PICC is a long-term central venous catheter inserted into the upper, inner arm usually into the Basillic vein but the cephalic or brachial veins could be considered. The right side is usually the side of choice by the Left arm could also be considered.

PICC lines are indicated for long term IV therapy treatment usually over 2 years but can stay in situ for up to 18 months or longer.

Selection of Line Type

As with the central line, the least number of lumens used the more effective in reducing complications. Line with valves reduce the risk of accidental bleed
back and air embolism, but require careful flush techniques in order to prevent the valves failing. The non-valved require the consistent use of needle free ports and clamps.

The Trust has adopted the use of power injectable PICC lines and these can be identified by the colour purple. If a PICC line is going to be used for a CT scan injection of contrast. Confirmation must be documented that the PICC is a power PICC and rated for the pressure that is intended for use. This can be confirmed by reading the information on the PICC lumen. This will tell the user how much pressure the PICC lumen can withstand.

Location and Referral

The procedure is undertaken by the Clinical Nurse Specialist Vascular Access and Interventional Radiology. Referral for a PICC should be made on Patient Centre by the clinical team. The CNS Vascular Access can also be bleeped on 651.

Equipment and Procedure

- As with the central line the clinician should use strict asepsis and maximal barrier precautions (e.g large sterile drape and gown).
- Lignocaine 1% can be used to anaesthetise the area.
- The patient will be required to be no higher than 40\(^\circ\), preferably fully supine where possible with their shoulder and arm abducted from their body.
- The specifics of the technique should be familiar to the person undertaking the procedure. However, often specific and unique priming procedures require application prior to insertion of a PICC line, which do not mirror those of other central lines. While the line should have been primed prior to insertion it is customary to aspirate the line and re-flush (see Appendix 5 for flush technique).
- Ultra sound guidance is commonly used to access the vessel using a micro-introducer. This should only be attempted by those trained to use ultrasound and micro introducers.
- Once in situ an adhesive fixation device (statlock\(^\circledR\)) (appendix 16) must be used to secure the line and dress with a clear permeable dressing, as per appendix 6.
- The patient can be positioned as per personal preference and clinical need once the line is secured with a dressing and the area is made safe for other practitioners.
- ECG and Tip navigation technology is used to place most PICCs in the Trust as this reduces the need for CXR and decreases the malposition rate.
Post Procedure

If ECG technology has been used to place the PICC a print out of the ECG can be used to document and confirm TIP location, in this instance a chest x-ray is not indicated.

The ECG technology uses the P wave of the cardiac cycle to identify how far into the SVC the PICC tip is. If a deflection is seen on the ECG monitor, this would indicate that the PICC has passed the SA node into the atrium. The PICC is then pulled back until the P wave is amplified with no deflection. This is then proof that the PICC tip is in the lower 3rd of the SVC or Cavo-Atrial junction and the PICC can be safely used. A print out of this ECG is then attached to the insertion notes to confirm placement.

Confirming PICC tip placement with ECG requires the patient to have a identifiable P wave on the cardiac monitor. If the P wave is absent a chest x-ray will be required to confirm PICC tip placement prior to using the PICC. Patients in Atrial Fibrillation will require a chest x-ray to confirm PICC placement.

Until the position of the line is confirmed the line should not be used.

Flush technique

See Appendix 5

Dressings

Part 2 and Appendix 6

Maintenance

This type of line has specific care needs, both when being used regularly and when dormant. In addition it requires trained personnel to unblock and repair (see Appendices 5, 7).

A care bundle is available on the intranet and should be used to monitor the line every shift (appendix 15)

Complications

See Appendix 7.
Specific considerations

- USS guided insertion is recommended by NICE (2002). Not suitable for CVP monitoring and avoid the use of pressure cuffs or bags. Not suitable for fast boluses under high pressure.
- Where possible do not use same arm for blood taking and blood pressure. If choices are limited then discuss with expert.
- A PICC line should not be confused with a long line and can only be inserted by someone who has been trained and deemed competent. Ensure patients have had a recent FBC (to check platelets) and INR (to check coagulation).
- Verbal consent obtained and documented in the medical notes.
- Written and verbal information should be provided (appendix 13).