

HACKETTSTOWN REGIONAL MEDICAL CENTER
NURSING POLICIES
Peripherally Inserted central catheter- PICC

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Effective Date: 5/25/1995
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Policy No: 8620.158b
Origin: Division of Nursing
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SCOPE

All patient care areas that care for patients with peripherally inserted central catheters (PICC) lines.

PURPOSE

To outline the general care and maintenance of a peripherally inserted central catheter (PICC).

DEFINITIONS

Extravasation – the inadvertent leakage or escape of a vesicant drug or solution from a vein or unintentional injection into surrounding healthy tissue.

Infiltration – the inadvertent administration of a non-vesicant solution or medication into surrounding tissues.

Phlebitis – the inflammation of the intima of the vein. Irritation of the endothelial cells of the vein intima causes a rough cell wall that platelets readily adhere to. Phlebitis is classified by its four causative factors; chemical, mechanical, bacterial, or post-infusion.

Power PICC-SOLO catheters- have a proximal valve at the hub of the catheter that controls the flow of fluids to provide clamp free infusion therapy. Positive pressure into the catheter (pump, syringe) will open the valve, allowing fluid infusion. When negative pressure (aspiration) is applied, the valve opens allowing for the withdrawal of blood into the syringe.

POLICY

A physician's order is necessary for the insertion of a PICC.

Only certified PICC nurses or Physicians will perform the insertion of a PICC.

Upon successful insertion of a PICC, an x-ray will be obtained with the stylet in place to verify tip placement.

The PICC RN will verify with the radiologist that the catheter tip placement is in the lower one third of the superior vena cava at the right atrium junction prior to removing stylet and using PICC for infusion.

Only certified PICC RNs or RNs with demonstrated competency in line removal or Physicians will remove PICC lines. *Tunneled PICC* catheters will be removed by a Physician.

Only the radiology nurse or radiology technician may access the PowerPICC SOLO for contrast media injection, proper flushing prior to and after injection of contrast media. Follow manufacture's recommended psi. The PowerPICC catheter has a lumen marked "Power Injectable" for power injection of contrast media.

PICC catheters must be flushed every 12 hours with 10mL Normal Saline followed by 5mL of Heparinized Saline (10 units/mL) (Refer to Appendix A PICC Comparison Chart). EXCEPTION: PowerPICC SOLO- The catheter requires saline flush after every use, or at least weekly when not in use.

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Patients going to the Operating Room who already have a PICC line in place should have an 18 or 20 gauge peripheral IV preferably in the opposite PICC arm.

PROCEDURE

I. Assessment

- A. Assess type of PICC in place, size, number of lumens, clamps or no clamp, power injectable or not.
- B. The insertion site should be assessed every 4 hour for redness, edema, pain tenderness and drainage. The site may present with some mild redness where the catheter enters the skin, especially within 24 hour of insertion.
- C. Measurement of arm circumference 3” proximal and 3” distal from PICC insertion site is to be done daily and documented. (Document measurements in cm)
- D. Measurement of external catheter length in (cm) is to be done daily

II. Care and Maintenance

- A. Maintain aseptic technique during all aspects of catheter care.
- B. All lumens must have a cap. (Do not use extension sets).
- C. Injection caps must be changed with every dressing and after blood draws.
- D. BP's, venipuncture or blood draws should not be performed on cannulated arm. A pink wrist band is to be placed on the extremity.
- E. Clamps or hemostats should never be used on PICCs due to possible perforation of the catheter.
- F. An Aqua K pad may be applied to the upper arm and shoulder of the insertion arm for first 24 hours for comfort.
- G. A pressure dressing may be applied to the insertion site for the first 24 hours if there is local bleeding.
- H. Monitor for catheter kinking related to dressing application or tubing securement.

III. Dressing Change

- A. Initial PICC dressing changed will be performed 24h post insertion, then every 7 days or as needed if dressing becomes loosened or visibly soiled any RN caring for the patient.
- B. Replace dressing at least every 48 hours if a gauze dressing is used.
- C. Dressing must be removed distal to proximal; toward the insertion site to avoid pulling on the catheter.
- D. Use CVP kit to do dressing changes. Scrub site with supplied chlorhexidine prep. Allow chlorhexidine to dry.
- E. A Bio-patch will be applied with each dressing change.
- F. Injection caps must be change with each dressing change.
- G. Stat-Lock secure device must be changed with every dressing change.
- H. Label the site with insertion date, date dressing change performed and initials of the RN changing the dressing.

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IV. Infusion Therapy and Flushing

- A. Any infusion of fluids through the PICC requires an infusion pump. A false occlusion alarm or inadequate flow rates may cause occlusion and alarms. Check rates and catheter for kinking at the site.
- B. Blood and blood products may be administered through a 4 French or larger PICC. Flush with 20mL 0.9% saline after infusion and change cap.
- C. Blood samples may be drawn through a 4 French or larger PICC line if blood samples are unable to be obtained peripherally. Withdraw and waste 5mL of blood, then draw sample. Flush with 20 mL 0.9% Saline and change cap.
- D. The POWER PICC and POWER PICC- SOLO is rated for 300psi for power injection
- E. If resistance is met when flushing, no further attempts should be made. Further flushing could result in catheter rupture with possible embolization. If an occlusion is suspected first ***notify physician*** and Refer to Declotting Catheters Using CathFlow Alteplase Policy 8620.160a
- F. When injecting or infusing medications that are incompatible, always flush the catheter with a 10mL saline flush before and after each medication
- G. Flush with every use and every 12 hour with 10mL Normal Saline followed by 5mL of Heparinized Saline (10 units/ml) using “pulse” “stop/start” technique.
 1. Document in nursing notes.
 2. Flush the catheter with every use, or ***at least weekly when catheter is not in use.***
 - a. For POWER PICC Solo only: Flush the catheter with 10mL of 0.9% Sodium Chloride, using a “pulse” “stop/start” technique. Always remove syringe slowly while injecting the last 0.5 mL of saline.
 - b. For All other PICC lines use Heparinized saline flush using a “pulse” “stop/start” technique. Always remove syringe slowly while injecting the last 0.5 mL of saline.

IV. Complication Management

- A. **Bleeding** – Is a frequent complication. Excessive bleeding for more than 24 hours after insertion is unusual. Excessive or persistent bleeding may be caused by patient coagulopathies, anticoagulation therapy, vigorous physical activity, or traumatic insertion procedure. A mild pressure dressing may be required to control this situation. Reinforce dressing only. If excessive bleeding occurs, notify PICC RN or physician.
- B. **Phlebitis** - The most common complication seen with the PICC line is sterile mechanical phlebitis. It is not an infectious process, but the body's response to a foreign material inside the blood vessel. Sterile mechanical phlebitis usually occurs in the first 48-72 hours post insertion. If phlebitis occurs, conservative measures include:
 - a. The use of warm, moist compresses to the upper arm
 - b. Elevation of the extremity and mild exercise.
 - c. If pain or discomfort becomes severe, or if the patient becomes febrile, contact PICC RN or Physician.
- C. **Cellulitis** – A localized exit site infection may exhibit itself as pain, tenderness, and redness at the catheter site. The spread of cellulitis does not follow the course of the vein, but tends to spread in a diffuse, circular pattern into the surrounding subcutaneous tissue. If cellulitis is suspected contact PICC RN or physician.
- D. **CLABSI (central line associated blood stream infection)-**
Notify the Physician of SIRS /sepsis triggers, increase HR, respiratory rate, temperature or WBC) or positive blood cultures, and any abnormal observations of the insertion site. The decision to remove the PICC catheter because of sepsis will be determined by a PICC RN or the Physician.

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E. **Air Embolism** –Keeping the catheter exit site below the level of the heart will help maintain adequate pressure within the system to prevent air from entering. If any of the symptoms are noted, immediately position the patient on their left side trendelenburg position and call the physician.

Early signs of air embolism are:

1. Chest pain
2. Dyspnea
3. Hypoxia
4. Apnea
5. Tachycardia
6. Hypotension
7. Nausea
8. Substernal pain
9. Confusion

F. **Thrombophlebitis** –The causes of deep vein thrombosis are injury to the intima of the vein wall, obstructed blood flow, or changes in the composition of the blood. Distended veins in the neck and arm on the thrombosed site and the development of collateral circulation on the chest may indicate deep vein thrombosis. If suspected, call physician.

G. **Catheter Tip Migration** – It is possible for any type of central venous catheter to migrate to another location while in vivo. This can be brought about by physical position during vomiting, bouts of coughing. Symptoms may include pain in the jaw, ear or teeth. Distended veins on the malpositioned side may be evident, and a flushing sense of fullness in the head may occur during rapid infusions.

If catheter tip migration is suspected, inform PICC RN or Physician. An x-ray should be performed to confirm tip migration.

H. **Drainage from the Catheter Exit Site** - Fluid drainage from the exit site must be identified in order to properly identify the problem. If drainage occurs, contact the PICC RN or Physician. Fluid from the site should be cultured to rule out catheter sepsis or exit site infection.

V. Discontinuation

1. PICC Lines *only may be discontinued by a qualified PICC RN or Physician.*
2. **TUNNELED PICC CATHETERS REQUIRE PHYSICIAN REMOVAL***
3. PICC lines can be removed for the following reasons:
 - a. Prescribed medical therapy is complete
 - b. Declotting methods are exhausted and catheter remains clotted
 - c. Patient is septic
 - d. Patient developed cellulitis/phlebitis in cannulated arm
 - e. PICC line has been damaged or broken
 - f. Patient/physician request

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- VI. Patient Education for patient's being discharged with device in place:
- A. Home care guidelines will be provided
 - B. Electronic patient education information will be included in the discharge instructions
 - C. Review and storage of implant card is discussion after insertion procedure.
- VII. Documentation of a PICC line will be done every shift and will include
- A. Type of PICC in place, size, number of lumens
 - B. Assessment of insertion site appearance every 4 hours.
 - C. Measure arm circumference in cm 3" proximal and 3" distal from insertion site daily
 - D. Assess daily external catheter length in cm
 - E. Dressing changes
 - F. Flushes (Saline or Heparinized Saline)
 - G. Complications and interventions
 - H. Patient's response
 - I. Patient education

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PICC Comparison Chart

Features	Poly Per-Q PICC	Power PICC	Power PICC Solo
Polyurethane material	✓	✓	✓
Reverse taper design	✓	✓	✓
CVP monitoring	✓	✓	✓
Depth markings	✓	✓	✓
Radiopaque catheter body	✓	✓	✓
Heparinized Saline care and maintenance	✓	✓	✓
StatLock* catheter stabilization device compatible	✓	✓	✓
Contrast injection compatible	✓	✓	✓
Easy Identification Extension Legs catheters are clearly labeled “Power Injectable” to differentiate them from all non-power injectable PICCs		✓	✓
The Power of Purple Power Injectable PICC hubs denote maximum injection rate of 5 ml/sec		✓	✓
Clampless design			✓
Unique Hub Design Valve Technology valve at proximal end of catheter			✓
Saline care and maintenance			✓
Simplified Care and Maintenance recommended weekly maintenance is reduced to a single saline flush			✓