

**PARKLAND HEALTH & HOSPITAL SYSTEM**  
**Nursing Services**

Section: Intravenous Therapy  
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**PERIPHERALLY INSERTED CENTRAL CATHETER (PICC)  
CARE, MAINTAINENCE, REMOVAL, TROUBLESHOOTING AND  
DISCHARGE PLANNING  
(Adult In-Patient/ Out-Patient)**

**Practice**

**Statement:** Peripherally Inserted Central Catheter (PICC) may be inserted by PICC credentialed Registered Nurses, as ordered by the provider.

(PICC credentialing consists of extensive training of R.N. III's in PICC concepts, procedure, sterile technique, vascular anatomy, ultrasound guidance, classroom work, hands on application and at completion, check off by a Certified PICC Nurse.)

Administration of medications through the catheter and dressing changes are the responsibility of the assigned licensed nurse.

Collection of blood specimens is limited to the provider and/or registered nurse.

**Purpose:** To plan and manage care of the patient with a PICC line in both the inpatient and outpatient settings. To establish and maintain a central venous access to be used for obtaining blood specimens, administering parenteral nutrition, medications, fluids, blood/blood products and central venous pressure monitoring.

**Equipment:** **Dressing Change**

Central line dressing kit (mask and sterile gloves included) #20204  
Antimicrobial patch # 0343  
Clave injection caps #18840  
Securing device #17829  
Additional transparent dressings (2-3) #20337  
Tape  
Non-sterile gloves  
Alcohol Pads

**For Maintenance of Ports**

10 -ml syringe  
Alcohol prep pads #20710  
Flush solutions as ordered (saline and/or heparin)

- Prefilled syringe 10 ml normal saline #21154
- 200 units heparin prefilled syringes (for non-valved catheters)

**Definitions: PICC**

- Peripherally Inserted Central Catheter

**Valved Catheter:**

- Contains a valve in the hub
- Does not have clamps
- Does not require heparin lock when lumen not in use.

**Non-Valved Catheter:**

- Does not contain internal valves
- Clamps are present
- Requires heparin lock when lumen not in use.

**Power Injectable Port(s):**

- Designated port of PICC line approved for the infusion flow rate of 5 ml/sec or maximum pressure of power injectors of 300 psi.
- Designed for use in radiological procedures requiring rapid contrast infusion, etc.

**Push – Pause Technique:**

- Technique used in flushing all PICC lines using a pulsating (quickly starting and stopping injecting, over and over) method, with a saline flush.

**Procedure:**

**A. Ordering a PICC**

1. This procedure applies to the valved catheter (no clamps present) and to non-valved catheters (clamps present). (10ml syringes are recommended for use with PICCs.)
2. All orders for PICC line placement should be assessed for appropriateness according to but not limited by the following standards:
  - a. Need for long term IV therapy in the home, hospital or clinic setting.
  - b. Administration of medication that may be irritating to veins (chemotherapy, TPN, antibiotics, etc.).
  - c. Difficulty in obtaining peripheral IV access and access is needed for 7 days or more.
  - d. Frequent or repetitive radiology imaging exams requiring infusion of contrast. (Power injectable ports only)
  - e. Allergies to anticoagulants (these patients should receive valved catheters)
  - f. Laboratory analysis (coagulation studies)
  - g. History of multiple central catheters (subclavian stenosis)
  - h. History of mastectomy or lumpectomy

3. May be used to monitor Central Venous Pressure (CVP) in critical areas, if desired. Refer to package insert on appropriateness of CVP monitoring with a particular PICCs.
4. The tip of the PICC line should be in the superior vena cava / cavoatrial junction, verified by x-ray.

**B. Maintenance of a PICC when not in use:** (Note: All ports shall be capped with a blue Micro-Clave injection cap.)

1. Identify the patient using two unique identifiers and explain the procedure.
2. Wash hands and don gloves
3. Clean the clave injection cap with alcohol preps and allow to dry.
4. **Non-valved Catheter (has clamps)**
  - a. Inject 2mls of heparin flush (100 units/ml) with a 5-10 ml syringe using positive pressure flushing technique. Catheter should be flushed every shift when not in use.
5. **Valved Catheter (no clamps)**
  - a. Flush daily with 10mls normal saline using the “push - pause” technique.
  - b. **For home care:** If the catheter is not being used, flush once a week.
6. Dispose of all equipment. Remove gloves and wash hands.

**C. Administration of Medications/Fluid/Blood Products**

1. Identify the patient using two unique identifiers and explain the procedure.
2. Wash hands, dry and don gloves.
3. Clean the clave injection cap with alcohol preps and allow to dry.
4. Check for blood return and flush with 10 ml of normal saline.
5. Administer medications, fluids, blood and blood components as ordered.
6. Flush with saline using “push-pause” technique
  - a. **10 ml** after delivery of medications
  - b. **20 mls** after delivery of blood and blood components
  - c. For non-valved catheters follow with 2 mls of Heparin flush (100 units/ml).

- d. **Note: If connected to a continuous IV infusion, do not flush with Heparin flush.**

#### **D. Tubing and Infusion Cap Change**

1. Tubing, extensions sets, stopcocks, and clave injection cap shall be changed every 72 hours or with insertion of a new line.

#### **E. Dressing Change: (Note: The patient being discharged must have supplies and an appointment for a clinic where the dressing may be changed by a nurse, unless other arrangements are made.)**

1. Dressing should be changed every 7 days or PRN, if dressing is loose, wet or soiled. A bio-patch should be used with all dressing changes.
2. Place the patient in a comfortable position, with arm extended and with head turned away from the catheter site.
3. Wash hands, don mask and non-sterile gloves.
4. Remove the transparent dressing by peeling away from hub toward the securing device and insertion site.
5. Snap open the cap of each post of the securing device. Lift catheter off the posts. Use alcohol pads to peel securing device away from the catheter insertion site.
6. Assess the insertion site. Observe for evidence of infection, phlebitis and mechanical problems with the catheter (kinking, leaks).
7. Remove non-sterile gloves.
8. Open dressing change kit and don sterile gloves.
9. Clean and dress as directed below:
  - a. Cleanse the insertion site with chlorhexadine applicator and allow to dry.
  - b. Apply skin prep to the area where the securing device will be anchored and allow to dry completely.
  - c. Apply antimicrobial patch blue side up
  - d. Place securing device onto the prepped skin.
  - e. Attach the PICC line to the posts on the securing device.
  - f. Apply a sterile occlusive transparent dressing over the insertion site and securing device. Add 2-3 more transparent dressings to cover more surface area and for reinforcement.
10. Discard supplies. Remove gloves and wash hands.

11. Write the date, time, and your initials on the outside of the dressing.
12. If the catheter dressing becomes soiled, wet, or loosened it must be changed. The securing device and antimicrobial patch must be changed each time the dressing is changed.
13. Pain, edema, redness, and/or drainage at insertion site, catheter leakage or migration should be assessed, documented, and communicated to the PICC nurse and the provider.
14. Document dressing, securing device, tubing changes, and observations of the catheter insertion site in the Nurses Notes, and/or Flow Sheet.
15. **The primary care nurse must enter a PSN for all catheter dislodgements.**

**F. Blood Sampling: (Performed by the provider/registered nurse or credentialed LVN)**

1. Identify the patient, using two unique identifiers. Explain the procedure.
  - a. If armband, two (2) identifiers: name and medical record number.
  - b. No armband, two identifiers: name and date of birth.
2. Wash hands and don gloves.
3. Clean the clavicle injection cap with alcohol prep pads and allow to dry.
4. Waste 5 mls of blood from the catheter. **Do not use any type of vacutainer system.**
5. Using at least a 5-10 ml syringe, withdraw the total amount of specimen required. Remove the syringe. Transfer the specimen to the appropriate tube(s).
6. Flush the catheter lumen with 20 mls normal saline. Follow with Heparin flush for non-valved PICC.

**G. PICC Removal: (Catheter removal must be performed by the provider or credentialed PICC RN.)**

1. PICC should be removed for the following reasons:
  - a. Completion of therapy
  - b. Change in IV therapy requiring insertion of a different vascular device
  - c. Patient/provider request
  - d. Unresolved catheter occlusion, infection, leakage, migration.

## H. Inpatient Trouble Shooting

1. **Notify PICC team and/or provider for unexpected outcomes.** These may include but not limited to the following:
  - a. **Absence of blood return**
    - Check catheter for kinking at insertion site
    - For verification of occlusion utilize a 10 cc saline filled syringe “using the push-pause technique” instill 8cc of saline and then briskly pull plunger back.
    - If patient complains of hearing or feeling the flush infusion, notify provider and obtain CXR. Catheter may have migrated and become malpositioned.
  - b. **Catheter occlusion: (Resistance felt when flushing or fluid will not flow into catheter.)**
    - Do not force flushing solution.
    - Check catheter for kinking at insertion site
    - Call provider to obtain order for PICC declot and obtain TPA 2mg from pharmacy
    - Notify PICC Service
  - c. **Dislodgement of catheter**
    - For partial dislodgement of PICC, cover fully and secure
    - Notify provider and obtain order for replacement of catheter
    - Notify PICC Service
    - Enter PSN report with details
  - d. **Pain, redness, drainage or swelling at the insertion site**
  - e. **Leakage of IV fluid/blood from catheter**
    - Verify clamp injection cap is in place and secure
  - f. **Extremity swelling**
  - g. **Bleeding from insertion site**
    - Reinforce dressing
    - Once bleeding stops change dressing
    - If bleeding persists notify provider and PICC service
  - h. **Sudden onset shortness of breath or chest pain**

## I. Patient Discharge Assessment Planning

1. **Immediately notify care manager of plans to discharge patient with a PICC and initiate patient/ family education.**
2. **The following must be assessed to determine the appropriateness of out patient therapy with a PICC:**
  - a. Patient must meet the initial criteria for insertion
    - Need for long term IV therapy in the home or clinic setting.
    - Administration of medication that may be irritating to veins (chemotherapy, TPN, antibiotics, etc.).
    - Frequent or repetitive radiology imaging exams requiring contrast infusion.
  - b. Adequate support must be available to provide PICC care either by patient, family members, home health, clinic or PCP.
  - c. Post-hospital environment must support safe management of the PICC.
  - d. Reliable transportation.
  - e. Reliable means by which to be contacted.
  - f. Must demonstrate appropriate knowledge level to care for a PICC. Teaching and demonstration must be performed and documented in advance, prior to discharge.
3. **Post Hospital Care: (Note: No patient can be discharged without appropriate follow-up care arranged in conjunction with Care Management.)**
  - a. Patients cannot be given slips or numbers and left to arrange their own appointments and PICC care follow-up. They must have a confirmed appointment prior to leaving the institution.
  - b. Follow-up plan of care must include the ability to have weekly dressing changes, PICC supplies, the final disposition of treatment and plan for PICC removal.
  - c. Where follow-up occurs will depend upon the patient's needs and may include: COPC, PCP office, and clinics.
  - d. ***For patients without available follow-up, arrangements for care must be made between Case management and PICC Service in advance of discharge.***
  - e. **Discharge PICC Supplies (MRD #)**
    - Saline flushes (10ml prefilled syringes) #21154
    - 10 ml syringes
    - Central line dressing kits #20204
    - Additional transparent dressings (2-3 per dressing) #20337
    - Antimicrobial patches #20343
    - PICC securing device #17829
    - Alcohol pads #20710
    - Clave injection caps #18840

- Medications and tubing for infusion
- Extension tubings # 17747

## **J. PICC Troubleshooting**

1. Nurse or provider may contact the PICC service during normal operating hours via the Parkland Directory “On Call Search” PICC Consult. Text page the nurse on call.

## **K. Outpatient Troubleshooting (valved and non-valved catheters)**

1. **Absence of blood return**
  - a. Check catheter for kinking at insertion site
  - b. Attempt to flush with 10 ml normal saline
  - c. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc.
  - d. May be necessary to present to emergency department
2. **Catheter occlusion (Resistance felt when flushing or fluid will not flow into catheter)**
  - a. Make certain clamp is open (non-valved)
  - b. Do not force flushing solution
  - c. Check catheter for kinking at insertion site
  - d. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc.
  - e. May be necessary to present to emergency department
3. **Dislodgement of catheter**
  - a. Secure PICC with additional tape and maintain covered dressing.
  - b. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc.
  - c. Present to emergency department
4. **Fever, pain, redness, drainage or swelling at the insertion site**
  - a. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc.
  - b. Present to emergency department
5. **Extremity swelling**
  - a. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc
  - b. Present to emergency department
6. **Bleeding from insertion site**
  - a. Reinforce dressing
  - b. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc.
  - c. Present to emergency department

**7. Leakage of IV fluid/blood from catheter**

- a. Verify clave injection cap is in place and secure
- b. Notify physician, clinic, Ambulatory Care Clinic (Urgent Care) etc.
- c. Present to emergency department

**8. Sudden onset shortness of breath or chest pain**

- a. **Call 911**
- b. Close clamp (non-valved catheter)
- c. Turn off infusion
- d. Lie on left side with your feet up