Peripherally Inserted Central Catheter (PICC) – Basic Care and Maintenance (Adult)

Site Applicability

All VCH and PHC Acute and Community

Practice Level

- RN, LPN
- RPN (SPH Only)

See site specific Practice Level/Education Requirements:

- **PHC** (see Appendix A)
- **VCH** (see Appendix B)

Policy Statement

1. The recommended optimal PICC tip position is the distal (lower third) superior vena cava (SVC) or the cavo-atrial junction (CAJ) or Right Atrial Junction (RAJ).
2. A PICC may be used AFTER initial tip position is confirmed by:
   - Physician/Designate Chest X-Ray (CXR) confirmation or
   - ECG/Doppler confirmation (for insertion date only; not for reconfirmation)
3. A Physician order is required for PICC insertion and removal.
4. Catheter tip position is documented in the patient's health record.
5. Insertion documentation includes amount of catheter visible from the insertion site up to the permanent suture wing (one dot equals one cm).
6. For PICCs not inserted at your acute care facility and without documentation on admission, prior to use:
   - Catheter tip confirmation is **required** by CXR
   - Catheter patency **must** be verified by flushing and aspiration with blood return noted without resistance or complication.
   - Site assessment **must** be done to document the external measurement of the catheter once tip confirmation done.
7. Review necessity of line daily and ensure prompt removal of unnecessary lines.
8. Assess the PICC site daily for signs and symptoms of complication.
9. A dedicated lumen for TPN is recommended.
10. Power injectable catheters are labeled by the manufacturer as power injectable, with the maximum rate of power injection in millilitres (mL)/second.
11. DO NOT POWER INJECT INTO A CATHETER NOT LABELED AS POWER INJECTABLE.
12. A pump is recommended for infusions via PICC. For blood products, refer to transfusion guidelines **See Blood Components / Products: Administration [D-00-12-30223].**
    - **No minimum rate is recommended for continuous infusion via pump.**
    - **For infusions not via pump (i.e. gravity) minimum rate must be 50 mL/hour.**
13. 10 mL is the smallest-sized syringe to be used for flushing a PICC.
14. A needleless connector is required on lumen hub of a PICC.
15. A non-valved PICC is clamped (with the built-in clamp on the catheter lumen) when not in use.
16. If the built-in clamp of a non-valved PICC clamp breaks, attach extension tubing with a clamp. Use non-toothed forceps to occlude the catheter lumen when adding/changing the extension tubing.
17. Aseptic technique is maintained throughout all PICC care and maintenance procedures.
18. The use of PICC lines will not be restricted in inpatient and outpatient/community settings. Harm reduction principles and complication prevention strategies will be considered to ensure patients and

families have full access to health care services in all circumstances including in the presence or use of injected substances. Refer to specific health authority policies and guidelines:

PHC: Philosophy of Care for Patients and Residents Who Use Substances

VCH: Harm Reduction Practice

Need to Know

- Each lumen is an independent lumen.
- PICCs may be:
  - Valved (flushed with Normal Saline (NS) only) or
  - Non-valved with clamp (Inpatients in Acute Care each lumen is flushed with NS, Outpatients and Acute Care Patients On Day of Discharge flushed with NS followed by heparin lock).
  - Valved PICCs may have a
    - Proximal (external in the hub) or
    - Distal (internal at the tip) valve.
- **Administration of phenytoin through a PICC may precipitate and block the PICC.**
  - Consult Infusion Program Clinician/IV Educator prior to dedicating one lumen for phenytoin from time of insertion.
- Central Venous Pressure Monitoring: CVP monitoring – verify with catheter Instructions for Use (IFU) or consult Infusion Program Clinician/IV Educator.
- **For Flow Rates and Priming Volumes:** refer to manufacturer and/or Infusion Program Clinician/IV Educator.
- Phlebitis identification and management – see Appendix C.
- Phlebitis Rating Scale – see Appendix D.
- Management of Complications – see Appendix E.

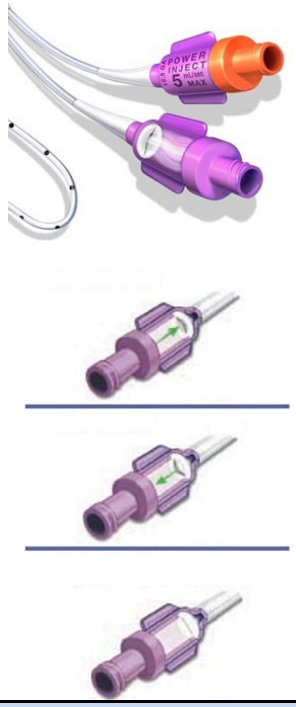
Patient education and information material for PICC is given to the patient/patient's family after a PICC is inserted (see Patient Education).

PICC Catheters with Valve: (Proximal or Distal)

- Valve opens with infusions or aspiration but remains closed when not in use.
- The valve may open if positive pressure occurs in the chest, for example, coughing, vomiting or suctioning

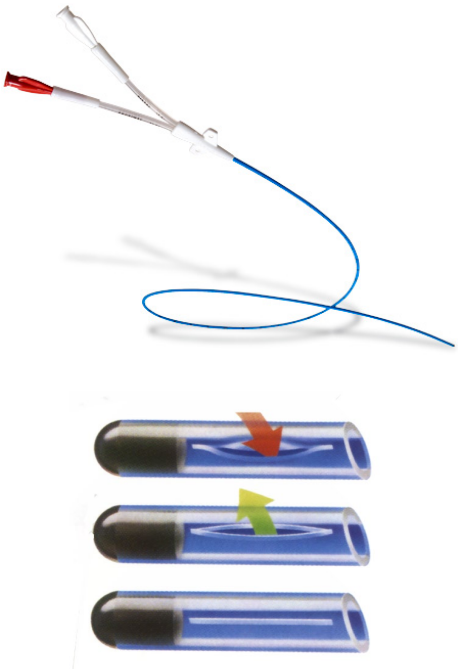
Example A: dual lumen proximal valve PICC

- The tip of the catheter is open with the valve located in the hub of the catheter.



Example B: dual lumen distal valve PICC

- The tip of the catheter is closed with the valve located near the tip of the catheter.

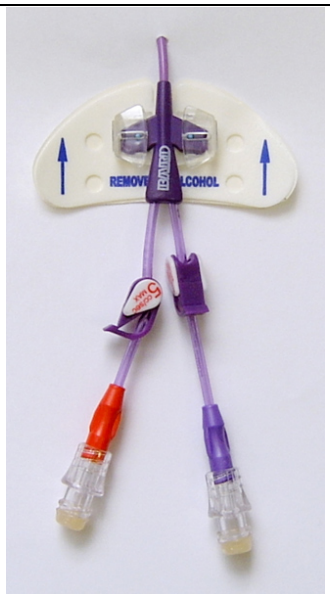


PICC Catheters without Valves (with clamps, non-valved)

- The tip of the catheter is open
- There is no valve located at any point along the catheter
- A clamp is located on each lumen
- When the catheter is not in use:
  - Inpatients in acute care flush each lumen with normal saline q12h then clamp.
  - Outpatients and Acute Care patients on day of discharge - each lumen must be locked with heparin after NS flush then clamped.

Example A: dual lumen non-valved PICC

Example B: single lumen non-valved PICC



Procedure

Procedure Resource Videos

Part 1: Site Assessment
Part 2: Needleless Connector Use
- A: Flushing
- B: Needleless Connector Change
- C: Initiating an Infusion through an Unused Lumen
- D: Discontinuing an Infusion

Part 3: Tubing Change
Part 4: Dressing Change
Part 5: Obtaining Blood Samples
Part 6: Removal

Appendices

Appendix C: Phlebitis
Appendix D: Phlebitis Rating Scale
Appendix E: Management of Complication of PICC
Appendix F: Checklists
- Dressing Change for a PICC
- Removal of a PICC
- Obtaining blood sample from a CVC: Vacutainer method
- Obtaining blood sample from a CVC: Syringe method

Appendix G: CVC Quick Reference

Part 1: Site Assessment

Policy Statement:

1. PICCs are assessed at the beginning of each shift and PRN.

Procedure:

Assessment:

1. Line placement:
   a. Measure the amount of catheter visible from the insertion site to the permanent suture wing (one dot equals one cm). Confirm it matches the documented length from insertion date.
   b. Ensure all connections are secured.
   c. Unused lumens are clamped, if non-valved PICC.
2. Dressing:
   a. Ensure dressing is dry, intact, and dated.
   b. Ensure securement device/dressing, suture or steri-strips are secure.
3. Infection:
   a. Insertion site for redness, edema, tenderness or discharge.
   b. Assess patient for signs and symptoms of systemic infection.
4. Phlebitis:
   a. Assess vein pathway for redness, tenderness, swelling, warmth or hardness along the vein in the chest and neck area. See Appendix C.
5. Thrombus:
   a. Assess color, warmth, sensation, movement, or edema of PICC arm and compare to non-PICC arm.
   b. Palpate subclavian area for tenderness, warmth or swelling.
   c. Visible collateral chest/facial veins, neck swelling and redness.

Part 2: Needleless Connector Use

Policy Statement:

1. PICC lumen(s) are attached to a sterile needleless connector that is used to access the PICC in order to maintain a closed system.
2. Access needleless connector with luer-lock connections only. **Do not use a needle or cannula to access the needleless connector.**
3. 10 mL is the smallest-sized syringe used for flushing PICCs for routine care and maintenance.
4. Replace needleless connector:
   - Every 7 to 8 days (with dressing change)
   - PRN if contamination or complication noted.
5. Access lumens using aseptic technique.
6. IV direct medications may be given into a capped PICC lumen through the needleless connector.
7. To decrease risk of catheter related infection, avoid accessing the line more than 4 to 6 times in a 24 hour period (i.e. for intermittent medications more frequently than every 6h). Obtain an order for continuous infusion.

A) Flushing

Flush solution type and routine is dependent on PICC type (valved or non-valved). Heparin lock is indicated for non-valved PICCs only. See table below.

Valved	Non-valved (clamps attached)

• Flush with NS 20 ML pre and post access
• No heparin lock required
• Flush every week with NS if PICC not in use
• Proximal Power PICC Solo™ after using ANY one lumen, FLUSH ALL UNUSED lumens
	• Inpatients in Acute Care Flush with NS 20ml
	  ○ Pre and post access
	  ○ Every 12 hrs when not in use.
	• Acute care patients on day of discharge:
	  ○ Flush with NS 20mL
	  ○ Lock with 3mL Heparin 10 units/mL or 100 units/mL
	• Outpatients:
	  ○ Flush before each use with NS 20 mL
	  ○ Flush after each use with NS 20 mL and lock with 3 mL heparin 10 units/mL or 100 units/mL
	  ○ Flush and lock weekly when not in use.
	  ○ Maximum daily heparin is 2000 units.
	  ○ If patient has heparin induced thrombocytopenia syndrome (HITS), contact IV/Infusion/Vascular Access Nurse Educator

Equipment:

- Surface disinfectant
- Alcohol swabs, Large
- Non-sterile gloves
- Normal Saline 0.9% (NS) 10 mL in pre-filled 10 mL syringe (20 mL per lumen)
- Heparin 10 units/mL or 100 units/mL pre-filled syringe for outpatients and acute care patients on Day of Discharge with a non-valved PICC (lock each lumen with 3 mL)
  Note: pre-filled syringes with heparin are available in 3 mL or 5 mL volumes, take note of volumes and syringes required. Use concentration provided at your site for this procedure.

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Put on non-sterile gloves.
5. Scrub top of needleless connector with an alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
6. Attach NS syringe to PICC lumen.
7. Flush with 1 to 2 mL NS before checking for patency. Patency is confirmed by aspirating until blood visible into mid catheter extension leg or needleless connector cap. If unable to aspirate or resistance is felt, click here to view **Troubleshooting Appendix E #5 Partial Occlusion**.
8. Flush each lumen as per table with 20 mL NS using turbulent, stop start technique.
9. For Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC lock with 3mL Heparin 10 units/mL or 100 units/mL using turbulent, stop start technique.
10. Remove syringe.
11. Clamp if non-valved lumen.
12. Wipe top of needleless connector with alcohol swab to remove fluid residue.
13. Document procedure.

B) Needleless Connector Change

PHC uses sterile technique during dressing change and aseptic no touch technique for prn change without dressing change.

Equipment:

- Surface disinfectant
- Non-sterile gloves
- Alcohol swabs, Large
- Sterile needless connector
- NS 10 mL in pre-filled 10mL syringe (20 mL per lumen)
- Heparin 10 units/mL or 100 units/mL in pre-filled syringe for Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC (lock each lumen with 3 mL).
  Note: pre-filled syringes with heparin are available in 3 mL or 5 mL volumes, take note of volumes and syringes required. Use concentration provided at your site for this procedure.

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Attach 10 mL pre filled NS syringe to needleless connector using no touch technique, prime cap, leave attached in package.
5. If non-valved PICC, clamp lumen.
6. Wash hands thoroughly using waterless hand sanitizer.
7. Put on non-sterile gloves.
8. Scrub catheter and needleless connector connection with alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
9. Remove old needleless connector.
   Note: if contaminants visible (dried blood/crystallization), use new alcohol wipe to scrub hub for 15 seconds, being careful to prevent alcohol solution/contaminants from entering catheter. **ALLOW TO DRY COMPLETELY**.
10. Attach new needleless connector
11. Unclamp non-valved PICC.
12. Flush with 1 to 2 mL NS before checking patency. Patency is confirmed by aspirating until blood visible in mid catheter extension leg or needleless connector. If unable to aspirate blood, refer to **Troubleshooting Appendix E #5 Partial Occlusion**.
13. For capped unused lumen:
    a. Flush with 20 mL NS using turbulent, stop start technique.
    b. For outpatients and Acute Care Patients on Day of Dischage with a non-valved PICC lock with 3mL Heparin 10 units/mL or 100 unitis/mL using turbulent, stop start technique. Remove syringe.
    c. Clamp non-valved lumen.
    d. Wipe top of needleless connector with alcohol swab to remove fluid residue.
14. For lumens with continuous infusion:
    a. Flush with 20 mL of NS using a turbulent, stop start technique to ensure thorough flushing of catheter.
    b. Attach IV infusion set into needleless connector.
    c. Unclamp non-valved PICC.
    d. Initiate infusion.
15. Document procedure.

C) Initiating an Infusion through an Unused Lumen

Equipment:

- Surface disinfectant
- Alcohol swabs, Large
- Non-sterile gloves
- IV solution
- IV tubing
- NS 10 mL in pre-filled 10 mL syringe (20 mL per lumen)

- Pump
- Tubing change label

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Prime IV tubing.
5. Wash hands thoroughly using waterless hand sanitizer.
6. Put on non-sterile gloves.
7. Scrub top of needleless connector with an alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
8. Attach 10 mL NS syringe.
9. Unclamp non-valved PICC.
10. Flush with 1 to 2 mL NS before checking patency. Patency is confirmed by aspirating until blood visible in mid catheter extension leg or needleless connector cap. If unable to aspirate blood, refer to **Troubleshooting Appendix E #5 Partial Occlusion**).
11. Flush with 20 mL NS using turbulent, stop start technique.
12. Connect IV tubing to needleless connector.
13. Initiate IV infusion.
14. Secure tubing.
15. Attach change label to the IV tubing.
16. Document procedure.

D) Discontinuing an Infusion

Equipment:

- Surface disinfectant
- Non-sterile gloves
- Alcohol swabs, Large
- Sterile dead end cap
- NS 10 mL in pre-filled 10 mL syringe (20 mL per lumen)
- Heparin 10 units/mL or 100 units/mL in pre-filled syringe for Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC (lock each lumen with 3 mL)
  Note: pre-filled syringes with heparin are available in 3 mL or 5 mL volumes, take note of volumes and syringes required. Use concentration provided at your site for this procedure.

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Stop IV infusion.
5. Wash hands thoroughly using waterless hand sanitizer.
6. Put on non-sterile gloves.
7. Disconnect IV tubing from needleless connector.
8. Cap IV tubing with sterile dead-end cap if IV tubing will be re-connected for later infusion.
9. Scrub top of needleless connector with an alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
10. Attach 10 mL NS syringe.
11. Flush with 1 to 2 mL NS before checking patency. Patency is confirmed by aspirating until blood visible in mid catheter extension leg or needleless connector cap. If unable to aspirate blood, refer to **Troubleshooting Appendix E #5 Partial Occlusion**.
12. Flush with 20mL NS using turbulent, stop start technique
13. For Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC lock with 3 mL Heparin 10 units/mL or 100 units/mL using turbulent, stop start technique.
14. Remove syringe.

15. Clamp non-valved PICC lumen.
16. Wipe top of needleless connector with alcohol swab to remove fluid residue.
17. Document procedure.

Part 3: Tubing Change

Policy Statement:

1. Luer-lock IV tubing is used for all PICC infusions.
2. Do not transfer IV tubing from one venous access to another
3. A pump is recommended for infusions via PICC. For blood products, refer to transfusion guidelines **See Blood Components / Products: Administration [D-00-12-30223].**

- **No minimum rate is recommended for continuous infusion via pump.**
- **For infusions not via pump (i.e. gravity) minimum rate must be 50 mL/hour.**

4. It is recommended to prime IV tubing immediately prior to use.

Tubing and Solution/Bag Change

	Tubing	IV Solution/Bag
Primary/Secondary Tubing Set		
Non-Medicated (Continuous) IV	every 96 hours	when empty and with tubing change every 96 hours
Medicated (Continuous) IV (incl. adds in primary bag)	every 96 hours	every 24 hours
Intermittent IV Infusion	every 24 hours	with tubing change every 24 hours
Blood and blood product infusion, see **VCH:** TM Blood Product Fact Sheets **PHC:** Blood/Blood-Product Administration Procedure		

TPN Tubing Set	
3:1 TPN: Lipids included • Filtered (1.2 micron) tubing	See Parenteral Nutrition Document: **VCH:** Parenteral Nutrition: Care and Management **PHC:** TPN: Total Parenteral Nutrition: Patient Care
2:1 TPN: Lipids separate • Filtered (0.2 micron) tubing Dextrose/Amino Acid • Lipid Tubing	See Parenteral Nutrition Document: **VCH:** Parenteral Nutrition: Care and Management **PHC:** TPN: Total Parenteral Nutrition: Patient Care
TPN: Dextrose/Amino Acid only	See Parenteral Nutrition Document: **VCH:** Parenteral Nutrition: Care and Management **PHC:** TPN: Total Parenteral Nutrition: Patient Care
TPN: Intermittent	See Parenteral Nutrition Document: **VCH:** Parenteral Nutrition: Care and Management **PHC:** TPN: Total Parenteral Nutrition: Patient Care

Equipment:

- Surface disinfectant
- Non-sterile gloves
- Alcohol swabs, Large
- NS 10 mL in pre-filled 10mL syringe (20 mL per lumen)
- IV solution
- IV tubing
- Pump
- Tubing change label

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Prime tubing.
5. Stop IV infusion.
6. Wash hands thoroughly using waterless hand sanitizer.
7. Put on non-sterile gloves.
8. Disconnect IV tubing from needleless connector.
9. Scrub top of needleless connector with an alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
10. Attach NS syringe.
11. Flush with 1 to 2 mL NS before checking patency. Patency is confirmed by aspirating until blood visible in mid catheter extension leg or needleless connector cap. If unable to aspirate blood, refer to **Troubleshooting Appendix E #5 Partial Occlusion**.
12. Flush with 20 mL NS, using turbulent, stop start technique.
13. Remove syringe.
14. Wipe top of needleless connector with alcohol swab to remove fluid residue.
15. Connect new IV tubing to needleless connector.
16. Initiate IV infusion.
17. Secure tubing.
18. Attach change label to the IV tubing.
19. Document procedure.

Part 4: Dressing Change

Policy Statement:

1. The PICC insertion site must be assessed daily and with every dressing change (see Site Assessment).
2. Post insertion care:
   a. The insertion site must be assessed within 24 hours post insertion.
   b. If site visible (e.g. transparent gel-pad dressing was used), assess need for dressing change based on drainage type and saturation of gel-pad dressing
   c. If gauze dressing in place, dressing change must be done.
3. Transparent, semi-permeable dressing is changed every 7 to 8 days and as needed when loose, or if moisture, drainage, blood or signs or symptoms of infection are present.
4. A transparent, semi-permeable Chlorhexidine (CHG) impregnated adhesive pad dressing or CHG-impregnated sponge dressing may be used to reduce catheter related blood stream infections. Not to be used for patients with CHG intolerance.
5. Sterile adhesive gauze dressing is used if
   a. bleeding at the site
   b. patient is diaphoretic
   c. skin impairment or reaction to transparent dressing
6. Gauze dressing is changed every 48 hours and PRN when needed if loose, or if moisture, drainage, blood or signs and symptoms of infection are present.

7. Strict aseptic technique is required for dressing change procedure including dressing tray, procedure mask and sterile gloves.
8. Untinted Chlorhexidine Gluconate 2% (CHG) with 70% alcohol is used for skin cleansing.
9. CHG 2% without alcohol is to be used when skin irritation is related to an interaction between the adhesive in the dressing, and the alcohol of the prep.
10. Skin contact with skin CHG must:
    a. be a minimum of 30 seconds in total
    b. use friction in multiple directions
11. Povidone Iodine 10% is used as an alternative to CHG in cases of contact dermatitis or allergy. Do not wash off with saline as this will affect antimicrobial properties.
12. Saline is not recommended as cleaning agent for dressing change.
13. May use sterile normal saline to cleanse site if saturated in blood; followed by skin antiseptic.
14. CHG may be inactivated if used with normal saline. Ensure skin is completely dried prior to cleaning with CHG.
15. For skin impairment, irritation and skin cleansing/dressing recommendations, contact Infusion Program Clinician/IV Educator.

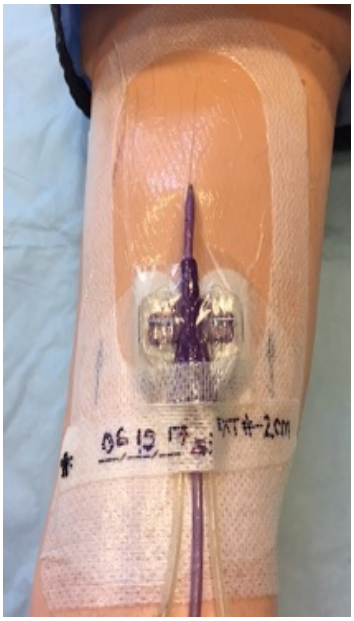
Equipment:

- Surface disinfectant
- Procedure mask
- Non-sterile gloves
- Sterile gloves
- Tape to secure line
- Dressing tray
- Sterile Dressing (choose type based on work site availability and skin condition):
    - Transparent semi-permeable (large or small size) PLUS securement device
    - Transparent semi-permeable dressing with CHG impregnated gel-pad
    - Transparent semi-permeable securement dressing
    - Transparent semi-permeable dressing and CHG impregnated sponge disc
    - Sterile adhesive gauze dressing
- 2 - CHG 2% with 70% alcohol – swab sticks
- 2-3 CHG 2% with 70% alcohol – large wipes
- Protective skin barrier for patients with sensitive skin
- If removing Transparent dressing with CHG-impregnated pad, include another antiseptic swab stick
- Paper tape measure (to measure external catheter length)

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Put on mask
5. Wash hands thoroughly using waterless hand sanitizer.
6. Set up dressing tray.
7. Put on non-sterile gloves.
8. Measure the amount of PICC visible from the insertion site to the permanent suture wing (one dot equals one cm). Compare measurement to original insertion.
9. **Dressing removal:** follow instructions in **table below** based on product used.
10. Inspect the catheter site. If there are any signs of infection, swab the site for Culture and Sensitivity (C&S) and notify the physician.
11. Remove gloves.
12. Wash hands thoroughly using waterless hand sanitizer.
13. Put on sterile gloves.
14. **Clean catheter and insertion site**. (*Ensure that the PICC does not move in or out)
    a. Use first CHG wipe to clean catheter insertion site.

   b. Anchor PICC at the catheter site with sterile forceps.
   c. Wrap second CHG wipe around catheter. Clean the catheter moving in one direction away from the insertion site up to and including permanent stabilization wing.
   d. Clean all of the catheter lumen that will be under the dressing.
15. If add-on (removable) white wing is attached:
   a. Remove white add-on wing carefully by pinching open the wing
   b. Clean the dried blood from the wing using a wipe
   c. Re-apply the dried wing to the PICC by pinching the wing open and pressing the PICC into the channel on the underside of the wing
16. Clean the catheter site, sutures (if present) and skin with CHG 2% with alcohol 70% swab stick.
   a. Clean using friction in multiple directions for 15 seconds.
   b. Repeat with second swab stick. Skin contact with cleanser must be for a minimum of 15 seconds per swab stick.
   c. Ensure entire area that will be covered by dressing (approximately 10x10 cm) is cleansed.
17. **Allow skin to dry completely** to prevent skin irritation (minimum 3 minutes); increased dry time may be indicated for populations prone to skin irritation.
18. If required, apply skin prep, allow to dry completely.
19. **Dressing application:** follow instructions in **table below** based on product used.
20. Measure external length of catheter and compare to measurement at time of insertion:
   a. any movement must be documented
   b. depending on tip location at insertion, CXR may be required
   c. for movement more than 3 cm, contact Infusion Program Clinician/IV Educator.
21. Label dressing with date and external length.
22. Remove gloves, mask, and wash hands thoroughly.
23. Document procedure.

Type of Dressing	Removal	Application
Securement Dressing (e.g. Tegaderm IV Advanced™) with adhesive Securement Device (e.g. StatLock™) present. 	1. Remove tape strips applied to top of dressing. Allows for removal of dressing towards insertion site. 2. Separate soft cloth border tabs where they meet under the catheter lumen(s). 3. Slowly peel dressing back over itself while stabilizing catheter. 4. Remove entire dressing, peeling "low & slow" to reduce medical adhesive skin injuries and catheter dislodgement. 5. Remove catheter from the Statlock™ by opening doors one at a time. Lift catheter wing one side at a time out of the Statlock™. Move PICC to the side of the StatLock™ and secure with tape. 6. Use large alcohol swab, wipe around and under Statlock™ edges. 7. Gently lift Statlock™ off skin as the alcohol dissolves the adhesive.	1. Apply skin prep (included in Statlock™ PICC Plus kit) to skin where Statlock™ will be placed and allow to dry completely. 2. Align Statlock™ so arrows point toward insertion site, place suture wing onto posts of Statlock™. 3. Close Statlock™ doors, one at a time, support under surface of Statlock™ and PICC. 4. Peel off backing off Statlock™ one side at a time, and press onto skin. 5. Position notched edge of dressing over built-in catheter wing and slightly over lap soft cloth border tabs. Do not stretch dressing over skin. Skin will blister as dressing pulls back. 6. Press transparent portion of dressing into place. 7. While slowly peeling off paper frame, smooth dressing edges with fingertips. Smooth dressing from centre toward edges, using firm pressure. 8. Remove sterile tape strip from paper frame. Optional - fold edge over itself, making a small tab for easier removal. 9. Place wide strip underneath catheter lumen(s), with notch facing towards the insertion site. 10. Apply documentation label over top of dressing where catheter lumen(s) exit dressing. Include date of dressing change and current external length. 11. Apply firm pressure to entire dressing to ensure optimal adhesion. Pressure-sensitive adhesive conforms to skin and builds strength, securing catheter. 12. Ensure: • catheter site is visible near centre of dressing. • entire catheter including suture wing is secured under dressing. • catheter not twisted or kinked

Securement Dressing (e.g. Tegaderm IV Advanced™) Used without adhesive securement device in community and special areas. 	1. Remove tape strips applied to top of dressing. Allows for removal of dressing towards insertion site 2. Separate soft cloth border tabs where they meet under the catheter lumen(s). 3. Slowly peel dressing back over itself while stabilizing catheter. 4. Remove entire dressing, peeling "low & slow" to reduce medical adhesive skin injuries and catheter dislodgement.	1. Position notched edge of dressing over built-in catheter wing and slightly over lap soft cloth border tabs. Do not stretch dressing over skin. Skin will blister as dressing pulls back. 2. Press transparent portion of dressing into place. 3. While slowly peeling off paper frame, smooth dressing edges with fingertips. Smooth dressing from centre toward edges, using firm pressure. 4. Remove sterile tape strip from paper frame. Optional - fold edge over itself, making a small tab for easier removal. 5. Place wide strip underneath catheter lumen(s), with notch facing towards the insertion site. 6. Apply documentation label over top of dressing where catheter lumen(s) exits dressing. Include date of dressing change and current external length. 7. Apply firm pressure to entire dressing to ensure optimal adhesion. Pressure-sensitive adhesive conforms to skin and builds strength, securing catheter. 8. Ensure: • catheter site is visible near centre of dressing. • entire catheter including suture wing is secured under dressing. • catheter not twisted or kinked

Type of Dressing	Removal	Application
IV Securement Dressing with Chlorhexidine (CHG) gel pad (e.g. Tegaderm CHG™) **MUST USE MOISTURE TO REMOVE** 	1. Secure PICC with tape above dressing prior to removal. 2. Remove over/under tape strips if present; loosen edges of dressing. 3. Secure catheter at insertion site with finger on top of dressing. 4. Pull dressing laterally (parallel to skin) to ease removal. 5. Once CHG gel pad exposed, use swabstick to apply moisture between CHG pad and skin. DO NOT REMOVE WITHOUT MOISTURE.	1. Ensure PICC **site** is secured under CHG gel pad; catheter must be under dressing, but may extend beyond the gel pad. 2. Ensure • catheter site visible near centre of dressing. • entire catheter including suture wing is secured under dressing • catheter not twisted or kinked 3. Smooth and press edges of dressing to adhere. Do not stretch dressing over skin – skin will blister as dressing pulls back. 4. If present, use additional tape included with dressing to secure opening where catheter leg exits dressing: one strip under and over.
Tegaderm IV Advanced™ with Securacath™ Device in place. (Do not remove Securacath™ with dressing change, only change dressing.) 	The Securacath™ device is NOT removed with routine dressing changes. 1. Remove tape strips applied to top of dressing. Allows for removal of dressing towards insertion site. 2. Separate soft cloth border where it meets under the catheter lumen(s). 3. Slowly peel dressing back over itself while stabilizing catheter. 4. Remove entire dressing, peeling "low & slow" to reduce medical adhesive skin injuries and catheter dislodgement. 5. Clean PICC site - the Securacath™ device can be 'lifted' off the skin for complete skin cleaning to insertion site and surrounding area	The Securacath device is NOT replaced with routine dressing changes. 1. After skin is dry from skin cleaning, place Securacath™ device on skin without tension (let it 'fall into place' on skin) 2. Position notched edge of dressing over built-in catheter wing and slightly over lap soft cloth border tabs. Do not stretch dressing over skin. Skin will blister as dressing pulls back. 3. Press transparent portion of dressing into place. 4. While slowly peeling off paper frame, smooth dressing edges with fingertips. Smooth dressing from centre toward edges, using firm pressure. 5. Remove sterile tape strip from paper frame. Optional - fold edge over itself, making a small tab for easier removal. 6. Place wide strip underneath catheter lumen(s), with notch facing towards the insertion site. 7. Apply documentation label over top of dressing where catheter lumen(s) exits dressing. Include date of dressing change and current external length.

		8. Apply firm pressure to entire dressing to ensure optimal adhesion. 9. Ensure: • catheter site is visible near centre of dressing. • entire catheter including suture wing is secured under dressing. • catheter or securacath™ not twisted or kinked.

Other	Removal	Application
BIOPATCH® sponge at PICC site under transparent dressing	1. Once cover dressing removed, carefully remove BIOPATCH® sponge disk from around the catheter at the insertion site.  2. Proceed to cleanse insertion site and surrounding skin.	1. Place new BIOPATCH® around catheter **printed side up**. 2. Ensure slit is just slightly to the left or right of the catheter (for easy removal). Ensure edges of slit touch (for maximum efficacy).  3. Ensure complete contact between BIOPATCH® and skin. 4. Secure catheter and BIOPATCH® with new sterile, transparent dressing to cover.

Part 5: Obtaining Blood Sample

- Obtaining Blood Samples from a Central Venous Catheter: Vacutainer Method Checklist
- Obtaining Blood Samples from a Central Venous Catheter: Syringe Method Checklist

Specific labelling procedures for drawing Group and Screen, see
VCH: Patient Identification, Specimen Collection and Labeling for Transfusion Medicine Investigation

Policy Statement:

1. Blood should not be drawn from a lumen used to infuse cyclosporine, tacrolimus or dextran.
2. If TPN is infused via a single lumen PICC, blood work is drawn peripherally if adequate peripheral access. Prior to using TPN lumen for blood work, consult Infusion Program Clinician/IV Educator.
3. Blood sampling can be done from all types of PICCs – single and multi-lumens.
4. It is recommended that blood sampling be done through the needleless connector to ensure a closed-system.
5. For blood cultures: changing the needleless connector is recommended prior to obtaining blood sample.

6. For multi-lumen PICCs, use largest lumen for blood samples if applicable.
   a. If multi-lumen, stop infusions on other lumens during blood draw. If non-valved PICC, clamp other lumens.
   b. If other lumens (multi-lumen) are capped, flush **all** lumens after blood sampling.
7. A discard sample is taken prior to obtaining blood work. See:
   VCH: Guidelines for Collecting Blood Samples through Vascular Access Device (VAD)
8. Flush with a **minimum** of 20 mL NS post blood draw until needleless connector is clear (no blood visible in needleless connector).
   a. For non-valved PICC, if continuing with IV infusion, do not lock with heparin.
   b. If capping the lumen, follow the guidelines for flushing. See Part 2 A. Flushing.
9. Blood sampling may be done using:
   a. Vacutainer method (preferred).
   b. Syringe method (using blood transfer device).

Equipment:

- Surface disinfectant
- Non-sterile gloves
- 4-5 alcohol swabs, Large
- Luer-lock Access Device, Holder with Pre-Attached Multiple Sample Adapter (vacutainer holder)
- Lab blood tubes
- Blood culture bottles *if required – also new needleless connector (to be changed prior to blood sampling)
- Biohazard sharps container
- Sterile dead-end cap if reconnecting existing IV tubing
- 3-7 NS 10 mL in pre-filled 10 mL syringe (20 mL per capped lumen)
- Heparin 10 units/mL or 100 units/mL in pre-filled syringe for Outpatients and Acute Care patients on Day of Discharge with a non-valved PICC (lock each lumen with 3 mL)
  Note: pre-filled syringes with heparin are available in 3 mL or 5 mL volumes, take note of volumes and syringes required. Use concentration provided at your site for this procedure.
- Additional supplies required to flush all capped lumens after blood sampling.

If using syringe method, you will need:

- Eye protection/mask with eye shield
- Luer-lock syringes – as many as required to withdraw blood samples
- Blood transfer device for transferring blood from syringe into collection tubes

If obtaining coagulation tests, you will need:

- ***Vacutainer method:*** a 5 mL non-additive tube (refer to site below for non-additive tube color)
- ***Syringe method:*** an additional 10 mL syringe

For order of blood tube collection see:
VCH: Blood collection through a VASCULAR ACCESS DEVICE (CVC & ARTERIAL) Reference Guide
PHC: Phlebotomy & CVAD Quick Reference

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Turn off IV infusion if present. For multi lumen, ensure all IV infusions are turned off prior to blood sampling.
5. If non-valved PICC, clamp all lumens excluding the lumen you are drawing blood from.
6. Wash hands thoroughly for 30 seconds using waterless hand sanitizer.
7. Put on non-sterile gloves.
8. Disconnect IV tubing from needleless connector and cap IV tubing with sterile dead-end cap to maintain sterility of IV tubing end.

9. Scrub top of needleless connector with an alcohol swab using friction for 15 seconds). **ALLOW TO DRY COMPLETELY**.
10. Attach 10 mL pre-filled NS syringe and flush catheter with a minimum of 5 mL NS.
11. Slowly aspirate discard sample (follow discard instructions below). If PICC is valved, pull back syringe plunger 1 to 2 mL, and pause to allow valve to open and blood to come into the syringe. Continue to pull back with steady continuous pressure.

For Discard Instructions see:
VCH: Guidelines for Collecting Blood Samples through Vascular Access Device (VAD)

Troubleshooting:

If blood flow slows or stops:

a. Check lumens for any kinks.
b. Have patient cough, do Valsalva's maneuver, turn head to opposite side, raise arms or change position.
c. Change blood collection tube.
d. Use syringe to withdraw blood through the needleless connector.
e. Change needleless connector.
f. Flush lumen with 5 mL NS solution and if resistance to flush is felt, stop and contact Infusion Program Clinician/IV Educator.

12. Remove discard syringe.
13. Attach either Luer-lock Access Device, Holder with Pre-Attached Multiple Sample Adapter (vacutainer holder) or a 10 mL syringe and withdraw sample. See Vacutainer and Syringe method below.

Vacutainer Method:

1. Insert blood tubes into barrel of device and push down to aspirate blood into the tube. Continue until all tubes have been collected (if blood flow slows or stops see troubleshooting guide above) For order of blood tube collection, see:
   VCH: Blood collection through a VASCULAR ACCESS DEVICE (CVC & ARTERIAL) Reference Guide
   PHC: Phlebotomy & CVAD Quick Reference
2. Remove the Luer-lock Access Device, Holder with Pre-Attached Multiple Sample Adapter (vacutainer holder) and discard in the sharps container.
3. Scrub top of needleless connector with an alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
4. Attach NS syringes and flush **immediately** using turbulent, stop start technique. Flush with a minimum of 20 mL NS or until no blood visible in needleless connector.
5. Remove syringe.
6. Wipe top of needleless connector with alcohol swab to remove fluid residue.
7. Inpatients in Acute Care with a non-valved PICC: clamp lumen.
8. **a. If reconnecting IV infusion:**
   i. Connect IV tubing and resume IV infusions.

b. If capping lumen, for Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC:
   i. Lock PICC lumen with 3 mL Heparin 10 units/mL or 100 units/mL
   ii. Remove syringe
   iii. Wipe top of needleless connector with alcohol swab to remove fluid residue
   iv. Clamp lumen

9. Unclamp all other lumens as necessary and reinitiate any stopped IV infusions.
10. Flush all capped lumens after blood sampling. For Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC lock each lumen with 3 mL Heparin 10 units/mL or 100 units/mL
11. Label collected specimens, and send to the Lab as per lab guidelines. Refer to:
    VCH: Label Samples [D-00-12-30098]
12. Invert tubes as per:
    VCH: Blood collection through a VASCULAR ACCESS DEVICE (CVC & ARTERIAL) Reference Guide
    PHC: Phlebotomy & CVAD Quick Reference
13. Document procedure.

Note: if unable to draw blood using the vacutainer method, use the syringe method.

Syringe Method:

1. Attach empty syringe and withdraw the required amount of blood for your sample volumes, if blood flow slows or stops see troubleshooting guide above**.**
2. If coagulation tests are required, draw an additional syringe of blood after step 1.
3. Disconnect the syringe and attach to transfer device with a twist to lock it on (if applicable you will transfer coagulation syringe first).
4. Before transferring blood samples, scrub needleless connector with an alcohol swab using friction for 15 seconds. **ALLOW TO DRY COMPLETELY**.
5. Attach NS syringes and flush **immediately** using turbulent, stop start technique. Flush with a minimum of 20 mL NS or until no blood visible in needleless connector.
6. Remove syringe.
7. Wipe top of needleless connector with an alcohol swab to remove fluid residue.
8. Inpatients in Acute Care with a non-valved PICC: clamp lumen.

9. **a. If reconnecting IV tubing**:
   i. Connect IV tubing and resume IV infusions.
   b. If capping lumen, for Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC:
   i. Lock lumen with 3 mL Heparin 10 units/mL or 100 units/mL
   ii. Remove syringe
   iii. Wipe top of needleless connector with alcohol swab to remove fluid residue.
   iv. Clamp lumen
10. Wear eye protection when transferring blood from syringe to lab tubes.
11. With the syringe held vertically and the tip pointing down, insert blood-sampling vacuum tube into the barrel of device to collect blood sample. Allow vacuum to fill the tube (e.g. do not apply pressure to syringe plunger). Continue until all sample tubes have been collected into appropriate lab tubes.
12. For order of blood tube collection, see:

VCH: Blood collection through a VASCULAR ACCESS DEVICE (CVC & ARTERIAL) Reference Guide
PHC: Phlebotomy & CVAD Quick Reference

13. Dispose of needleless blood transfer assembly and syringe as one unit into the sharps container. Do not disassemble.
14. Unclamp all other lumens as necessary and reinitiate any stopped IV infusions.
15. Flush (add heparin lock for Outpatients and Acute Care Patients on Day of Discharge with a non-valved PICC) all capped lumens after blood sampling.
16. Label collected specimens, and send to the Lab as per lab guidelines, refer to:
    VCH: Label Samples [D-00-12-30098]
17. Invert tubes as per:
    VCH: Blood collection through a VASCULAR ACCESS DEVICE (CVC & ARTERIAL) Reference Guide
    PHC: Phlebotomy & CVAD Quick Reference
18. Remove gloves and wash hands thoroughly for 30 seconds.
19. Document procedure.

Part 6: PICC Removal

Policy Statement:

1. An RN who has completed the Practice Level requirements may remove PICC's.
2. Review necessity of PICC daily and ensure prompt removal of unnecessary lines.
3. A physician's order is required to remove a PICC.
4. If Securacath™ securement device present, consult Infusion Program Clinician/IV Educator for direction.
5. If a complication or thrombus is identified and diagnosed by ultrasound or venogram, consult Infusion Program Clinician/IV Educator or physician (removal by physician may be indicated).

> **Note:** Thrombus management varies between hospitals. Consult hospital specific policies and resources.

6. For patients on anticoagulated therapy or with coagulation abnormality, review relevant lab results (i.e. platelets, INR) prior to removal. If anticoagulated, manual pressure must be applied until hemostasis occurs to avoid complications. If anticoagulation concerns, contact Physician and or Infusion Program Clinician/IV Educator prior to removal.

Equipment:

- Sterile dressing tray
- Sterile gloves
- Non-sterile gloves
- 10 x 12 cm transparent dressing or gauze island dressing
- Petroleum ointment or petroleum gauze (*)
- 2 CHG 2% in alcohol 70% swab sticks
- 2 CHG 2% in alcohol 70% - Large swab/wipe
- Procedure mask
- Eye Protection
- If sending tip for culture, C&S container + sterile scissors

Procedure:

1. Clean work surface with surface disinfectant and let dry.
2. Wash hands thoroughly for 30 seconds.
3. Gather equipment.
4. Position patient
5. Put on mask
6. Wash hands thoroughly for 30 seconds using waterless hand sanitizer.
7. Set up dressing tray
8. Put on non-sterile gloves
9. Dressing removal: follow instructions in table based on product used (see Part 4: Dressing Change).

10. Inspect the catheter site. If there are any signs of infection, swab the site for C&S and notify the physician.
11. Remove stabilizing mechanism (Steri-Strips™, Stat Lock™ or sutures) if present.
12. Remove gloves
13. Wash hands thoroughly for 30 seconds using waterless hand sanitizer.
14. Put on sterile gloves.
15. Clean as per dressing change procedure.
16. If Securacath™ securement device, remove as directed by Infusion Program Clinician/IV Educator.
17. Prepare petroleum gauze dressing:
    - If using petroleum ointment, put 1 to 2 cm on gauze
    - If using petroleum impregnated gauze, put on top of dry gauze dressing
18. Hold folded 10 x 10 cm gauze in non-dominant hand and prepare to remove catheter.
19. Hold catheter close to the insertion site and gently pull catheter out 2 to 5 cm at a time, parallel to the vein, re-gripping the catheter with each pull.
    - If resistance is met during removal:
        - Stop, wait two minutes and attempt removal again pulling slowly and gently
    - If resistance persists:
        - Stop, and cover site with a sterile dressing
        - Apply moist warm towel to the vein pathway for 30 minutes and reattempt removal
    - If difficulty continues:
        - Stop, and cover site with a sterile dressing
        - Contact Infusion Program Clinician/IV Educator and Physician
20. Occlude PICC site with gauze immediately upon removal of PICC. Avoid wiping catheter on gauze during removal to avoid site contamination.
21. After removal, inspect distal tip of PICC noting condition and length to ensure complete removal.

To ensure full length of PICC removed, inspect for:

- Proximal valved (external) PICC: measure catheter or visualize cm marking at end of PICC
- Distal valved (internal) PICC: ensure smooth round black tip intact
- Non-valved PICC: measure catheter or visualize cm marking at end of PICC

22. Sending tip for C & S may be indicated if patient febrile, and PICC suspected as a source of infection or TPN was infused through PICC. If needed, use sterile scissors to cut 5 cm from tip of catheter; place in C&S container.
23. Apply light pressure to the PICC site for 1 to 2 minutes, or until hemostasis is achieved. If the patient is anticoagulated or has a coagulation abnormality, apply manual pressure for approximately 5 to 10 minutes or until hemostasis occurs at PICC site.
24. Remove folded gauze and apply prepared petroleum gauze dressing to old PICC site.
25. Apply sterile transparent dressing over prepared petroleum gauze dressing.
26. Document procedure.
27. After PICC removal:
    - dressing can be removed after 24 hours if PICC site is clean and hemostasis has occurred.
    - if there is continued bleeding or oozing, apply new dressing and contact Infusion Program Clinician/IV Educator
    - for Community, teach patient signs and symptoms of complications that would require medical attention after PICC removal.

Patient/Client/Resident Education

Pamphlet: available from Patient Health Education Materials Catalogue (VCH or PHC)

- All about your Peripherally Inserted Central Catheter (PICC) (Cat #FA.200.P418)

Documentation

Document procedures on specific forms or tools as per policy.

Related Documents

VCH Online e-learning CVC Care and Maintenance Module

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Appendix A: PHC Practice Level/Education Requirements

RN (RPN at SPH Only): with additional education

- Successful completion of a Central Venous Catheter (CVC) Care & Maintenance Learning Module.
- Attendance of IV Specific Orientation session and CVC Care and Maintenance instruction lab as required by work site.
- Demonstrate competency through a site specific formal process (may include observation by experienced RN/Educator/Clinical Resource Nurse.
    - Specialized education is not required to perform a site assessment, change intravenous (IV) infusion bags or administer medication into a continuous IV infusion.

Additional specialized education is required for PICC:

- Insertion
- Tip confirmation prior to initial access
- Exchange
- Repair
- Occlusion Management
- PICC adjustment
- PICC removal

LPN requirements: (Practice limited to Acute sites only)

- Successful completion of a CVC Care & Maintenance Learning Module.
- Attendance of Orientation session on IV therapy as required by work site.
- A LPN who has completed the site specific relevant orientation may:
    - Report/consult with RN for suspected complications and problem solving (shared provision of care).
    - Assess PICC insertion site for complications and dressing status.

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Appendix B: VCH Practice Level/Education Requirements

RN: with additional education

ALL:

- Successful completion of the Central Venous Catheter (CVC) Care & Maintenance E-Learning Module.
- Demonstrates competency through a formal process *(see Performance Checklist – pgs 34-38).*

Acute:

- Attendance of Hospital Wide Orientation session on Parenteral Therapy.
- Attendance of CVC Care and Maintenance Instruction Lab.

Community:

- Attendance of IV Specific Orientation session as required by work site.

An RN who has completed the requirements may perform the following skills:

- Site assessment
- Flushing
- Tubing change
- Needleless connector change
- Dressing change
- Obtaining a blood sample
- Removal

An RN who is new at performing the above skills, or who has identified a need for review must be observed by an experienced RN, Educator, or Clinical Resource Nurse.

An RN who ***has not*** completed the requirements may:

- Perform a site assessment
- Change intravenous (IV) infusion bags
- Administer medication into a continuous IV infusion

An RN requires specialized PICC training for:

- Insertion
- Tip confirmation prior to initial access
- Exchange
- Repair
- Occlusion Management
- PICC adjustment

LPN requirements: (Practice limited to Acute sites only)

- Successful completion of Section A of the CVC Care & Maintenance E-Learning Module.
- Attendance of Hospital Wide Orientation session on Parenteral Therapy.
- A LPN who has completed the site-specific relevant orientation may:
  - Report/consult with RN for suspected complications and problem solving (shared RN/LPN provision of care).
  - Assess PICC insertion site for complications and dressing status.

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Appendix C: Phlebitis

1. Identification and Treatment of Phlebitis:

- Assess exit site for redness, edema, tenderness, or discharge every shift.
- Assess the amount of PICC visible from exit site and whether PICC is secure. A printed number and/or black dots visible on the catheter will assist in determining amount of PICC visible from the exit site (one black dot = one cm). Relevant data should be available in the insertion documentation for comparison.
- Assess the extremity for color, warmth, sensation, movement, and swelling.
- Palpate subclavian area for tenderness, warmth, or swelling.
- Consider catheter migration into the internal jugular vein if the patient describes a "popping" sound during flushing.
- Refer to Appendix D – Phlebitis Rating Scale to use when assessing vein pathway.

2. Treatment of a Mechanical Phlebitis:

- A mechanical phlebitis can develop within 72 hours post insertion and is defined by tenderness, warmth, swelling and firmness of the vein and may involve swelling of the extremity below the insertion site.
- Mechanical phlebitis is usually not associated with signs and symptoms of infection/sepsis, e.g. fever, chills, or diaphoresis. If these symptoms occur contact physician immediately
- It is important to treat a mechanical phlebitis **early**. Once established, it is more difficult to treat and may result in removal of the PICC.
- A PICC inserted below the ACF or into a smaller vein are prone to mechanical phlebitis and may be treated with heat to prevent phlebitis.
- If the patient develops a **mechanical phlebitis**:
  - Apply a hot/warm moist towel wrapped in a plastic bag to the site and along the vein pathway.
  - Apply the towels continuously while the patient is awake over a 24 to 48 hour period and reassess regularly.
  - Suggest to physician to order a non-steroidal anti-inflammatory medication such as ibuprofen.
  - If there is no significant resolution after 24 to 48 hours, the PICC may have to be removed. Discuss with responsible physician.
- A venogram and/or ultrasound may be requested to evaluate the status of the vessel.
- If worsening of symptoms is noted, notify responsible physician or refer patient to appropriate hospital staff for immediate treatment (i.e. Infusion Program Clinician/IV Educator).

Appendix D: Phlebitis Rating Scale

Assessment and Cause	Treatment Plan	Implement	Evaluate
0: • Absence of S/S of phlebitis *Cause:* • Adherence to aseptic technique • Proper PICC stabilization • Regular Assessment	• Prevention with routine shift assessment • Patient education to identify complications	• Prophylactic application of heat for first 24 hours post insertion if necessary • The insertion site must be assessed within 24 hours after insertion; if site visible (e.g. transparent gel-pad dressing used), 24 hour dressing change is done based on drainage type and saturation of gel-pad dressing.	• Every shift and PRN
+1: • Pain along vein and/or edema. No streak, cord, or drainage *Cause:* • Cannulation trauma • Insertion site contamination	• Conservative • Moist heat application to PICC arm • Patient teaching to report decrease in pain after heat application • Observation every shift	• Moist heat x 24 hours for intervals of 20 minutes • Elevate at rest • Encourage use of extremity • Ensure PICC is stabilized under dressing	• After first 24 hours – mechanical phlebitis frequently resolves with heat • > 72 hours can lead to increased incidence of infection
+2: • Pain along vein, erythema and/or edema, streak formation, no cord *Cause:* • Unresolved trauma from insertion procedure • Introduction of infection	• Continue Conservative Treatment Plan • Continue moist heat application • Notify physician	• Observe closely • Continue to apply moist heat at regular intervals • Possible addition of anti-inflammatory medication with physician's order	• Every shift and PRN • Failure to prevent complication within 72 hours may result in line removal and venous scarring
+3: • Pain, redness along vein, streak, cord, no drainage *Cause:* • Continued unresolved trauma from insertion procedure	• PICC removal after 72 hours with no resolution of phlebitis	• Notify physician • Monitor patient for other signs and symptoms of infection / sepsis	• After 72 hours • Continue to evaluate patient after PICC removal for possible sepsis
• Drainage at site • Lymphatic • Purulent	• Remove PICC • Culture PICC tip on removal and culture PICC site	• Notify Physician • Apply pressure dressing for 24 hours	

Appendix E: Management of Complications for PICCs

Complications	Signs & Symptoms	Management	Prevention
1. Air Embolism: Air is drawn through the catheter into the patient's vascular system. Air embolism does not occur with PICC insertion. Air embolism from removal of a PICC may occur but is rare.	• Light-headedness • Restlessness anxiety • Chest pain • A sense of impending doom • Nausea • Tachycardia • Hypotension • Dyspnea, tachypnea • Cyanosis changes in mental state, confusion, seizures • Unresponsiveness • Rales or wheezing in the presence of pulmonary edema	• If S&S of air embolism, clamp the open/cracked lumen/catheter close to the insertion site with non-toothed forceps, clean with alcohol, cover with sterile gauze and apply transparent dressing (device may be repairable). • Place patient on left side (this permits the air bubble to rise to upper part of the Right Atrium). • Acute: call a code • Community: call 911 • Vital signs every 5 minutes • Administer oxygen	• Use luer-lock connections and secure well • For non-valved PICC, clamp PICC lumen when changing administration set/cap. • Provide patient education re: catheter displacement and disconnection. • When PICC removed, apply occlusive dressing to exit site.
2. Arrhythmias: Tip of catheter is placed within the Right (R) atrium; leads to cardiac muscle irritability and arrhythmias	• Irregular pulse • Chest Pain • Palpitations	• Obtain CXR to confirm tip position • If in Right Atrium contact Infusion Program Clinician/IV Educator to pull back	• Confirm catheter tip placement prior to use
3. Infection: Could be local or systemic	*Local:* • Purulent drainage, erythema • Swelling • Tenderness at site *Systemic:* • Fever/chills • Increased WBC • Malaise • Hypotensive & shock (severe infection)	*Local:* • Contact physician. • Swab exit site for C&S prior to starting antibiotics. *Systemic:* • Contact physician • Catheter removal may be necessary if treatment is unsuccessful. • Obtain peripheral blood cultures as well as blood cultures from the central line. • Send catheter tip for C&S if line is removed.	• Assess site every shift and PRN. • Aseptic technique to be used at all times during care & maintenance. • Monitor vital signs and temperature. • Monitor lab results. • Assess daily clinical need for line removal.

Complications	Signs & Symptoms	Management	Prevention
4. Phlebitis: See: - Appendix C: Phlebitis and - Appendix D: Phlebitis rating scale	• Pain • Warmth • Redness • Streak formation • Edema • Vein firm to palpation (palpable cord)	• Apply moist heat to PICC arm continuously while the patient is awake for 24 to 48Hr. • Reassess routinely. • Elevate extremity. • Notify Infusion Program Clinician/IV Educator and Physician. • Follow the phlebitis rating scale • Obtain order for NSAIDs if appropriate	• Assess site every shift & PRN. • Prophylactic application of heat for first 24 hours post insertion if necessary. • Patient education to identify complications
5. Partial Occlusion: Able to infuse, but unable to withdraw blood. *Contributing factors:* • Failure to flush/lock according to catheter flushing procedure resulting in lumen obstruction. • Catheter opening may draw up against vein wall with aspiration. • Blood clot, fibrin sheath, or particulate matter obstructing catheter, when blood is being aspirated. • Kinked catheter outside or inside the body. • Malposition of catheter tip.	• Sluggish flow of IV fluids. • Difficulty flushing. • Inability to aspirate blood.	• Check PICC for any kinks. • Have patient cough, do Valsalva's maneuver, turn head to opposite side, raise arms or change position. • Flush with 10 mL NS in a 10 mL syringe using a gentle push-pull technique. If resistance to flush is felt, stop. • If no resistance to flush is felt, pull back gently on the syringe plunger 2 to 3 mL pause and proceed with aspiration. • Attempt to aspirate with a smaller syringe (3 to 5 mL) which exerts less negative pressure when withdrawing blood. • Change needleless connector. • Notify the physician; obtain order for Thrombolytic Therapy. • Notify Infusion Program clinician/IV educator to instill Thrombolytic Therapy. • If able to flush and aspirate blood, flush the lumen with 20 mL NS and continue with therapy. • Document the type of occlusion, intervention, patient response, and physician intervention.	• Routine turbulent flushing with 20 mL NS after intermittent medications, blood product transfusions or following obtaining blood sample. • Follow guidelines for routine PICC flush and lock. • Check for lumen patency prior to accessing. • Do not leave partial occlusion unresolved, as it will turn into total occlusion.

Complications	Signs & Symptoms	Management	Prevention
6. Total Occlusion: Inability to withdraw blood or infuse. *Contributing factors:* • Blood, drug precipitate or lipid deposits completely obstruct the lumen. • May be kinked, coiled or damaged. • Sutures used during catheter placement may have tightened and restricted flow.	• Unable to flush or aspirate blood.	• Do not force flush. • Assess catheter and tubing for kinks in line or tight sutures • Move the patient's arm, shoulder and head to see if a position change affects the ability to infuse. • Notify the physician; obtain order for Thrombolytic Therapy • Notify Infusion Program Clinician/IV Educator to instill Thrombolytic Therapy • If occlusion not fibrin/blood related (i.e. drug precipitate, lipid deposits), notify Infusion Program Clinician/ IV Educator to identify source of occlusion and treat with appropriate agent. • Discuss Radiologic studies, e.g. CXR, Venogram • Report and document occlusion, interventions and response.	• Routine turbulent flushing with 20 mL NS after intermittent medications, blood product transfusions or following obtaining blood sample. • Follow guidelines for routine PICC flush and lock. • Check for lumen patency prior to accessing.
7. "Stuck" needleless connector cap	• Unable to remove cap from catheter lumen • Two potential causes: ○ Over-tightening of cap when accessing (see photos in 'prevention') ○ Fluid has crystallized between cap and catheter lumen	• Reassess routinely • Change cap after collecting blood sample if flushing does not clear cap • If "stuck" cap, try using a latex Penrose drain for grip to remove • May try alcohol swab between cap and lumen hub to dissolve crystallized solution • Notify Infusion Program Clinician/IV Educator • Forceps may crack or break PICC, and are only to be used after Infusion Program Clinician/IV Educator notified.	• After priming new cap, tip excess fluid out of end of cap prior to attaching to catheter lumen • When attaching new cap, finger tighten only **AND** • With any luer-access (syringe or IV tubing), **hold at base of cap.**  • When "turning on" to cap, continue to **hold cap at base** 

Complications	Signs & Symptoms	Management	Prevention
8. Venous Thrombosis: A clot between the catheter and the vein. *Contributing factors:* • Improper flushing of catheter lumen(s) causing fibrin sheath/clot formation in catheter or at tip of catheter in vein. • Predisposing patient history related to blood clotting (i.e. cancer) • Phlebitis • Incorrect tip position (i.e. in Upper SVC or Brachiocephalic, or Subclavian vein	• Edema/cyanosis of arm on the same side as PICC. • Pain • Swelling of neck, face, shoulder, arm or chest. • External jugular vein distention. • Change in ability to infuse or withdraw.	• Acute: contact Infusion Program Clinician/IV Educator and Physician. • Community: arrange for client to return to hospital for assessment. • After informing the above clinicians/physician observe the client hourly & PRN • Follow up with diagnostic studies (Ultrasound and/or venogram) • Anticoagulation therapy as directed by Physician. • Do not remove the line. • PICC removal is the responsibility of the Physician. (The PICC may be left in place during anticoagulation treatment).	• Assess for signs & symptoms of venous thrombosis every shift and PRN. • Check for lumen patency prior to accessing. • Use turbulent flush (stop-start) technique. • Use needleless connector.
9. Superior Vena Cava Syndrome: Occlusion of the SVC by a thrombus. SVC syndrome results in increased venous pressure, which results in central nervous system disturbances. SVC syndrome can lead to cerebral and vocal cord edema and death.	• Progressive edema of upper extremity, neck and face. • Dilatation of the superficial veins of the chest, neck, and arms. • Collateral veins of chest, neck. • Peri-orbital edema (swollen eyes) • Tachycardia • Hypotension	• Do not remove PICC. • Notify physician and Respiratory Therapist STAT. • Community client: call 911 • Position patient comfortably. • Apply O_2. • Obtain peripheral venous access. • Vital signs every 5 minutes and PRN	• Assess every shift and PRN for signs of increased swelling of face, chest and eyes. • Assess for signs & symptoms of venous thrombosis every shift. • Check for lumen patency prior to accessing.
10. Extravasation Soft tissue damage due to leaking of vesicant or irritating drug from a vein into the surrounding tissue. *Contributing Factors:* • Catheter dislodgement. • Catheter broken internally • Presence of a fibrin sheath.	• Edema • Erythema • Pain or burning during or after infusion in area of vascular access device. • Unable to obtain blood return with aspiration	• Stop infusion • Notify physician STAT • Warm or cold treatment as per ordered medication protocol. • Attempt to aspirate the drug or solution from the catheter • Follow Extravasation Protocol. • Document observation, assessment and treatment.	• Check site each shift and PRN. • Check for lumen patency prior to accessing. • When administering vesicants, check for blood return with aspiration prior to drug administration. • Review CXR to confirm correct tip position. • Have antidotes available when administering vesicant drugs.

Complications	Signs & Symptoms	Management	Prevention
11. Catheter Dislodgement Line is partially or totally dislodged. *May cause:* • Hemorrhage (if anticoagulated) or • Air Embolus - Air can be drawn up through dislodged, cracked, or disconnected PICC or IV tubing into the patient's vascular system causing an Air Embolus. • Valved PICC may have an incompetent valve which would allow air to enter and blood leave the PICC.	*Partial Dislodgement:* • Swelling in the chest wall during infusion. • Leaking at catheter site. • Pain or discomfort with infusion. • External portion of catheter may have increased in length • Obvious bleeding from disconnected tubing. *Complete Dislodgement:* • Catheter has completely dislodged out of the insertion site. • Signs and symptoms of air embolus may be present: hypotension, tachycardia, pallor, and altered level of consciousness.	*Partial dislodgement:* • Stabilize catheter • Stop IV • Position patient supine • Notify Infusion Program Clinician/IV Educator and Physician. • Monitor vital signs • Obtain CXR *Complete Dislodgement:* Asymptomatic: • Apply pressure to insertion site for 1 to 2 minutes • Apply occlusion dressing to exit site • Monitor for S&S of air embolism and hemorrhage • Notify physician Symptomatic: • Position on left side • Initiate resuscitation measures • Acute: call a code • Community: call 911 • Continue to apply pressure until bleeding stops • Apply occlusive dressing to exit site	• Ensure securement dressing devices and/or sutures are intact. • Record external catheter length at the beginning of the shift and PRN. • Secure PICC to skin/ clothing to prevent pulling • Avoid pulling on PICC when transferring/ positioning patient. • Follow Dressing Procedure when removing securement dressing or device to prevent accidental pull back or push in of the PICC.
12. Catheter damage tear or leak *Contributing factors:* • Contact with a sharp object • Rupture from attempt to irrigate an occluded catheter with a syringe smaller than 10 mL	• IV fluid leaking out of PICC. • Signs & symptoms of Air Embolism if non-valved PICC or incompetent valve of valved PICC. • External portion of catheter may have increased in length	• If the lumen or catheter is broken, clamp lumen/PICC close to the insertion site with non-toothed forceps, clean with alcohol, cover with sterile gauze, and apply transparent dressing (device may be repairable). • Prevent air emboli. • Notify Infusion Program Clinician/IV Educator.	• 10 mL barrel-sized syringe is the smallest syringe used to flush a PICC. • Secure catheter to skin/clothing to prevent pulling • Avoid pulling on PICC when transferring/ positioning patient • Do not use sharp objects near PICC • Ensure line is not twisted or kinked before flushing. • Ensure all of PICC including permanent suture wing is covered by the transparent dressing.

Complications	Signs & Symptoms	Management	Prevention
13. Blood noted in Catheter *Contributing factors:* • Placement of the catheter in the right atrium or ventricle. Contractions of the heart muscle can force blood into the catheter. • Increased pressure in the SVC due to excessive coughing, vomiting. • Malpositioned PICC. • Compromised valve. • Flush/lock protocols not followed.	• Blood seen in catheter lumen	• Attempt to aspirate blood from the catheter, if blood aspirated flush with 20 mL NS. If unable to aspirate blood, follow total occlusion management protocol (above). • If the lumen or catheter is broken clamp lumen/PICC close to the insertion site with non-toothed forceps, clean with alcohol, cover with sterile gauze, and apply transparent dressing (device may be repairable). • Consider CXR to confirm tip placement • Notify Infusion Program Clinician/IV Educator. • If non-valved PICC is fractured: clamp PICC close to the insertion site with non-toothed forceps.	• PICC correct tip confirmation prior to use • Ensure needleless connector tubing connections are secure. • 10 mL barrel sized syringe is the smallest syringe used to flush a PICC. • Secure catheter to skin/clothing to prevent pulling • Avoid pulling on PICC when transferring/ positioning patient. • No sharp objects near PICC.
14. Air noted in catheter lumen *Contributing factors:* • IV tubing / cap not primed with NS. • Compromised valve. • Hole in non-valved or Proximal valved (external) PICC.	• Air seen in catheter lumen • Signs & symptoms of Air Embolism	• Treat for Air Embolism. • Attempt to aspirate air if possible. • Check the catheter for leakage by flushing with NS after aspirating. • If the lumen or catheter is broken clamp lumen/PICC close to the insertion site with non-toothed forceps, clean with alcohol, cover with sterile gauze, and apply transparent dressing (device may be repairable). • Notify Infusion Program Clinician/IV Educator and Physician.	• Prime all IV tubing prior to connecting. • Ensure needleless connector tubing connections are secure. • No sharp objects near PICC. • If valve is compromised attach an extension tubing with a clamp and notify Infusion Program Clinician/IV Educator. PICC may need to be replaced.

Complications	Signs & Symptoms	Management	Prevention
15. Fluid leakage from catheter exit site *Caused by:* • Catheter may have become encapsulated by a fibrin sheath, which prevents infused fluid from entering the venous system. • Central vein thrombosis or tumour growth occluding the vein can cause infused fluid to flow back along the outside of the catheter to the skin exit site. • Edema. • Catheter punctured by sharp object prior to placement • Catheter ruptured from attempt to irrigate an occluded catheter with a smaller than 10 mL • Lymph vessel damaged during insertion.	• Fluid visibly leaking from catheter exit site. • External portion of catheter may have increased in length.	• Infuse 10 mL NS and assess for signs of fluid extravasation/infiltration under the skin. • If the lumen or catheter is broken clamp lumen/PICC close to the insertion site with non-toothed forceps, clean with alcohol, cover with sterile gauze, and apply transparent dressing (device may be repairable). • Notify Infusion Program Clinician/IV Educator and Physician • Diagnostic studies (i.e.Venogram,Linogram, ultrasound) may be required • If leak is due to seeping edema, fold 2x2 gauze; create pressure point over the insertion site and cover with dressing. • Change dressing in 24 hours and PRN. • If lymph vessel damage, PICC removal recommended and new PICC insertion done.	• No sharp objects near PICC. • 10 mL barrel sized syringe is the smallest syringe used to flush a PICC. • Avoid pulling on PICC when transferring/ positioning patient.
16. Attempt to power inject through non power related device	• PICC will rupture • Possible contrast medium infiltration • Pain swelling along PICC vein pathway	• Stop the infusion STAT • Clamp lumen/PICC with non-toothed forceps STAT. • Notify physician STAT • Notify the Infusion Program Clinician/IV Educator STAT • Apply cool compress	• **Do not power inject into a PICC not labeled as power injectable.**

Appendix F: Checklists

Skills Performance Checklist
Dressing Change PICC Line

Name: _____ Unit: _____

Assessor: _____ Date: _____

RN requirements:

- Successful completion of the CVC Care & Maintenance E-Learning Module
- Attendance of CVC Care and Maintenance Instruction Lab
- Demonstrates competency through a formal process

Available resources: BD-00-12-40054: Peripherally Inserted Central Catheter (PICC)

TASK	YES	NO	RELATED QUESTIONS
1. Clean work surface with surface disinfectant and let dry.			• When is the PICC dressing changed?
2. Wash hands thoroughly for 30 seconds.			
3. Gather equipment. Put on mask. Position patient.			
4. Wash hands thoroughly. Set up dressing tray			
5. Put on non-sterile gloves.			
6. Measure the amount of PICC visible from the insertion site to the permanent suture wing. Compare measurement to original insertion.			• Why is movement significant?
7. **Dressing removal**: follows instructions appropriate for dressing used at work site.			
8. Inspect the catheter site. If there are any signs of infection, swab the site for C&S and notify the physician.			• Describe assessment of the site and surrounding skin? • What interventions are followed if complications visible?
9. Remove gloves. Wash hands. Put on sterile gloves.			
10. **Clean catheter and insertion site**: • Use 1st Large CHG wipe to clean catheter insertion site. • Anchor PICC at the catheter site with sterile forceps. • Wrap 2nd Large CHG wipe around catheter. Clean the catheter moving away from the insertion site including permanent stabilization wing. • Clean all portion of the catheter lumen that will be under the dressing.			• Describe solutions used to clean skin.

11. Clean the catheter and skin with CHG 2% with alcohol 70% swab stick • Clean using friction in multiple directions x 15 seconds. • Repeat with second swab stick. Skin contact with cleanser must be for a minimum of 15 seconds per swab stick. • Ensure entire area that will be covered by dressing (approximately 10 x 10 cm) is cleansed. • If add-on (removable) white wing, remove carefully and clean.			• What is the rationale for friction rub of the skin?
12. Allow skin to dry **completely** (approximately 3 minutes) to prevent skin irritation. • If required, apply skin prep, allow to dry completely.			
13. **Dressing application**: follow instructions appropriate for dressing used at work site.			
14. Measure external length of catheter and compare to measurement at time of insertion • Any movement must be documented. • Depending on tip location at insertion, CXR may be required. • For movement more than 3 cm, contact Infusion Program Clinician/IV Educator.			• What actions must be taken if catheter movement occurs?
15. Label dressing with date and external length.			
16. Remove gloves, mask and wash hands thoroughly.			
17. Document procedure.			• What is documented?

Skills Performance Checklist – Answer Key
Dressing Change PICC Line

QUESTIONS	ANSWERS
When is the PICC dressing changed?	• The insertion site must be assessed within 24 hours after insertion • If site visible (e.g. transparent gel-pad dressing), assess need for dressing change based on drainage type and saturation of gel-pad dressing • Gauze dressing is changed a minimum of every 48 hours and when needed if loose, or if moisture, drainage, blood or signs or symptoms of infection are present. • Transparent, semi-permeable dressing is changed every 7 to 8 days and as needed when loose, or if moisture, drainage, blood or signs or symptoms of infection are present.
Why is movement significant?	• Tip of PICC could no longer be in correct position. • If accidentally pulled back, tip may not be centrally located which could lead to a thrombus. • If pushed in, tip may be in right atrium which could lead to arrhythmias or patient at high risk of developing sepsis.
Describe assessment of the site and surrounding skin?	• Assessment involves checking for signs of redness, swelling, tenderness, discharge, catheter migration, leaking from site.
What interventions are followed if complications visible?	• Measure amount of catheter visible from the exit site up to the built in extension tubing and confirm that it matches with the documented insertion length. • Swab taken for C & S • See Appendix E for complications
Describe solutions used to clean skin.	• Untinted Chlorhexidine Gluconate 2% (CHG) with 70% alcohol is used for skin cleansing. UNLESS skin irritation is related to an interaction between the adhesive in the dressing, and the alcohol of the prep • Betadine (Povidone Iodine 10%) is used as an alternative to CHG in cases of contact dermatitis or allergy. Do not wash off with saline solution. • Saline is not recommended as cleaning agent for dressing change. • May use sterile normal saline to cleanse site if saturated with blood; follow with skin antiseptic. • CHG may be inactivated if used with normal saline. Ensure skin is completely dried prior to cleaning with CHG. • For skin impairment, irritation and skin cleansing/dressing recommendations, contact Infusion Program Clinician/IV Educator.
What is the rationale for friction rub of the skin?	• The application of friction allows the solution to penetrate the lower layers of the epidermis thus providing better antimicrobial action on the skin.
What actions must be taken if catheter movement occurs?	• Depending on tip location at insertion, CXR may be required for movement more than 3 cm, contact Infusion Program Clinician/ IV Educator.
What is documented?	• Date of dressing change, external measurement, site condition.

Skills Performance Checklist
Removal of a PICC Line

Name: _____ Unit: _____

Assessor: _____ Date: _____

RN requirements:

- Successful completion of the CVC Care & Maintenance E-Learning Module
- Attendance of CVC Care and Maintenance Instruction Lab
- Demonstrates competency through a formal process

Available resources: BD-00-12-40054: Peripherally Inserted Central Catheter (PICC)

TASK	YES	NO	RELATED QUESTIONS
1. Inform the patient of the procedure. Position patient and arrange equipment. Check order prior to removal.			• What consideration is made if patient is anticoagulated?
2. Clean work surface with surface disinfectant and let dry.			
3. Gather equipment. Position patient.			
4. Wash hands thoroughly for 30 seconds. Set up dressing tray.			
5. Apply non-sterile gloves.			
6. Remove old dressing. Assess catheter site and surrounding skin.			• List actions taken if a PICC infection is suspected.
7. Remove gloves, wash hands. Apply sterile gloves.			
8. Clean insertion site, sutures (if present) and skin with CHG 2% with alcohol 70% swab stick. Allow skin to dry completely.			
9. Remove securement device/suture(s).			
10. Hold folded gauze in non-dominant hand and prepare to remove catheter. Hold catheter close to the insertion site and gently pull catheter out 2 to 5 cms at a time, parallel to the vein, re-gripping the catheter with each pull.			• What would you do if you met resistance while pulling out the catheter?
11. Occlude site with sterile gauze immediately upon removal. Avoid wiping catheter on gauze during removal to prevent site contamination.			
12. After removal, inspect distal tip of PICC (if distal valve, e.g. Groshong) noting condition and length to ensure complete removal.			• What is the intervention for catheter damage tear or leak?
13. Apply light pressure to the PICC site for 1 to 2 minutes until hemostasis is achieved.			
14. Apply folded petroleum gauze dressing, covered with sterile gauze and adhesive dressing.			• What dressing is used at the insertion site?
15. Document procedure.			• What is documented?
16. Assess sterile adhesive dressing 24hours post PICC removal. Apply new sterile adhesive dressing every 24 hours until skin is epithelialized.			

Skills Performance Checklist – Answer Key
Removal of a PICC Line

QUESTIONS	ANSWERS
What consideration is made if patient is anticoagulated?	• If patient is being anticoagulated, discuss with physician whether IV infusion of anticoagulant needs to be stopped **prior to removal**.
List actions taken if a PICC infection is suspected.	• If infection suspected, consult physician for blood culture collection via PICC and peripheral site. • Swab may be sent from insertion site if drainage present. • Sending tip for C & S may be indicated if patient febrile, and PICC suspected as a source of infection. If needed, use sterile scissors to cut 5 cm from tip of catheter; place in C&S container.
What would you do if you met resistance while pulling out the catheter?	If resistance is met during removal: • Stop, wait two minutes and attempt removal again pulling slowly and gently If resistance persists: • Stop, and cover site with a sterile dressing • Apply moist warm towel to the vein pathway x 30 minutes and reattempt removal If difficulty continues: • Stop, and cover site with a sterile dressing • Contact Infusion Program Clinician/IV Educator and Physician
What is the intervention for catheter damage tear or leak?	• If the lumen or catheter is broken, clamp lumen/PICC with non-toothed forceps, clean with alcohol, cover with sterile gauze, and apply transparent dressing (device may be repairable). • Prevent air emboli. • Notify Infusion Program Clinician/IV Educator.
What dressing is used at the insertion site?	• The use of petroleum ointment or petroleum gauze is recommended to prevent air embolism.
What is documented?	• Date and time of removal, condition of tip, patient tolerance.

PICC Procedure Resource Videos

1. **Set up**
    a. Cleaning work surface area
    b. Washing hands
    c. Clean hands with Gel
    d. Preparing and setup of dressing tray

2. **IV Infusion Access**
    a. Initiating IV Infusion
    b. Discontinuing IV Infusion

3. **Needleless Connector Change**
    a. No Touch Technique Needleless connector change

4. **Flushing**
    a. Flushing of Valved Line CVC

5. **Dressing Change**
    a. PICC dressing change with StatLock
    b. Application of Tegaderm IV Advanced dressing – PICC
    c. Removal of Tegaderm IV Advanced dressing - PICC
    d. Application of CHG dressing – PICC
    e. Removal of CHG dressing - PICC

6. **Removal**
    a. Removal of PICC

7. **Blood Draw**
    a. PICC – Blood Draw