	<p>Policies and Procedures</p> <p>Title: CENTRAL VENOUS CATHETERS – CARE OF PERIPHERALLY INSERTED CENTRAL CATHETERS (PICCS)</p> <ul style="list-style-type: none"> - accessing - dressing changes - tubing and adapter changes - flushing <p>I.D. Number: 1001</p>
<p>Authorization: [x] SHR Nursing Practice Committee</p>	<p>Source: Nursing Date Effective: January 25, 2017 Scope: SHR & Affiliates</p>

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DEFINITIONS

Client- a term used to describe a client, patient or resident.

Peripherally Inserted Central Catheter (PICC): A central venous access device inserted into a peripheral vein whose tip dwells in the superior vena cava and is used in acute care, long term care or home care.

ROLES

Graduate Nurses (GNs) - as assigned, GNs provide PICC care with direct supervision until determined by an RN supervisor to be competent to practice autonomously.

Graduate Licensed Practical Nurses (GLPNs) – as assigned, GLPNs provide PICC care with direct supervision until determined by an RN or LPN supervisor to be competent to practice autonomously.

Licensed Practical Nurses (LPNs) – as assigned, LPNs provide PICC care. **Prerequisite:** LPN must have completed SaskPolytechnic IV Therapy/Blood & Blood Products Completer Course or equivalent.

Registered Nurses (RNs) – as assigned, RNs provide PICC care.

Registered Psychiatric Nurses (RPNs) - role with PICC care is currently under review.

Medical Radiology Technologists (MRT) - as assigned, MRTs provide PICC care.

1. PURPOSE

- 1.1 To maintain the patency of PICCs.
- 1.2 To minimize the risk of infection, damage, displacement and other complications associated with the care and use of PICCs.

2. POLICY

2.1 Special Considerations

- Prior to accessing PICCs for any reason, nurses must perform appropriate Hand Hygiene procedures (Infection Prevention & Control policy #20-20)
- To decrease the risk of contamination, accessing PICCs should be kept to a minimum
- The continued need for a PICC will be assessed daily or per home visit
- To prevent peripheral PICC occlusion and/or damage, avoid using same arm with PICC for BPs or venipuncture

2.2 Accessing a PICC

- Assess CVC function by aspirating for blood return and then flushing prior to each intermittent CVC use (administration of medication or infusion) and as clinically indicated with continuous infusions (e.g. occlusion alarms) **Exception** : Acute Care Pediatrics/PICU small lumen (3 Fr. And under) no blood withdrawal or blood infusion is recommended. Physician will be notified and Medical Imaging may be consulted for intervention if unable to flush a lumen or if unable to aspirate for blood return.
- Direct luer lock connections will be used for continuous infusions
- Intermittent medications/fluid will be administered through a needleless adapter or needleless injection port on IV tubing
Acute Care Pediatrics: applies a needleless adapter for all IV infusions
- Needleless adapters will be cleaned for 15 seconds using an alcohol swab and friction in a twisting motion prior to each access (scrub the hub)

2.3 Flushing PICCs

- Flushing is performed on PICCs that are used intermittently (not connected to a continuous infusion) and following each access.
- If the PICC is not routinely accessed each lumen is flushed on a schedule specific to type of PICC (See CVC Adult, Pediatric or PICU Standards - Appendix A,B &C).
- **PICCs will be flushed with 0.9% Sodium Chloride** using stop & start flush technique:
 - after blood withdrawal,
 - after blood administration
 - before and after each medication administration,
 - for maintenance of an unused lumen
- PICCs will be flushed using at least a 10mL syringe to avoid excessive pressure, to avoid possible rupture of the catheter or dislodgement of a clot
- Physician will be notified and Medical Imaging may be consulted for intervention if unable to flush a lumen or if unable to aspirate for blood return

Note: Clients receiving treatment from the Saskatchewan Cancer Agency should be advised to contact the Cancer Clinic prior to their next appointment if there are any flushing concerns (e.g. sluggish or blocked lumen)

- **Acute Care Pediatrics, PICU and NICU** follow unit protocols for flushing PICCs

2.4 Changing Tubing and Adapters

- Prior to changing needleless adapters or tubing, clean connection for 15 seconds using an alcohol swab and friction in a twisting motion
- Prime tubing and adapters prior to attaching to PICC line

2.4.1 Needleless Adapters:

- PICC lumens will be capped with a sterile needleless adapter at all times when not directly connected to tubing

- **Acute Care Pediatrics** needleless adapter applied to all IV infusions
- **Home Care Clients only:** for clients only getting a weekly maintenance flush, Luer lock plugs (or dead enders) may be used (replaced after each access)
- **Change needleless adapters:** every 7 days and if removed for any reason, if there is residual blood or debris within the needleless connector and prior to drawing a sample for blood culture. Document change on care plan/flowsheet.

2.4.2 **Tubing and extension sets** : will be changed q96hrs except:

- lipid emulsions: parenteral nutrition tubing q 24hr
- propofol q 12hr (**RN only**)
- blood transfusion tubing q 8 hours, after 4 units infused or if more than an hour has elapsed between infusions
 - When tubing is changed, any needleless adapters, stopcocks or other tubing connected to the same lumen must be changed at the same time
 - New IV tubing will be used when a new PICC is inserted

2.5 **Dressing Changes**

- Use aseptic technique using sterile gloves when applying new dressings
- Skin will be disinfected with Chlorhexidine 2%/Alcohol 70% during dressing changes

Note: for infants less than 2 months or client is sensitive to chlorhexidine, use providine-iodine swab or 70% alcohol swab or disinfect with chlorhexidine then wipe off with sterile saline

2.5.1 **Dressings will be changed:**

- Follow orders for initial dressing change following insertion
- Transparent semipermeable dressing every 5-7 days and prn when dressing soiled, wet or non-occlusive.
- Gauze (or combination of gauze & transparent dressing) – every 2 days
- If the patient has a securement device such as Stat Lock it is changed every 7 days with the dressing change.
- Site will be assessed at least every 8 hours for:
 - signs of inflammation
 - infection
 - bleeding
 - leakage at insertion site
 - length of PICC
 - secure sutures/securement device

Report any concerns to the physician. **Home Care:** Educate the client /family to recognize and report any of the above symptoms to their nurse

2.6 **Catheter Securement**

PICC must be stabilized with sutures or stabilization device.

If PICC migrates externally it should not be advanced back into the vein. The PICC should be stabilized at the point of external migration and assessed by physician/ Medical imaging prior to further use.

2.7 **Catheter Damage**

If the PICC line becomes damaged, immediately clamp the line between the break and the chest wall to prevent air embolism or bleeding from the device. Notify the physician immediately.

3. PROCEDURES

3.1 **Assessing PICC patency** – Assess PICC function by aspirating for blood return and flushing prior to each intermittent medication or intermittent infusion or when clinically indicated with continuous infusions. **Exception:** Acute Care Pediatrics/PICU small lumen (3 Fr. and under) where no blood withdrawal or blood infusion is recommended.

3.1.1 Supplies

- 10mL syringe prefilled with 0.9% Sodium Chloride
- alcohol swabs
- CVC Adult, Pediatric or PICU Standards (Appendix A, B &C) for flush volumes

3.1.2 Perform hand hygiene.

3.1.3 Clean needleless adapter for 15 seconds using an alcohol swab and friction in a twisting motion. Allow to dry.

3.1.4 Attach 10mL syringe prefilled with 0.9% sodium chloride

3.1.5 Gently flush lumen with 1-2 mLs of 0.9% sodium chloride.

3.1.6 Gently aspirate the PICC for blood return.

3.1.7 Flush the lumen with saline using stop and start flush technique.

3.1.8 Administer medication/infusion.

3.1.9 Following medication administration, flush lumen as per Standards (Appendix A,B &C)

3.1.10 Perform hand hygiene following the procedure.

3.2 Flushing

3.2.1 Flushing is performed on PICCs that are used intermittently (not connected to a running infusion), following each access. If the PICC is not routinely accessed then these lumens are flushed on a schedule specific to each type of PICC (Adult/Pediatric/PICU Standards - Appendix A, B & C).

3.2.2 Supplies

- 10mL syringe prefilled with 0.9% Sodium Chloride (1 for each lumen to be flushed)
- alcohol swabs
- CVC Adult, Pediatric or PICU Standards (Appendix A, B &C) for flush volumes

3.2.3 Perform hand hygiene

3.2.4 Clean needleless adapter for 15 seconds using an alcohol swab and friction in a twisting motion. Allow to dry.

3.2.5 Flush: Attach 0.9% Sodium Chloride flush syringe, inject the required volume and remove the syringe:

- after blood withdrawal, before and after medication administration, for maintenance of an unused lumen

- using a stop and start flush technique

Note: A pulsatile flushing technique of 10 short boluses of 1 mL interrupted by brief pauses may be effective at removing solid deposits.

- Do not use force to flush or lock a PICC.

3.2.6 Repeat the procedure for other lumens as necessary.

Note: Use a separate flush syringe for each lumen.

3.2.7 Perform hand hygiene following the procedure.

3.2.8 Documentation:

- Record fluid volumes as appropriate on Fluid Balance Record.

3.3 Tubing and Adapter Change

3.3.1 Supplies:

- alcohol swabs
- primed needleless adapter
- primed tubing
- 10mL syringe prefilled with 0.9% Sodium Chloride (1 for each lumen)
- Luer lock plug (Home Care)
- Tubing change sticker
- Clean gloves

3.3.2 Perform hand hygiene and apply clean gloves

3.3.3 For tubing change, stop IV infusion.

3.3.4 For clamped (or non-valved) PICC, clamp lumen to prevent air embolism or blood loss.

3.3.5 Clean needleless adapter or tubing connection where the hub meets the lumen for 15 seconds using an alcohol swab and friction in a twisting motion. Allow to dry.

3.3.6 Loosen connection to facilitate rapid change over. If difficult to loosen, use a tourniquet or glove for improved grip. Do not use metal forceps as this could damage the catheter hub.

3.3.7 Disconnect tubing or adapter.

3.3.8 Clean PICC line end with new alcohol swab. Allow to dry.

3.3.9 While maintaining aseptic technique to avoid catheter contamination, connect new primed tubing or adapter.

3.3.10 Unclamp catheter and re-establish IV infusion if applicable.

3.3.11 Flush unused lumens according to CVC Standards (Appendix A, B & C).

3.3.12 Remove gloves and perform hand hygiene following procedure.

3.3.13 Document date of tubing or adapter change on care plan or other appropriate document. Write date changed on tubing change sticker and attach to tubing.

3.4 Dressing Change

3.4.1 Supplies:

- dressing tray/set (if needed)
- clean gloves
- sterile gloves
- 0.9% Sodium Chloride (for skin cleansing if required)
- sterile cotton tipped applicators (if required)
- 2 - Chlorhexidine 2%/Alcohol 70% - swab sticks for skin disinfection
- Sterile transparent semi permeable or sterile gauze dressing
- Catheter stabilization device if used
- tape if needed
- stabilization device if used (Sku:217135)
- Alcohol based hand sanitizer

3.4.2 Perform hand hygiene and don clean gloves.

3.4.3 Remove dressing.

3.4.4 If stabilization device is present, use alcohol swabs to ease removal.

3.4.5 Discard gloves and dressing.

3.4.6 Perform hand hygiene.

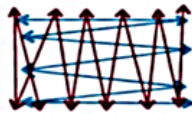
3.4.7 Inspect insertion site for:

- signs of infection or inflammation
- secure sutures or stabilization device in place
- catheter slippage/movement
- leaking IV fluid
- pain or swelling in arm

Notify physician promptly if any of the above are noted.

3.4.8 If drainage is present, cleanse skin and catheter with 0.9% Sodium Chloride using aseptic technique.

3.4.9 Disinfect skin with 2% Chlorhexidine/Alcohol 70% swab stick applicator. With the first swab stick, using friction, clean around the exit site of catheter and area where dressing is to be placed using a back and forth motion for 15 seconds. Flip the swab stick and moving in opposite direction clean site for another 15 seconds. With the second swab stick, cleanse length of exposed catheter. For patients less than 2 months old wipe off chlorhexidine after 30 seconds with sterile 0.9% Sodium Chloride.



3.4.10 If there is a contraindication to chlorhexidine, providine-iodine or 70% alcohol can be used as alternatives

Note: PICC material can be damaged with adhesive removers and acetone

- 3.4.11 Allow skin to air dry completely.
- 3.4.12 Apply skin protectant to area for irritated or fragile skin and if catheter stabilization device will be used (using aseptic technique and avoiding the insertion site).
- 3.4.13 Perform hand hygiene.
- 3.4.14 Don sterile gloves.
- 3.4.15 Apply new catheter stabilization device if catheter is not sutured in place (follow manufacturer's directions for use.)
- 3.4.16 Apply transparent semipermeable dressing to cover both the insertion site and sutures/securement device. Lay dressing in place and mold it over the catheter with fingertips starting at the insertion site. Do not stretch dressing over skin surface. Slightly overlap the border tabs under hub of lumens. Press transparent portion of dressing into place. Add adhesive strips to stabilize PICC and to label dressing change date. Apply gentle pressure to entire dressing to ensure optimal adhesion.
- 3.4.17 If using plain sterile gauze, secure with a full border of tape or cover with transparent dressing.
- 3.4.18 Secure tubing to the skin with supplied tape strips to prevent traction on the dressing or insertion site.
- 3.4.19 Remove gloves and perform hand hygiene.
- 3.4.20 Document dressing change and condition of insertion site on appropriate record.

Other CVC policies:

- #1086 Central Venous Catheters – Short Term, Tunneled, Implanted - Care of
- #1042 Central Venous Catheters – Blood Withdrawal (PICC, Short Term, Tunneled, Implanted)
- #1003 Central Venous Catheters – Peripherally Inserted Central Catheters (PICC) Removal

4. REFERENCES

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CENTRAL VENOUS CATHETERS - Adult Standards November 2017

Prior to accessing CVC for any reason perform **Hand Hygiene** for at least 15 seconds with alcohol-based hand rub or antiseptic soap and water.

	PICC Clamp less, valved e.g. BioFlo PICC	PICC with clamps, non-valved	Short Term Percutaneous -jugular, subclavian or femoral	Tunneled Long term e.g. Hickman	Implanted Port chest or arm e.g. Port-a-Cath, P.A.S. port
Accessing	Syringe or IV tubing via needleless adapter				Non coring safety needle primed with 0.9% Sodium Chloride *See below for sizes available
Check Placement	<i>Gently aspirate to visualize blood return then flush with 0.9% Sodium Chloride</i>				
Frequency of Flushing and Locking <i>(Flushing and Locking not required for continuous IV infusion)</i>	Flush after each access or Once a week if unused	Flush after each access or Q 24 h if unused	Flush after each access or Q 12 h if unused	Flush & lock after each access or Once a week if unused	Flush & lock after each access or Once a month if unused
Flush Volume (0.9% sodium chloride)	10mLs before & after medication administration. 20mLs after blood administration or withdrawal				20mL
Heparin Lock (100units/mL)	N/A		N/A		5mL (500 units)
Heparin Lock Syringe Size	N/A		N/A		12mL
Dressing changes	<ul style="list-style-type: none"> ▪ Transparent semipermeable q 5-7 days and PRN when dressing soiled, wet or non-occlusive ▪ Transparent semipermeable with gauze or gauze alone q2 days ▪ Clean skin with saline prn, then for skin antisepsis use Chlorhexidine 2%/alcohol 70% swab stick. 				
Needleless Adapter Change <i>(Use needleless adapter on all unused and intermittent use CVC lumens)</i>	Once a week for unused lumens. Change every 96 hours if tubing is connected.				Once a week if port accessed
Blood Sampling Discard Volume <i>Use discard tube or 10 mL syringe</i>	1 tube or 5 mL			2 tubes or 7 mL	2 tubes or 7 mL

* Stock # in SPD: **Gripper Plus Safety Needle:** 22G X 1-215487 22G X 3/4 -215484 22G X 5/8 -215485 21G X 1-215486 20G X 3/4- 215482 20G X 5/8 -215483
Gripper Micro Safety Needle: 20G X 3/4 - 200939 22G X 3/4 - 200941 22G X 1 -200942



CENTRAL VENOUS CATHETERS - Pediatric Standards

December 2016

Prior to accessing CVC for any reason perform **Hand Hygiene** for at least 15 seconds with alcohol-based hand rub or antiseptic soap and water.

	PICC (under 3 Fr)	PICC (3 Fr & over)	Short Term Percutaneous - jugular, subclavian or femoral	Tunneled Long term, e.g. Hickman	Implanted Port Chest or arm
Accessing	Syringe or IV tubing via needleless adapter				Non coring safety needle primed with 0.9% Sodium Chloride
Check Placement	Flush with 5 -10mLs 0.9% Sodium Chloride	<i>Gently aspirate to visualize blood return then flush with 0.9% Sodium Chloride</i>			
Frequency of Flushing (0.9% sodium chloride) <i>Flushing NOT required for continuous IV infusion</i>	Before & after medication administration	After each intermittent access Before & after medication administration After blood administration or withdrawal			
Flush Volume (0.9% sodium chloride)	5mL	Volume weight based: less than 10 kgs: 5mL greater than 10 kgs: 10 – 20mL			10 - 20mL
Frequency of Heparin Locking <i>Locking NOT required for continuous IV infusion</i>	N/A *Unless physician specific orders written*	N/A	After each intermittent access Q 24h to unused lumen	After each intermittent access Q 24 h if accessed but not used Once a month if deaccessed	
Heparin Lock Volume (100units/mL) wt. greater than 10 kgs or accessed 5 times or less/24 hrs.	N/A	N/A	1.5mL(150units)	2.5mL(250units)	
wt less than 10 kgs or accessed 6 times or more/24 hrs.			0. 2mL heparin (100 units/mL) added to 1.8 mLs 0.9% sodium chloride (20units)	0. 2mL heparin (100 units/mL) added to 1.8 mLs 0.9% sodium chloride (20units) Deaccess ONLY: 2.5mL (250units) (Heparin 100 units /mL)	
Heparin Lock Syringe Size			12mL		
Dressing Change	<ul style="list-style-type: none"> o Transparent semipermeable with gauze or gauze alone q2days o Transparent semipermeable q 5-7 days and PRN when dressing soiled, wet or non-occlusive o Clean skin with saline prn, for skin antisepsis use 2% Chlorhexidine swab stick <p>Note: ages 2 months & under – clean skin with chlorhexidine, let the skin dry then wipe off chlorhexidine with 0.9% sodium chloride</p>				
Needleless Adapter Change <i>use adapter on all CVC lumens</i>	Once a week on unused lumens. Change every 96 hours if tubing connected.				Once a week if ACCESSED
Blood Sampling Discard Volume <i>use discard tube or 12 mL syringe</i>	No blood sampling No blood transfusions	3mL			

PICU Central Venous Care Guidelines 2016

	PICC under 3 French	PICC 3 French & over	Percutaneous CVL/CVP	Long Term Tunneled Silicone	Long Term Implanted port	Umbilical Venous (Argyle)
Lumen Volume	1.9Fr=0.105mL	3 Fr=0.145mL	Per pkg or lumen instruction	2.7Fr=0.15mL	Port-0.2-0.7mL Needle system-0.5-0.7 mL	Single Lumen 3.5 FR=0.15mL 5.0 Fr=0.30mL Multilumen-see pkg or lumen instructions
Flush & Locking						
Saline Flush/Lock -use 6 -10 mL syringe -Use stop/start motion	-Before and after meds or bloodwork -Unused: q 24 hr. -Amount to clear lumen (at least 0.5 mL)	Before and after meds or bloodwork -Unused: q 24 hr. -Amount to clear lumen(at least 0.5 mL)	-Before and after meds or bloodwork -Amount to clear lumen(at least 0.5 mL)	-Before and after meds or bloodwork Volume: < 10 kg-5 mL > 10kg-10mL	-Before and after meds or bloodwork Volume: 2-5 mL	Before and after meds or bloodwork -Amount to clear lumen
Heparin Lock (Physician Order required)	25 units/mL 0.5-1mL q 8 hrs. and prn	No-Saline Lock at least q 24 hrs. Note -consider Heparin lock if patency problematic. Order required.	0.5-1.5mL of 25 units/mL q 8 hr. & prn	Non Accessed: 1.5 mL of 100 u/mL q 24 hrs. Intermittent Access: 1.5 mL of 10 units/mL q 8hrs& prn	Non accessed: 1.5 -2.5 mL of 100 u/mL monthly Intermittent Access: 1.5-2.5mL of 25 units/mL q 8hrs & prn	4 units/mL 2x lumen volume Q 6 hours
Blood work draw	No	Yes	Yes	Yes	Yes-use port closest to patient.	Yes
Blood Discard	n/a	2x lumen volume	2x lumen volume	3-5mL	2-5mL	n/a
CVP Monitoring	No, unless ordered	No, unless ordered	Yes, Distal lumen	No, unless ordered	No, unless ordered	As ordered
Acceptable Meds (CVL dilution if fluid restricted)	ALL IV meds	ALL IV meds	ALL IV meds	ALL IV meds	ALL IV meds	ALL IV meds
Parenteral Nutrition	Dextrose <= 30%, amino acids, lipids. Consider heparin in PN at low rates	Yes-all	Yes-all	Yes-all	Yes-all	Dextrose<= 50%, amino acids, lipids
Blood administration	NO	NO unless no other site	NO-unless no other site	NO-unless no other site	Yes	Yes
Routine Care						

	PICC under 3 French	PICC 3 French & over	Percutaneous CVL/CVP	Long Term Tunneled Silicone	Long Term Implanted port	Umbilical Venous (Argyle)
Tubing Change (including stop cocks and caps not put on with sterile field)	TPN-q 24 hrs. IV -q 96 hr.	TPN-q 24 hrs. IV -q 96 hr.	TPN-q 24 hrs. IV/CVP -q 96 hr.	TPN-q 24 hrs. IV -q 96 hr.	TPN-q 24 hrs. IV -q 96 hr. Access Needle- q 7 days	Q 24 hours
Dressing -Sterile technique -Skin Asepsis with Chlorhexidine- wash off if < 2 month age	Transparent-q 7 days & prn Gauze-q 24 & prn	Transparent-q 7 days & prn Gauze-q 24 & prn	Transparent-q 7 days & prn Gauze-q 24 & prn	Transparent-q 7 days & prn Gauze-q 24 & prn	Transparent-q 7 days & prn Gauze-q 24 & prn	Transparent-q 7 days & prn Gauze-q 24 & prn