

Title: IV THERAPY: MAINTENANCE OF CENTRAL VENOUS CATHETERS-Flushing, Dressing Changes and Removal

Scope:

This practice applies to all patients at MultiCare Health System with central line access.

Guideline Statement:

- A. This guideline establishes the MultiCare Health System (MHS) process for minimizing the opportunity for complications associated with Central Venous Catheters (CVC) and removal of non-tunneled catheters.
- B. IV specialists or clinical staff with documented training and competency per the MHS Patient Services Practice Guide may perform the procedures included in this guideline.
- C. The need for the CVC will be assessed in collaboration with the provider and documented every 24 hrs by either the IV team or primary RN.

Procedure:

I. Admission Assessment for Existing Central Venous Catheters:

- A. When a patient is admitted, staff will assess for the presence of existing central venous catheters
- B. Admitting RN will institute Central Venous Catheter Maintenance order set.
- C. Identify and document type of CVC in patient's medical record.

II. Special Considerations for All of the Following Procedures:

- A. Catheter tip placement confirmation:
 - 1. Tip verification is required by the use of an ECG tip confirmation system or by radiographic confirmation prior to use, for all non-femoral central venous catheters.
 - 2. Tip placement is to be in the lower 1/3 of the Superior Vena Cava (SVC) (or as approved by provider)
 - a. Lines placed from lower extremity will have tip in the Inferior Vena Cava (IVC)
 - 3. If the patient is admitted from another facility or agency with a central line in place, tip placement must be confirmed by Radiology prior to use or have documentation of tip placement with

corresponding external measurement that matches the current external measurement. (Exception: In an emergent situation, if the patient needs pain medication, a non-vesicant or flushes easily and blood return is obtained, the line can be used until the radiologist provides tip confirmation)

B. Infection prevention and control measures along with aseptic technique will be adhered to when managing central venous catheters, to include hand hygiene, standard precautions and sterile procedures where applicable:

1. Perform hand hygiene, then immediately apply gloves before manipulating the device.
2. When changing intravenous therapy from a peripheral line to a central venous line, always use new tubing
3. The spike and the male luer of all sets must never be allowed to touch anything that is not sterile.

C. Cleansing of injection cap, catheter hub, luers and/or stopcocks

1. Nursing staff will use the institutional approved cleaning product to clean catheter hubs, luers, stopcocks and needless access points.
2. Nursing staff must use friction scrub for 15 seconds with a large alcohol pad or other institutionally approved scrub device, and allow to dry prior to accessing or connecting.

D. Needleless injection cap (see cleansing guidelines above):

1. Change inpatient caps every 96 hours or when integrity is compromised
2. Change outpatient caps every 7 days or when integrity is compromised.
3. Discard any time it is **removed** from the extension or catheter and replace it with a new sterile needleless injection cap
4. Blood can be drawn through the needleless injection cap; it does **NOT** have to be replaced after a blood draw unless its integrity is compromised. See **MHS Policy, "IV THERAPY: BLOOD SPECIMEN COLLECTION FROM VASCULAR ACCESS DEVICE"**
5. Change tubing per **MHS Policy, "Continuous, Intermittent IV Fluids, Tubing, Filter Container Use and Change"**

E. Dressing changes:

1. Central Venous catheter insertion site dressings are to be changed every 7 days and as needed if not clean, dry or intact. If there is gauze under the transparent dressing, it must be changed within 48 hours.
2. Every effort should be made to provide as much distance between catheter sites, IV tubing, and attachments to surgical sites, G-tubes, ostomies, ET tubes and trachs to decrease the potential for the spread of infection.

F. Document in the patient's medical record:

1. All pertinent central line information must be included in the patient's record, including but not limited to: type of line, site, gauge, length, date of insertion, time if known, lot number, expiration date, and inserter.

G. Patient Safety Measures for all CVCs:

1. Luer-lock all continuous infusions directly to the needleless device on the extension or hub on the vascular access device
 - a. All infusion tubing has luer-lock connections, assure all connections are secure
 - b. Do not use tape as a means of junction/connection securement (INS Standard 29)
2. **Use 10 mL syringe when flushing a central venous catheter see appendix 1 at bottom of guideline.**
3. Secure catheter or IV tubing to the patient to prevent tension on the catheter or implanted port access needle.
4. Catheter/lumen must always be clamped when not in use if clamp present.
5. The date, RN's initials, and external catheter measurement are to be documented upon insertion, and with each dressing change. (Hickman/Groshong/Broviac/Leonard (tunneled) catheters measure from exit site to hub. Catheters with cm markings, measure from exit site to the last cm mark).
6. Central venous catheters are not to be used for high-pressure infusions in CT (per manufacturer recommendations), unless catheter is designed for this use, (or physician/provider authorizes use via written or verbal order (See policy "Power Injection of Contrast Media, Guideline to Peripherally Placed Lines)

7. Use an in-line filter only as indicated in policies or per pharmacy instructions.
8. Patients less than 2 months of age should have chlorhexidine used "with caution". Make sure that skin remains intact. If using Betadine, once solution dries (may take several minutes). This may be removed with sterile saline if irritating to skin.
9. The RN will review patient allergies regarding all skin prep products prior to procedure.

H. Patient Assessment and Education

1. Perform site assessments per **MHS policy "Vascular Access Site Assessment."** Notify physician of any complications to determine action to be taken.
2. Explain procedure to patient/family. Hand out patient education material and document education.

III. Central Venous Catheter (CVC) Sterile Dressing Change

A. Obtain the following equipment:

1. CVC dressing kit
2. Antimicrobial disc or antimicrobial dressing
3. Exam gloves, 1 pair
4. Alcohol pads or adhesive remover pads (if necessary)
5. Securement device if not sutured.

B. Establish clean work area (use drape or clean a surface with appropriate cleaning product—See Infection Control Policy). Avoid using the patient bed to set up clean work area.

C. Open CVC dressing kit

D. Put on mask and clean exam gloves

1. All staff/family at bedside must wear a mask.

E. Instruct patient to turn face away from insertion area or put mask on patient Carefully remove old dressing (recommend alcohol pad or adhesive remover per manufacturers instructions to loosen), stabilize the catheter and pull away from the hub toward the exit site parallel to skin. Discard old dressing.

F. Examine insertion site for complications (i.e. purulent drainage, leaking, redness, tenderness, swelling, bleeding, skin condition, line integrity), and condition of suture if present.

- G. Remove gloves, discard, and perform hand hygiene
- H. Put on new sterile gloves, from kit
- I. Cleanse exit site with chlorhexidine solution
 - 1. Prep the exit site by using back and forth friction scrub for 30 seconds. Prep an area slightly larger than dressing will cover. Allow area to dry completely.
 - 2. Clean external length of catheter with alcohol.
 - 3. Measure exit site to proximal end of hub.
- J. Place securement device according to manufacturer's instructions if not sutured.
- K. Place antimicrobial disc with the blue side up, white foam side next to skin at the exit site
 - 1. To ensure easy removal, place the disc so that the catheter rests just to the left or right of the radial slit, not directly over the slit.
 - 2. The edges of the slit must touch to assure efficacy.
 - 3. Disc should not just be laid over the exit site, but should be around the catheter at exit site.
 - 4. If using antimicrobial dressing, apply gel to exit site first, then adhere the rest of the dressing.
- L. Apply skin prep to approximate area where the dressing will be. Do not apply skin prep to exit site or where the antimicrobial disc or gel pad of dressing will be located. Prepping just larger than the dressing will help edges to stay intact. Allow to dry completely.
- M. Place a transparent dressing over the catheter and exit site, including wings and at least 1 inch of the catheter, if possible, making sure that all edges of the dressing are well secured to the skin. No portion of the antimicrobial disc or external length of catheter should be outside the transparent portion of the dressing. The securement device should not extend outside of the dressing.
- N. Secure extension to skin
 - 1. PICC lines are secured up to and including the wings under sterile transparent dressing.
 - 3. Tunneled lines are secured by one loop around the exit site under sterile dressing and then loop remaining catheter tubing and secure to patient.

- O. Remove gloves and discard waste.
- P. Cleanse hands.
- Q. Label the dressing with date, external measurement, and initials.
- R. Document per policy.

IV. Central Venous Catheter (CVC) - Tunneled Dressing Change (Hickman, Broviac, Power Line and Groshong)
Special Instructions:

- A. Dressing changes may be done by patients or caregivers when supervised/observed by the qualified nurse.
 - 1. The nurse will observe the dressing change performed by the patient or caregiver, educate as appropriate and document event.

B. Adult (non-hospitalized):

- 1. Patients may shower 2 weeks after catheter insertion with provider order.
 - a. With Provider approval, submersion in a tub is permitted 2 months after insertion and healing is complete.
 - b. The dressing may be removed before showering.
 - c. Site care is to be done immediately follow bathing and showering.
- 2. Adult patients with catheters older than 2 months and the site are healed (and the adult patient is not immunocompromised), daily inspection and institutional approved cleansing is appropriate.
 - a. The CVC site may be covered with gauze to minimize mechanical irritation

V. Peripherally Inserted Central Catheter (PICC) Dressing Change.
Special Instructions:

- A. Loop/position the catheter to avoid any crimping of tubing.
- B. Cover exit site, wings, and entire exposed catheter with transparent dressing.

VI. Dialysis Catheter Use, Management and Dressing Change – Special Instructions:

- A. Primary care nurse is responsible to ensure that dressings are changed as needed in a timely manner (See Section III). This may be coordinated with PICC/IV RN as appropriate.
- B. Dialysis catheter may be accessed for infusion or blood draws only with a nephrologist permission and order. When the dialysis nurse is unavailable, only staff from IV therapy, PICC nurse or the unit charge nurse with documented competency may access the dialysis line. The blue port is used for blood draws or administration of fluids or blood. Refer to Appendix 1
- C. When the catheter is accessed, all heparin must be removed and discarded prior to flushing. Each lumen must be flushed and heparinized when not in use.
- D. Obtain the following supplies for accessing:
 - 1. Heparin 1000 units/mL (unless physician orders specify a different concentration/amount) if changing heparin dwell at 72 hours
 - 2. Needleless injection caps (2), or end caps if line not in use. (preferred).
 - 3. Alcohol prep pads
 - 4. 3mL Normal Saline Prefilled syringes (2)
 - 5. 10mL syringes (4)
 - 6. Clean exam gloves
 - 7. 4x4 gauze to wrap dialysis lumens, sticker for identification of high dose Heparin
- E. Check each lumen for appropriate amount of Heparin to be used and prepare (2) 3 mL syringes (**ONLY to be used with Dialysis Catheters, NO others**).
- F. Cleanse needleless injection cap with large alcohol pad for 15 seconds, then allow to dry completely
- G. Attach empty syringe to lumen, unclamp catheter, withdraw at least 3 mL of blood and discard
 - 1. Close clamp
- H. Attach normal saline syringe, unclamp and flush 1. Catheter should flush easily, do not force
- I. Use the line as ordered, or heparinize and clamp
- J. If not in use, attach sterile end caps, making sure line is clamped.

- K. Place tape around closed clamp to assure it remains closed
- L. Wrap dialysis lumens with sterile 4x4 gauze and place pink "High dose Heparin" sticker around gauze

VII. Removal Of Non-Tunneled CVC (Subclavian, Jugular, Femoral, PICC):

- A. A physician order is required prior to removing the catheter (A physician must remove tunneled catheters or cuffed catheters)
- B. Follow hand hygiene and aseptic protocol
- C. Assemble the following equipment:
 - 1. Clean gloves, 1 pair
 - 2. Sterile gloves, 1 pair
 - 3. Sterile 4x4 gauze dressing (may be included in suture removal set)
 - 4. Suture removal set (2, if catheter is to be cultured)
 - 5. Chloraprep swab
 - 6. Alcohol pads or adhesive removal pads
 - 7. Transparent dressing
 - 8. Antibiotic ointment or petroleum gauze
 - 9. Sterile specimen cup and label (if catheter tip is to be cultured)
- D. If catheter is to be cultured, a second nurse will be needed
- E. Discontinue administration of all infusates
- F. Open suture removal kit:
 - 1. Place antibiotic ointment on sterile gauze in kit
- G. Perform hand hygiene and put on clean gloves.
- H. Remove dressing from insertion site by pulling toward insertion site utilizing an alcohol pad or adhesive remover as appropriate, discard with gloves, and perform hand hygiene.
- I. Put on sterile gloves.
- J. Cleanse site with Chloraprep if not allergic (use alcohol if allergy is present and patient tolerates this solution).
- K. Remove suture carefully by cutting with scissors away from catheter. If catheter is severed inadvertently, keep patient still, call privileged provider immediately. Obtain a STAT portable chest x-ray to verify position of catheter segment.

- L. While the patient is in a flat position holding his/her breath, using gentle, even pressure, slowly retract the catheter from the site (Not necessary to hold breath with PICC) If the patient is unable to hold their breath, remove catheter during exhalation.
 - 1. If resistance is met, do not put undue tension on the catheter (may cause it to break).
 - 2. Notify physician of inability to remove catheter.
 - 3. May need to temporarily dress the site until removal can be facilitated.
- M. Digital pressure should be applied until hemostasis is achieved, then antiseptic ointment and an occlusive dressing applied.
 - 1. When removing a jugular catheter, do not put pressure on the carotid artery.
- N. If tip culture is needed:
 - 1. After the IV catheter is removed, hold the catheter tip directly over dry sterile cup. Assisting staff member cuts with sterile scissors at level of container (at least 5 cm of the tip and catheter segment). Aseptically replace cap. Handling of the catheter tip should be done using sterile technique to eliminate any possibility of contamination. Attach computer-generated laboratory label to specimen cup.
- O. Leave dressing in place at least 24 hours. Replace as needed.
- P. Position patient for comfort and instruct to remain in bed at least 20 minutes (not necessary for PICC).
- Q. Remove gloves, discard equipment and perform hand hygiene.
- R. Instruct patient/caregiver to observe site for bleeding, report bleeding or difficulty breathing to nurse
- S. Document in electronic medical record.

	<p>Related Policies:</p> <p>MHS P & P: <i>"IV Therapy: Vascular Access Site Assessment"</i></p> <p>MHS P & P: <i>"Patient Identification Using Two Patient Identifiers, Informational Wristbands"</i></p> <p>MHS P & P: <i>"Continuous, Intermittent IV Fluids, Tubing, Filter Container Use and Change"</i></p> <p>MHS P & P: <i>"Power Injection of Contrast Media, Guideline to Peripherally Placed Lines"</i></p> <p>MHS Practice Guide - Clinical Scopes of Practice</p>
	<p>References:</p> <p>Infusion Nurses Society. (2011), <i>Infusion Nursing Standards of Practice</i>, Belmont, MA.</p> <p>CDC Guidelines for Prevention of Intravascular Device Related Infections. (2011)</p> <p>Policies and Procedures for Infusion Nursing, INS, (2011)</p> <p>Weinstein, S. (2007). <i>Plumer's Principles and Practice of Intravenous Therapy</i> (8th ed.). Philadelphia: J.B. Lippincott.</p> <p>Bard Access Systems, Hickman®, Leonard®, and Broviac® Catheters, Nursing Procedure Manual. Salt Lake City, UT.</p> <p>Perucca R., <i>Infusion Monitoring and Catheter Care</i>. In J. Hankins R.A. W. Lonsway, C. Hendrick, and M.B. Perdue (Eds.), <i>The Infusion Nurses Society: Infusion Therapy in Clinical Practice</i>, (2nd ed., pg 394) W.B. Saunders, Philadelphia PA</p>

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	Attachments: Appendix 1: Guidelines for Flushing and Dressing Change - Adult, Pediatrics, NICU and ICN, MHS	
Approval By: Pharmacy and Therapeutics Committee MHS Policy and Procedure PILOT Good Samaritan Clinical Operations Good Samaritan Policy Council Good Samaritan QIC Good Samaritan PICC Team Leadership MHS NEC Infection Control Quality Steering Council		Date of Approval: 5/10, 11/13 11/10 11/10 10/10 10/10 11/10 9/13 10/13 11/13 12/13
Original Date: Revision Dates: Reviewed with no Changes Dates:		1/08 11/08,3/09, 5/10,10/10, 8/13 X/XX

Distribution: MSH Intranet

Appendix 1

**GUIDELINES FOR FLUSHING & DRESSING CHANGE PROTOCOL FOR MHS
FLUSHING GUIDELINES FOR ADULTS**

CATHETER TYPE	FLUSH FREQUENCY	NORMAL SALINE	HEPARIN CONC/AMOUNT	HEPARIN SYRINGE SIZE	FLUSH BEFORE LABS	FLUSH AFTER LABS / OR CK'G BLOOD RETURN	DRESSING TYPE
PICC (peripherally inserted central catheter)	Every 12 hrs and after each use	10mL	N/A	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobi al disc
PORT (CVAD) (Arm & Chest)	Monthly and deaccessing	20mL	5mL (100unit/)	10mL	10mL NS	20mL NS	N/A
	Daily and after each use when accessed)	10mL	N/A	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobi al disc
TUNNELED Power Line	Daily and after each use	5mL	N/A	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobi al disc
Hickman/Leonard	Daily and after each use	5mL	N/A	10mL	10mL NS	20mL NS	Gauze and tape
Groshong	*Daily and after each use (inpatient)	5 mL	N/A	10mL	10mL NS	20mL NS	Occlusive
NON-TUNNELED Single, Double, and Triple Lumen (i.e.: subclavian, IJ, EJ, etc.)	Every 12 hrs & after each use, each lumen	5 mL	N/A	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobi al disc

MIDLINE: Note – this is NOT a CVC, vesicants can NOT be administered	Every 12 hrs or 2 x day and after each use	5mL	N/A	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobial disc
DIALYSIS Quinton/Perma-cath (Use for dialysis only unless Physician order obtained.)	Heparin dwell in each lumen exchanged every 72 hrs. Aspirate prior to use.	10mL	100unit/mL (unless physician orders specify concentration amount). Catheter lumens are marked with volume needed.	3mL for instilling Heparin/ 12mL for NS flush	Aspirate Heparin prior to use—do not flush heparin into patient	20mL NS	Occlusive w/ antimicrobial disc
		5mL	5mL (100unit/mL)	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobial
HERESIS CATHETER:	Every 24 hrs	5mL					
Non-Tunneled Hickman Tunneled-Vascath	Every 24 hrs	5mL	5mL (100unit/mL)	10mL	10mL NS	20mL NS	Gauze and tape
PIV	Every 8 hr and after each use	3-5ml	N/A	10mL	3-5mL NS	3-5mL	Occlusive

*Use push/pause technique for flushing on all IV lines. Clamp the IV tubing while maintaining pressure on the syringe plunger with thumb. All IV lines not in use must be clamped. **Exception—Groshong catheters and SOLO PICC's do not have to be clamped. Multi lumen catheters: Each lumen must be flushed to maintain patency. Needleless adaptor change:** Every 96 hours and PRN (integrity in question, blood retained) Exception: Patients on home care. **Extension set tubing: Change immediately if integrity is compromised (damaged or blood backed up).**
 -Clean end of needleless adaptor using facility approved device.
Standard Lab Draw Procedure: 10mL NS flush, 3-5mL blood discard, obtain specimen, 10-20mL NS, 5mL Heparin (if indicated) Double **preflush if TPN infusing.** All ports and adult central lines require a 20mL NS flush after blood draw. *Groshong (outpatient). May be flushed 1x week with normal saline.

**GUIDELINES FOR FLUSHING & DRESSING CHANGE
PROTOCOL FOR MHS FLUSHING GUIDELINES FOR
PEDIATRICS > 10 k**

CATHETER TYPE	FLUSH FREQUENCY	NORMAL SALINE	HEPARIN CONC/AMOUNT	SYRINGE SIZE	FLUSH BEFORE LABS	FLUSH AFTER LABS / OR BLOOD RETURN	DRESSING TYPE
PICC (peripherally inserted central catheter)	Every 12 hrs and after each use	2-3mL	3-5mL (10unit/mL) (as needed)	10mL	5mL NS	5-20mL NS	Occlusive w/ antimicrobial disc
PORT (implanted)	Monthly and deaccessing Daily and after each use (when accessed)	3-5mL 5-10mL	5mL (100unit/mL) 5mL (10unit/mL)	10mL 10mL	10mL NS 10mL NS	20mL NS 20mL NS	N/A Occlusive w/ antimicrobial disc
TUNNELED Power Line	Daily	3-5mL	5mL (10unit/mL)	10mL	10mL NS	10-20mL NS	Occlusive w/ antimicrobial disc
Hickman/Broviac/Leonard	Daily and after each use						
Groshong	*Daily and after each use (inpatient)	3-5mL	N/A	10mL	10mL NS	20mL NS (each lumen)	Occlusive w/ antimicrobial disc
NON-TUNNELED	Every 12 hrs or	2-5 mL	5mL	10mL	10mL NS	Up to 20mL	Occlusive w/

Single, Double, and Triple Lumens (i.e.: subclavian, IJ, EJ, etc.)	2 x day and after each use, each lumen		(10unit/mL)				NS (including unused lumen)	antimicrobial disc
	Every 12 and after each use	2mL	5mL (10unit/mL)	10mL	5mL NS	5-10mL NS	Occlusive w/ antimicrobial disc	
MIDLINE								
PIV	Every 8 hr and after each use	1-3mL	N/A	3mL	1-2mL	1-2mL	Occlusive	
DIALYSIS Quinton/Perma-cath (Use for dialysis only unless Physician order obtained.)	Heparin dwell in each lumen exchanged every 72 hrs	See MHS P&P: Dialysis, Vascular Access... for specific instructions	Subclavian/Femoral: (1000unit/mL) 1.6 mL each lumen. Permacath: (1000unit/mL) 1.8mL each lumen (unless Physician orders specify conc. /amt).	3mL for instilling Heparin/ 12mL for NS flush	See MHS P&P: Dialysis, Vascular Access... for specific instructions		Occlusive	
APHERESIS CATHETER:	Every 24 hrs	5mL	5mL (100unit/mL)	10mL	10mL NS	20mL NS	Occlusive w/ antimicrobial disc	
Non-Tunneled Hickman Tunneled-Vascath	Every 24 hrs	5mL	5mL (100unit/mL)	10mL	10mL NS	20mL NS	Gauze and tape	

*Use positive pressure technique for flushing on all IV lines, PIV Lines: When using positive displacement needles device, remove syringe before clamping tubing. Clamp the IV tubing while maintaining pressure on the syringe plunger with thumb. All IV lines not in use must be clamped. **Exception—Groshong catheters and SOLO PIVs do not have to be clamped. Multi lumen catheters: Each Lumen must be flushed to maintain patency. Needleless adaptor change: Every 96 hours and PRN (integrity in question, blood retained) Exception: patients on home care. Clean end of needles adaptor with facility approved cleaning device.**
Extension set tubing: Change immediately if integrity is compromised (damaged or blood backed up)
Standard Lab Draw Procedure: NS 1-5mL flush, 3 x's the fill volume of catheter for blood discard, obtain specimen, 3-10mL NS, 5mL Heparin as needed. If double lumen, be sure to clamp other lumen during drawing process. **Double pre-flush if TPN infusing.**

**GUIDELINES FOR FLUSHING & DRESSING CHANGE PROTOCOL FOR MHS
FLUSHING GUIDELINES FOR PEDIATRICS £10kg**

CATHETER TYPE	FLUSH FREQUENCY	NORMAL SALINE	HEPARIN CONC/AMOUNT	SYRINGE SIZE	FLUSH BEFORE LABS	FLUSH AFTER LABS / OR CK'G BLOOD RETURN	DRESSING TYPE
PICC	Every 12 hrs and after each use. 3 x day if 2 fr. Or smaller	2-3mL	1-3mL (10unit/mL)	10mL	1-3mL NS	1-5mL NS	Occlusive w/ antimicrobial disc
PORT	Monthly and deaccessing	5mL	5mL (100unit/mL)	10mL	5mL NS	10mL NS	N/A
TUNNELED Hickman / Broviac/ Leonard / Groshong	Daily and after each use	3-5mL	3-5mL (10unit/mL)	10mL	5mL NS	10mL NS	Occlusive w/ antimicrobial disc
NON-TUNNELED Single / Double / Triple	Daily and after each use	1-3mL	1-3mL (10unit/mL)	10mL	1-3mL NS	5mL NS	Occlusive w/ antimicrobial disc
PIV	Every 8 hrs and after each use	1-3mL	1-3mL (10unit/mL)	10mL	5mL NS	5mL NS	Occlusive w/ antimicrobial disc
	Every 8 hrs and after each use	1-3mL	N/A	3mL	1-2mL	1-2mL	Occlusive

*Use positive pulsatile pressure technique for flushing on all IV lines. When using positive displacement device, remove syringe before clamping tubing. Clamp the IV tubing while maintaining pressure on the syringe plunger with thumb. All IV lines not in use must be clamped. (Exception- Groshong catheters and Solo PICC's do not have to be clamped.)
Multi lumen catheters: Each Lumen must be flushed to maintain patency.

Needleless adaptor change: Every 96 hours and PRN (integrity in question, blood retained).

Clean end of needleless adaptor using facility approved cleaning device.

Extension set tubing: Change immediately if integrity is compromised (damaged or blood backed up) otherwise it is considered part of the IV

catheter if used with initial insertion procedure.

Standard Lab Draw Procedure: 1-3mL NS flush, 3 x's fill volume of catheter blood discard, obtain specimen, 1-3mL NS, 3mL Heparin if indicated.

Double preflush if TPN infusing. (Flush Port, w/10mL NS after draw).

Pediatric patients under 1 yr **require** preservative free Heparin and Saline.

**GUIDELINES FOR FLUSHING & DRESSING CHANGE
PROTOCOL FOR MHS FLUSHING GUIDELINES FOR NICU & ICN**

CATHETER TYPE	FLUSH FREQUENCY	NORMAL SALINE	HEPARIN CONC/AMOUNT	SYRINGE SIZE	FLUSH BEFORE LABS	FLUSH AFTER LABS / OR CK'G BLOOD RETURN	DRESSING TYPE	DRESSING CHANGE FREQUENCY
PICC Continuous		0.5-1mL		10mL	If needed to verify line patency before drawing lab.	To clear remaining blood from catheter.	Occlusive	PRN when the site is soiled, dressing is loose, dressing is applied incorrectly, or line change is indicated per NICU/ICN Central Venous Lines (PICC): Dressing and Securement Guideline.
PICC Heplocked	Every 8 hrs and after each use	0.5-1mL	0.5 mL (1 unit/mL)	10mL	Verify line patency before drawing lab.	To clear remaining blood from catheter.	Occlusive	PRN when the site is soiled, dressing is loose, dressing is applied incorrectly, or line change is indicated per NICU/ICN Central Venous Lines (PICC): Dressing and Securement Guideline.
PIV Saline lock	Every 3-4 hrs and after each use	0.25-0.5mL	1 unit/mL Heparin—0.25-0.5mL (for difficult starts or patient who clots easily)	3mL			Occlusive	PRN and with every restart
TUNNELED Hickman/Broviac Continuous	Every 12 hrs	<1500g=1mL 1500g=3mL	(1unit/mL) <1500g=1mL 1500g=3mL	10mL		<1500g=1mL 1500g=3mL	Occlusive	72 hours after insertion, then PRN Use central line dressing kit
TUNNELED Hickman/Broviac Heplocked	Every 8 hrs and after each use	<1500g=1mL 1500g=3mL	(1unit/mL) <1500g=1mL 1500g=3mL	10mL	<1500g=1mL 1500g=3mL	<1500g=1mL 1500g=3mL	Occlusive	72 hours after insertion, then PRN

Standard Blood Draw Procedure:

PICC - Continuous: Verify patency if needed, draw 1-1.5 mL blood to clear line, obtain specimen, return withdrawn blood using pulsatile movement, flush with appropriate volume NS and/or Heparin.

PICC - Heplocked: Verify patency, draw 1-1.5 mL blood to clear line, obtain specimen, return withdrawn blood using pulsatile movement, flush with appropriate volume NS and Heparin.

Broviac/Hickman: Draw 2mL blood to clear line, obtain specimen, return withdrawn blood using pulsatile movement, flush with appropriate volume NS and/or Heparin.