

CONSIDERATIONS:

1. It is strongly recommended that hemodialysis indwelling catheters be used ONLY for dialysis. A nephrologist or the supervising nephrology physician's order is required, if it is necessary to use the catheter for medication administration.
2. The majority of catheters are dual lumen; older catheters may be single lumen. The nurse must know if the catheter is single or dual lumen. Both have a Y-connector externally with clear extension tubes. Each extension tube has an attached clamp and a luer lock adaptor that is color-coded: red for arterial outflow and blue for venous return. The arterial lumen is shorter than the venous lumen.
3. Hemodialysis indwelling catheters are usually heparinized only on dialysis days. If the patient is not receiving dialysis, the catheter is routinely flushed to maintain patency. The frequency of flushing is varied, some agencies flush every other day and other agencies flush monthly. The physician must order the frequency of flushing.
4. The nurse must know the type of catheter and if the catheter is temporary or permanent. Follow manufacturer specific guidelines for catheter volume.
5. It is the physician's responsibility, when ordering the heparinization of a hemodialysis indwelling catheter, to specify the following:
 - a. Single or dual lumen
 - b. Temporary or permanent catheter
 - c. Type of catheter
 - d. Length of catheter or lumen volumes
 - e. Exact amount of heparin to use for flush
 - f. Frequency of flushing
6. The concentration of heparin used to flush the catheter is 1,000 or 5,000 units/mL.
7. Maintain sterile technique at all times when handling the catheter.
8. For dressing change, See *Infusion Therapy - Central Line Type: Tunneled*.
9. For intermittent injection port change, (See *Infusion Therapy - Central Line Type: Tunneled*).

EQUIPMENT:

Gloves
Alcohol applicator (wipe/swab/disk/ampule)
Antimicrobial applicator (wipe/swab/disk/ampule)
10 mL syringes
5 mL syringes
20-gauge, 1-inch Needle or needle-less adaptor
Heparin solution (1,000 or 5,000 units/mL, or as prescribed)
Normal saline
Puncture-proof container
Impervious trash bag

PROCEDURE: (Dual Lumen Flush)

1. Adhere to Standard Precautions.
2. Explain the procedure and purpose to the patient/caregiver.
3. Assemble the equipment on a clean surface close to the patient. Create a sterile field.
4. Place patient in comfortable position, making sure that site is accessible.
5. Ensure adequate lighting.
6. Clean the injection caps with alcohol applicator, using friction. Allow to air dry.
7. Clean the tops of the saline and heparin vials with alcohol applicator. Allow to air dry.
8. Using two 10 mL syringes, draw up 10 mL normal saline into each syringe.
9. Using two 5 mL syringes, draw up heparin solution as ordered into each syringe.
10. Unclamp extension tubes. Using a 5 mL syringe, aspirate indwelling heparin from each lumen. If line will not aspirate, call physician for instructions. DO NOT flush with saline.
11. Attach 10 mL syringe filled with normal saline to extension tube. Before flushing, pull the syringe back to verify blood flow and flush with 10 mL normal saline. Repeat with second lumen.
12. Attach 5 mL syringe filled with heparin to extension tube. Infuse the heparin by flushing quickly to ensure heparin reaches the distal end of the lumen. Flushing too slowly may cause heparin to exit the catheter from the proximal inlet holes, leaving the distal hole unprotected from clot formation. Perform this step for both lumens.
13. Discard soiled supplies in appropriate containers.

AFTER CARE:

1. Document in patient's record:
 - a. Date, time, procedure and observations
 - b. Amount of normal saline and heparin flush, including strength of heparin
 - c. Site appearance
 - d. Patient's response to procedure
 - e. Instructions given to patient/caregiver
 - f. Communication with physician

REFERENCE:

Centers for Disease Control and Prevention (2011). Guidelines for the Prevention of Intravascular Catheter-Related Infections. Accessed on September 3, 2012 at www.cdc.gov/hicpac/bsi/06-bsi-background-info-2011.html.