



MANITOBA RENAL PROGRAM

SUBJECT <ul style="list-style-type: none"> ▪ Accessing and Locking Hemodialysis Central Venous Catheter 	SECTION 30.20 Vascular Access
	CODE 30.20.02
AUTHORIZATION <ul style="list-style-type: none"> ▪ Professional Advisory Committee, Manitoba Renal Program ▪ Nursing Practice Council, St. Boniface Hospital 	EFFECTIVE DATE May 1999
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PURPOSE:

1. To access non-tunneled or tunneled central venous catheter (CVC) for Hemodialysis in the management of acute or chronic renal failure. The CVC may also be accessed for blood sampling as ordered by a physician.

POLICY:

1. Registered Nurses and Licensed Practical Nurses in the Manitoba Renal Program who have received instruction and have demonstrated competency to the renal educator or delegate may utilize a CVC.
2. A physician's order must be obtained prior to initial use of a CVC to ensure proper placement.
3. Following recommendations by The Canadian Association of Nephrology Nurses and Technologists (CANNT) and the Center for Disease Control (CDC) the Manitoba Renal Program will follow the "scrub the hub" cleansing technique when accessing Hemodialysis Central Venous Catheters.

"Scrub the Hub" will be performed prior to initiating hemodialysis and again prior to replacing a new cap at the end of treatment.

For accessing bloodlines during treatment (eg. to flush ports or reverse lines) and to start reinfusion continue to cleanse the outer connection prior to disconnecting. Rationale: when blood is present in the lines we don't want the pump stopped for an extended period of time while scrubbing and allowing to dry. The risk of contamination to the ends of the bloodlines/CVC ports is increased during these procedures as they are being held open, unattached for an extended period of time at the same time as manipulating syringes, bloodlines and ports.

EQUIPMENT:

For Initiating Dialysis

- Clean towel or sterile drape
- Disposable gloves
- 2 packages 2% chlorhexidine (CHG) with 70% Alcohol wipes

- 2 – 10 mL syringes containing 0.9% NaCl, one of these may contain heparin/saline prime as ordered by a physician
- 2 – 10 mL syringes
- 1 package of sterile gauze 10 X 10 cm
- 2 procedure masks

For Discontinuing Dialysis

- Clean towel or sterile drape
- Disposable gloves
- 4 packages 2% chlorhexidine (CHG) with 70% Alcohol wipes
- 1 package of sterile 10 X 10 cm gauze
- 1 unsterile 10x10cm gauze for wrapping (optional)
- 2 procedure masks
- 2 sterile luer-lock caps
- 2 – 3 mL syringes for instillation of prescribed locking solution
- 2 syringes containing 10 – 20 mL of 0.9% NaCl
- Label with appropriate instillation information

PROCEDURE:

A. INITIATING DIALYSIS:

1. Perform hand hygiene.
2. Mask (patient and nurse).
3. Don clean gloves.
4. Change the dressing as per Procedure 30.20.05 *Hemodialysis Central Line Dressing Change*.
5. Open drape and place under catheter.
6. Confirm that cannula clamps on catheter are closed.
7. Remove one luer-lock cap from the catheter and using a rotating motion, scrub the hub with a new 2% CHG with 70% Alcohol wipe for 30 seconds.
8. Allow the hub to dry completely while continuing to hold the catheter lumen.

KEY POINT:

- Recommendations from the CSN and KDOQI clinical practice guidelines.
- Exit site **MUST** be visualized prior to initiating dialysis.
- Dressing changes are preferentially done prior to initiating dialysis to assess catheter position and to verify sutures are intact. Notify physician if indicated.
- The drape is utilized to provide a clean (not sterile) field.
- The use of the clamp on the silastic portion of the catheter ensures that the line is not open to atmospheric pressure during any of the connections and disconnections.
- For practical reasons, pads or similar products might be preferred over other forms of antiseptics (e.g. swab sticks) for disinfecting the catheter as they are pliable and allow for vigorous cleaning of small spaces.
- Always handle the catheter hubs aseptically. Once disinfected, do not allow the catheter hubs to touch non-sterile surfaces. During this time ensure that the catheter remains clamped.
- Allow to air dry for at least one minute. No wrapping, no fanning, no blowing.
- Antiseptics should be allowed to dry for maximal effect.

- 9. Attach an empty sterile 10 mL syringe.
 - 10. Open cannula clamp and aspirate 3-5 mL of blood to confirm patency and to withdraw previously instilled locking solution. Close clamp. Discard syringe.
 - 11. Attach a new sterile syringe containing 10 mL 0.9% NaCl. Open clamp and instill into the catheter port. Close clamp.
 - 12. Open sterile 10x10 gauze and place under catheter port.
 - 13. Repeat Steps 9-13 for the other lumen of the catheter. If patent, give heparin prime as per physician's order.
 - 14. Initiate dialysis as per Procedure 30.10.01 *Use of Fresenius 5008 Delivery System* or 30.10.03 *Initiation and termination of Treatment using the Fresenius 5008 ONLINEplus™ System*
 - 15. Instruct patient to keep catheter connections exposed during treatment.
- If hub is not dry, it may be difficult to disconnect blood line at the end of the treatment.
 - Dark blood should freely enter syringe. Occasionally clots may be aspirated.
 - Blood specimens may be drawn following aspiration of locking solutions. **Never aspirate with a syringe less than 5 mL.**
 - Blood should never be allowed to dwell in the catheter lines. Repeat flush with saline if necessary.
 - Heparin prime dosages of at least 1000 units may alternatively be given via heparin pump on the Fresenius after initiation of dialysis.
 - Administer heparin prime through heparin pump on delivery system if not already done.
 - To observe for accidental disconnect.

B. CARE OF CLOTTED/SLUGGISH HEMODIALYSIS CATHETER:

- 1. If unable to aspirate, attempt to flush with 0.9 NaCl.
 - 2. If flush is unsuccessful, clamp line, disconnect syringe and instill alteplase per physician's order and Procedure 30.20.08 *Alteplase for Clearing Hemodialysis Catheter Thrombosis Using the Push (30 min) Method*.
 - 3. If the flush is successful.
 - a. If a heparin lock is instilled, hold heparin bolus/prime and flush line with 10 – 20 mL 0.9% NaCl.
 - b. If a 4% sodium citrate lock or an alteplase lock is instilled, administer heparin bolus/prime.
 - 4. Attach bloodlines and initiate treatment.
- Do not use a syringe less than 10 mL.
 - Refer to physician order re: Instillation of Alteplase.
 - The patient will receive the lock as a bolus.
 - Orders to instill heparin 1000 units/mL, 4% sodium citrate or alteplase are found on the Chronic Hemodialysis Physician's Order Sheet (W-00109).

C. DISCONTINUING DIALYSIS:

- 1. Perform hand hygiene.
- 2. Mask (patient and nurse).
- 3. Don clean gloves.

4. Open the drape and place under the catheter and bloodlines.
 - The drape is utilized to provide a clean (not sterile) field.
5. Using 2% CHG with 70% Alcohol swab, scrub connection sites for 30 seconds.
 - For practical reasons, pads or similar products might be preferred over other forms of antiseptics (e.g. swab sticks) for disinfecting the catheter as they are pliable and allow for vigorous cleaning of small spaces.
6. Place on sterile gauze and allow to dry completely.
 - Allow to air dry. No wrapping, no fanning, no blowing.
7. Return blood as per procedure 30.10.01, *Use of the Fresenius 5008 Delivery System* or 30.10.03, *Initiation and Termination of Treatment using the Fresenius 5008 ONLINEplus™ System*
8. Proceed with lock procedure.

I. Procedure for Locking Hemodialysis Catheter

1. Confirm clamp is closed. Attach a syringe containing 10 –20 mL 0.9% NaCl into the CVC port used for supply and infuse. Close clamp.
 - Either arterial or venous port can be used for supply. Select the port to which arterial blood line was attached.
2. On completion of blood return, clamp the venous blood line and catheter lumen and detach blood line from the catheter. Attach a syringe containing 10 –20 mL 0.9% NaCl to the port used for return and infuse. Close the clamp on the lumen.
 - Ensure Blood Pressures are stable prior to disconnecting venous blood line from access.
3. Attach the syringe containing locking solution ordered by Physician, open the clamp and instill using positive pressure. Close the clamp.
 - Positive pressure is maintained if the port is clamped simultaneously with the completion of instillation.
4. Remove syringe from port and using a rotating motion, scrub the hub with a new 2% CHG with Alcohol 70% swab for 30 seconds.
 - For practical reasons, pads or similar products might be preferred over other forms of antiseptics (e.g. swab sticks) for disinfecting the catheter as they are pliable and allow for vigorous cleaning of small spaces.
 - If using an antiseptic that leaves a residue (eg Chlorhexidine), avoid allowing large amounts of antiseptic to enter the lumen of the catheter to avoid potential toxicities to the patient.
5. Allow the hub to dry completely while continuing to hold the catheter lumen.
 - Allow time to air dry for at least one minute. No wrapping, no fanning, no blowing.
 - If hub is not dry, it may be difficult to remove CVC cap next treatment.
 - Always handle the catheter hubs aseptically. Once disinfected, do not allow the catheter hubs to touch non-sterile surfaces. During this time ensure that the catheter remains clamped.
6. Attach sterile luer-lock cap.

7. Repeat steps 3-6 with second port.

D. Procedure for Accessing the CVC for blood sampling only

1. Perform hand hygiene.
2. Mask (patient and nurse).
 - Recommendations from the CSN and KDOQI clinical practice guidelines.
3. Don clean gloves.
4. Open drape and place under catheter.
 - The drape is utilized to provide a clean (not sterile) field.
5. Confirm that cannula clamps on catheter are closed.
 - The use of the clamp on the silastic portion of the catheter ensures that the line is not open to atmospheric pressure during any of the connections and disconnections.
6. Remove one luer-lock cap from the catheter and using a rotating motion, scrub the hub with a new 2% CHG with 70% Alcohol wipe for 30 seconds.
7. Allow the hub to dry completely while continuing to hold the catheter lumen.
 - Always handle the catheter hubs aseptically. Once disinfected, do not allow the catheter hubs to touch non-sterile surfaces. During this time ensure that the catheter remains clamped.
 - Allow to air dry for at least one minute. No wrapping, no fanning, no blowing.
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8. Attach an empty sterile 10 mL syringe.
9. Open cannula clamp and aspirate 3-5 mL of blood to confirm patency and to withdraw previously instilled locking solution. Close clamp. Discard syringe.
 - Dark blood should freely enter syringe. Occasionally clots may be aspirated.
 - Blood specimens may be drawn following aspiration of locking solutions. **Never aspirate with a syringe less than 5 mL.**
10. Attach a sterile vacutainer or empty sterile syringe and obtain specimens as needed.
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11. Once blood sample is obtained, close clamp and remove syringe or vacutainer. Attach a syringe containing 10 –20 mL 0.9% NaCl to the port. Open clamp and instill. Close clamp.
12. Attach syringe containing locking solution ordered by Physician and instill using positive pressure to the volume of the lumen. Close the clamp.
 - Positive pressure is maintained if the port is clamped simultaneously with the completion of instillation.

13. Remove syringe. Using a rotating motion, scrub the hub with a new 2% CHG with 70% Alcohol wipe for 30 seconds.
14. Allow the hub to dry completely while continuing to hold the catheter lumen.
 - Always handle the catheter hubs aseptically. Once disinfected, do not allow the catheter hubs to touch non-sterile surfaces. During this time ensure that the catheter remains clamped.
 - Allow to air dry for at least one minute. No wrapping, no fanning, no blowing.
15. Attach sterile luer lock cap.
16. If second lumen needs to be accessed for sampling (e.g. blood cultures), repeat steps 5-15.

E. Procedure for accessing CVC mid treatment for purposes of irrigation of lumens or reversing lines.

1. Perform hand hygiene.
2. Mask (patient and nurse).
 - Recommendations from the CSN and KDOQI clinical practice guidelines.
3. Don clean gloves.
4. Open drape and place under catheter.
 - The drape is utilized to provide a clean (not sterile) field.
5. Using 2% CHG with 70% Alcohol swab, scrub connection sites for 30 seconds.
 - For practical reasons, pads or similar products might be preferred over other forms of antiseptics (e.g. swab sticks) for disinfecting the catheter as they are pliable and allow for vigorous cleaning of small spaces.
6. Place on the sterile gauze and allow to dry completely.
 - Allow to air dry for at least one minute. No wrapping, no fanning, no blowing.
7. Stop blood pump if not done prior. Clamp CVC clamps and blood line clamps,
 - Minimize blood pump stop time in order to prevent coagulation of blood in the extracorporeal circuit.
8. Maintaining aseptic technique disconnect the blood line(s) from CVC port(s) and irrigate the lumens with 10mL sterile saline.
 - Do not allow CVC ports/lumens or the open blood lines to touch non sterile surfaces.
 - Minimize "open air" time of catheter ports and blood lines to decrease risk of infection.
9. Reattach blood lines to CVC port.
10. Open clamps on CVC ports and blood lines. Start blood pump.

DOCUMENTATION:

- Manitoba Renal Program Health Record:
 - Medical Administration Record
 - Integrated Progress Notes if applicable
- In-hospital Unit/Ward Health Record:
 - Integrated Progress Notes

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