



## MANITOBA RENAL PROGRAM

<b>SUBJECT</b> <ul style="list-style-type: none"> <li>Use of Covidien™ Acute and Chronic Catheter Repair Kit: Palindrome™ Chronic Care and All Mahurkar™ Acute and Chronic Care Catheters</li> </ul>	<b>SECTION</b> 30.20 Vascular Access
	<b>CODE</b> 30.20.13
<b>AUTHORIZATION</b> <ul style="list-style-type: none"> <li>Professional Advisory Committee, Manitoba Renal Program</li> <li>Nursing Practice Council, St. Boniface Hospital</li> </ul>	<b>EFFECTIVE DATE</b> September 2013
	<b>REVISION DATE</b> September 2015 February 2017 October 2018

### PURPOSE:

- To repair the external extension tubing, leur adapter or clamp of a hemodialysis catheter manufactured by Covidien™ e.g. Palindrome™ Chronic Care Catheters.

### POLICY:

- A physician's order is required to repair catheters. Notify nephrologist re: tunnelled vs. non tunnelled catheter.
- This procedure is done by physicians for patients at, St. Boniface Hospital and Seven Oaks Hospital.
- Nurses working in Hemodialysis at Brandon Regional Health Centre, HSC and Local Renal Health Centres may utilize this procedure to repair catheters once they have reviewed this procedure. Two nurses are required to repair the catheter. It is recommended that one of the nurses reads this document out loud while the other nurse performs the procedure.
- DO NOT use catheter repair kit if catheter is infected.
- Examine entire length of extension tubing for damage. If the damage is **greater than 0.5 cm away** from the distal end of the leur adapter, **DO NOT proceed** with the catheter repair and notify the Nephrologist.
- Aseptic technique is to be used throughout this procedure.
- Using the repair kit will affect the instillation volumes. Instillation volumes will need to be recalculated. Calculations are provided on the priming volume label.
- Ensure using the appropriate manufacturer specific repair kit for the catheter type. Check the expiry date on the catheter repair kit package.
- If damage to catheter is determined to be a result of manufacturer defect, ensure the appropriate WRHA logistics complaint form is completed.

### EQUIPMENT:

- 1 Hemodialysis catheter repair kit
- 2 pairs sterile gloves
- Masks (3)

### KEY POINTS:

Product # REF 5587000

- Dressing tray
- Sterile 10 mL luer lock syringes (3)
- Blunt fill needles (3)
- Sterile 3 mL luer lock syringe (1)
- Chlorhexidene 2% and alcohol 70% solution
- 2 Sterile 10 cm gauze sponges
- Sterile 0.9% NaCl
- Alcohol swabs
- Sterile locking solution
- Sterile luer lock cap
- Measuring tape

**PROCEDURE:**

**A. Prepare Patient:**

1. Explain procedure and screen for privacy.
2. Place patient in supine position.

**B. Method:**

1. Assemble supplies.
2. Don masks (patient and nurses)
3. Perform hand hygiene
4. Examine entire length of extension tubing for damage. Damage may include worn areas, bubbling or swelling, nicks or tears, and /or holes or cracks. Measure the distance from the damage on the tubing to the catheter hub
5. Access the catheter as per MRP Policy 30.20.02: *Accessing and Locking Dialysis Central Venous Catheter (Anticoagulant/Thrombolytic/Antibiotic Locking)*
6. Confirm that you can aspirate fluid/blood from the indwelling catheter. If so, flush the indwelling blood from the catheter with 10 mL 0.9% NaCl.
7. Perform hand hygiene.
8. Open the dressing tray and the repair kit.
9. Soak a 10 cm x 10 cm sterile gauze with Chlorhexidene 2%/Alcohol 70% solution using the cup provided in the dressing tray.

**KEY POINTS:**

- Have patient demonstrate Valsalva maneuver in the event that they have to perform it during the procedure.
- If the extension tubing is split or swollen or has other damage or if the damage is greater than 0.5 cm away from the distal end of the luer adapter, a repair will not be possible and the catheter may need to be replaced.
- If you are unable to aspirate fluid/blood, the obstruction must be resolved before proceeding, as aspiration will not otherwise be possible post repair. **NOTE: IF UNABLE TO ASPIRATE, CONTACT NEPHROLOGIST TO RECEIVE CONFIRMATION THAT REPAIR IS TO CONTINUE**
- If you are able to aspirate blood, proceed with the repair procedure.
- **NOTE: IF AIR IS ASPIRATED DO NOT PROCEED WITH FLUSH UNTIL CATHETER IS REPAIRED.**
- Strict aseptic technique must be used during this procedure. Touch corner of drape only.

## PROCEDURE:

10. Perform hand hygiene and don sterile gloves.

***If the catheter's extension tubing needs to be repaired, proceed to Step 9. If the catheter's luer adapter or clamp needs to be repaired, proceed to Step 10.***

11. Remove the measurement guide from the sterile tray. Align the measurement guide against the lumen intended for repair.

**Do not discard the measurement guide as it will be used later in the repair procedure.**

12. Remove the priming volume label from the sterile tray. Record the current priming volume of the lumen intended for repair on the corresponding line of the label.

13. Remove the drape from the sterile tray.

14. Create a sterile field with the drape provided in the kit exposing the external segment of the catheter to be repaired.

15. Place the items from the repair kit and the additional sterile supplies in the sterile field.

16. Thoroughly clean the external segment of the catheter lumen with gauze soaked in chlorhexidine 2% and alcohol 70% solution for at least 30 seconds. Place cleaned segment of catheter on sterile 10cm x 10cm gauze placed on the sterile drape. Allow to dry for 2 minutes.

17. On the extension intended for repair, slide the existing white clamp toward the distal end of the luer adapter and then clamp..

18. Remove and discard gloves.

19. Using strict aseptic technique, perform hand hygiene and don new sterile gloves in preparation for catheter repair.

20. Remove one of the temporary slide clamps from the sterile tray.

21. Apply the temporary slide clamp as close as possible to the hub bifurcation on the extension tubing.

22. Open the existing white clamp and slide along the extension tubing until it is adjacent to the temporary slide clamp.

23. Close the white clamp.

24. Remove the sterile scissors from the sterile tray.

## KEY POINTS:

- Do not attempt to repair a catheter if the damaged extension tubing is greater than 0.5 cm away from the distal end of the luer adapter.

- Touch only the corners of the drape during application.

- If using powdered gloves, wipe powder from gloves with sterile saline and sterile gauze.

- Ensure the existing white clamp does not interfere with the correct positioning of the temporary slide clamp.

## PROCEDURE:

25. Using the measurement guide as a template, cut extension tubing at a 90° 0.5 cm away from the distal end of the luer adapter.
26. Discard the removed luer/extension tubing segment.
27. Open, remove, and discard the existing white clamp from the remaining portion of the lumen being repaired.
28. Remove the desired repair connector assembly from the sterile tray.
29. Using a sterile 10 ml luer lock syringe, flush and prime the repair connector assembly with 0.9% NaCl.
30. Using a counter-clockwise motion, unscrew the repair collar detaching it from the barbed connector on the repair connector assembly.
31. Slide the repair collar over the cut catheter extension tubing so that the threads are facing the cut end of the extension tubing and will accommodate the barbed connector.
32. Push the barbed connector into the cut end of the catheter's extension tubing until the tubing seats firmly against the connector's threads.
33. Slide the repair collar toward the barbed connector to engage the connector's threads.
34. Hold the barbed connector in a fixed position and rotate the repair collar clockwise until it fully seats onto the barbed connector.
35. Once the repair is made, test the security of the connection by lightly pulling the tubing on either side of the connection.

## KEY POINTS:

- Do not cut the extension tubing greater than 0.5 cm from the distal end of the luer adapter or there will not be enough tubing to make a repair.
- "RED" for arterial, "BLUE" for venous
- When infusing the saline, flush quickly and close the white clamp immediately to ensure that 0.9% NaCl reaches the distal end of the lumen.
- **The printed black band around the barbed connector should not be visible when the connection is secure.**
- If the tubing detaches from the barbed connector, inspect the connection and tubing for signs of damage or improper connection. Repair failure may be the result of:
  - Not having sufficient tubing present to perform a secure repair. *(If the connection fails for this reason a repair will not be possible.)*
  - Not creating the required cut at a 90° angle during the removal of the damaged luer connector and tubing *(If the connection fails for this reason, a repair will not be possible.)*
  - Not firmly seating the extension tubing against the barbed connector's threads during the initial repair. *(If the connection fails for this reason, repeat the repair procedure starting a Step 27.)*
- **Perform the following procedure in sequence for the repaired extension tube assembly:**
  36. Attach a sterile 10 ml luer lock syringe to the luer adapter on the extension tube assembly and unclamp the white clamp on the extension tube.

**PROCEDURE:**

**KEY POINTS:**

37. Slowly pull back the syringe plunger while releasing the temporary slide clamp on the extension tube assembly.
38. Aspirate any air, blood or fluid into the syringe to purge any air from the extension tube assembly.

**WARNING: The repaired extension tube assembly may be filled with air post connection unless it was primed in Steps 36. To avoid air embolism, aspirate the patient's blood or fluid through the repaired extension before flushing the tubing.**

39. Close the white clamp.
40. Remove and discard the syringe and temporary slide clamp.
41. Immediately connect another syringe filled with sterile 0.9% NaCl to the adaptor. Unclamp the tubing and flush the tube promptly to clear blood or fluid from the catheter.
42. Clamp the extension and remove/discard the syringe.

**Recalculating the Priming Volume Note:**

**Repairing the catheter lumen will result in an increase to the lumen's priming volume. Although a portion of the lumen will need to be removed, the repair connector assembly will be added in its place. This will result in a net increase of 0.5ml to the volume of the repaired catheter lumen.**

43. To determine the repaired lumen's new priming volume, add 0.5 ml to the current priming volume recorded on the priming volume label. The resulting sum is the new priming volume for the lumen. Record this new priming volume in the corresponding space provided on the priming volume label. Remove the peel-away portion of the priming volume label and place in the patient's health record.
44. Attach a sterile 3 ml luer lock syringe filled with the locking solution to the repaired catheter lumen.
45. Unclamp the extension assembly and lock the catheter with the recorded amount of locking solution.
46. Clamp the extension assembly and discard the syringe
47. Attach one of the luer sealing caps provided in the repair kit to the luer adapter of the repaired extension tube assembly.

- Manitoba Renal Program Health Care Record
  - Integrated Progress Notes
  - Renal Patient Kardex (include date of repair and new instillation volume)
  - Hemodialysis Treatment Sheet
  - Medication Administration Record

Vascular access record (indicate date/which lumen was repaired and new instillation volume)

- Facility Health Care Record(for patients admitted to hospital)
  - Integrated Progress Notes

**REFERENCES:**

Tyco Healthcare Group LP (2011) Covidien™ Acute and chronic catheter repair kit: palindrome™ chronic care and all mahurkar™ acute and chronic care catheters. (Rev. 02/2014) [Product insert]. Gosport, U.K.: Author.