Removal of Non-Tunneled Central Venous Catheter (CVC)


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This procedure is posted on the BC Provincial Renal Agency website – Health Professionals Channel – Vascular Access –
http://www.bcrenalagency.ca/professionals/VascularAccess/ProvGuide.htm

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1.0 Practice Standard

Skill Level (Nursing): Specialized

The following Registered Nurses (RNs) may perform this procedure:
1. RNs who have completed the required hemodialysis (HD) specialty education and who provide nursing care in a BC In-Centre and/or Community Renal Program AND have received the appropriate training for removal of non-tunneled CVCs; &
2. Designated RNs who have received the appropriate training for central venous catheter care including removal of temporary CVC lines (e.g., inpatient, home care or ambulatory care RNs or LPNs).

Need to Know:

1. Nurses may remove non-tunneled catheters upon the order of a physician. Physicians remove tunneled catheters.
2. Standard/routine precautions are used for removing non-tunneled catheters to reduce the risk of transmission of blood-borne and other pathogens.
Removal of Non-Tunneled CVC

- Wash hands before and after manipulation of the CVC and administration lines. If hands visibly soiled, wash with antimicrobial soap; if not, may use either an antimicrobial soap or alcohol hand sanitizer.
- Wear gloves (non-sterile to remove the dressing and sterile for the rest of the procedure), non-sterile gown and non-sterile mask/face shield during catheter removal procedures.

3. Medical/clean aseptic technique is used for removing non-tunneled catheters, with additional precautions as follows:
   - Use sterile equipment and supplies and a “no touch” technique when handling the catheter and catheter ports and performing exit site care.
   - Maintain a sterile drape under the catheter ports.

4. Recommended antiseptic solutions, in order of priority:

<table>
<thead>
<tr>
<th>Solution</th>
<th>Required Drying Time</th>
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<tbody>
<tr>
<td>Chlorhexidine gluconate 2% with alcohol</td>
<td>30 seconds (persistent antimicrobial activity, up to 48 hours)</td>
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<tr>
<td>Chlorhexidine gluconate without alcohol</td>
<td>2 minutes</td>
</tr>
<tr>
<td>Sodium hypochlorite 0.11% (ExSept Plus®) or Amuchina 10%</td>
<td>2 minutes</td>
</tr>
<tr>
<td>Povidone-iodine 10% (Betadine)</td>
<td>2 minutes</td>
</tr>
</tbody>
</table>

5. Air embolus is a potential catastrophic complication during CVC removal.

Two ways to reduce the risk include:
- Place the patient supine in as flat a position as the patient can comfortably tolerate.
- Instruct the patient to take a deep breath and to breath out while the catheter is being removed (increases the intra-thoracic pressure which minimizes the possibility of air being accidentally drawn into the systemic venous circulation and creating an air embolus).

2.0 Equipment

- Non-sterile gloves
- Non-sterile gown
- Non-sterile mask/eye protection (2)
- Sterile gloves (2 pair)
- Sterile dressing tray
- Sterile suture scissors
- 4 x 4 sterile gauzes (several)
- Antiseptic solution, preferably chlorhexidine gluconate 2% with alcohol
- 2x C&S containers (for exit site and catheter tip swabs), if suspect infection.
- Tape
- Garbage receptacle
3.0 Assessment & Interventions

Preparation:
1. Place the patient supine in as flat a position as the patient can comfortably tolerate.
2. Wash hands with antimicrobial soap.
3. Don non-sterile gown (staff).
4. Don non-sterile mask (staff and patient).
5. Open the tray and add supplies.
6. Don non-sterile gloves.

Remove dressing:
7. Remove exit site dressing and discard dressing.
8. Take C&S around the exit site, if ordered or if suspect a local infection.
9. Remove gloves and wash hands with antimicrobial soap.
10. Don sterile gloves.

Exit site care:
11. Using a sterile 4x4 gauze soaked in an antiseptic solution, cleanse the catheter exit site skin in a circular motion (exit-site outward to cover a diameter of 10 cm). Discard used gauze.
12. Using sterile scissors, carefully remove the sutures that anchor the temporary catheter in place (usually two sutures).
13. Place a dry, sterile 4x4 gauze, folded into four, over the exit site (to help stop the bleeding when the catheter is removed).
14. Instruct the patient to take a deep breath and to breathe out while the catheter is being removed.
15. Using a dry, sterile 4x4 gauze, grasp the catheter at its exit site from the skin. Remove the catheter, pulling straight out and parallel to the vein while maintaining gentle, constant traction. If resistance is encountered, contact the physician.
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16. Apply pressure to the exit site for a minimum of 10 minutes (longer if bleeding persists). Do not lift the 4x4 gauze to determine if bleeding has stopped (could cause an air embolus).

17. Apply occlusive dressing over venipuncture site.

18. Send catheter tip for C&S if ordered or if a systemic infection is suspected.

4.0 Patient Education & Resources

- Occlusive dressing will be in place for at least 24 hours (usually removed at the next dialysis treatment).
- Notify kidney doctor (nephrologist) or dialysis unit for any of the following:
  - Oozing or drainage from catheter exit site.
  - Noticeable swelling or itching around neck.
  - Shortness of breath.
  - Feverish and any of the above symptoms.

Resource: Care of Your Catheter
- [http://www.bcrenalagency.ca](http://www.bcrenalagency.ca)

5.0 Documentation

- Document date, time, procedure, integrity of the catheter, condition of the exit site, any bleeding and patient tolerance of the procedure.
- Document if an exit site swab and/or catheter tip is sent for C&S.
- Document the procedure in Dialysis Access module in PROMIS.

6.0 References


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### 7.0 Developed By

1. BCs Vascular Access Educators Group (VAEG).
2. Adapted from Fraser Health Renal Program guidelines/standards.

### 8.0 Reviewed By

1. British Columbia Renal Educators Group (BCREG)
2. BC Provincial Renal Agency – Medical Advisory Committee (MAC)