Hemodialysis Central Venous CVC (CVC): Dressing Change & Exit Site Care

Updated September 15, 2024

Vascular Access Guideline

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This procedure is posted on the BC Renal website – Health Professionals - Vascular Access – Resources – Central Venous Catheter Guidelines: www.bcrenal.ca/health-professionals/clinical-resources/vascular-access.

1.0 Practice Standard

This guideline applies to In-centre and Community Dialysis Units (CDUs) in the majority of situations. If a site-specific protocol differs from this guideline, the site-specific protocol will take precedent.

This guideline does not apply to patients who are dialyzing at home.

Skill Level (Nursing): Specialized

1. *Nurses* who have completed the required hemodialysis (HD) specialty education and who provide nursing care in a BC In-Centre and/or Community Dialysis Unit; and/or

2. *Nurses* working in critical care trained in Continuous Renal Replacement Therapy (CRRT), Sustained Low Efficiency Dialysis (SLED) and plasma exchange; and/or

3. *Nurses* who have received training in central venous (CVC) care and maintenance working in intensive care, acute care, ambulatory care, or home care settings **IF** the dressing is compromised or a scheduled change is required.

Need to Know:

1. Check the CVC and exit sites prior to initiating HD treatment. Notify the nephrologist if signs of:
    - Infection (e.g., redness, swelling, exudate)
    - CVC migration (e.g., exposed cuff)
    - Damage to the CVC or lumen(s)

2. Prior to changing the dressing, review the patient's history for allergies or sensitivities to antiseptic solutions, adhesives, or dressing. Adjust materials accordingly.

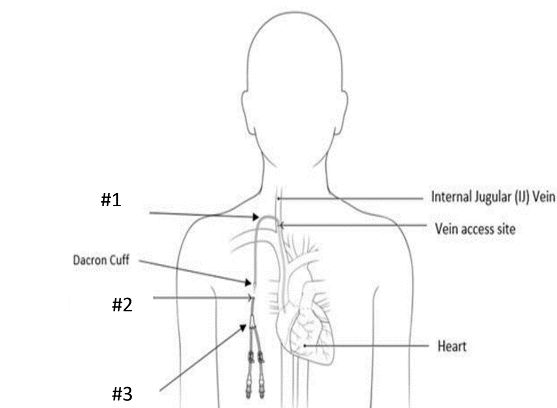
3. In most situations, the preference is for a sterile, transparent/securement dressing (e.g., 3M Tegaderm I.V. Advanced Securement Transparent dressing). Sterile gauze dressings (e.g., Mepore) are utilized if the patient is diaphoretic or the exit site is bleeding, oozing, or showing signs of infection, or the skin is compromised.

4. The frequency of dressing changes depends on the type of dressing.
    a. Sterile, transparent/securement dressing (semi-occlusive[1]):
        - If the exit site can be visualized (i.e., no gauze or ointment to obstruct the view), change the dressing every 7 days.
        - If the exit site cannot be visualized or if the dressing is damp, loose, or soiled, change the dressing.

    b. Sterile gauze/non-securement dressing (non-occlusive):
        - Change every HD treatment; and
        - Change between HD treatments if damp, loose, or soiled.

5. When changing the dressing, ensure the CVC is secured:
    a. Non-tunnelled (temporary, non-cuffed) CVCs: Secured by at least one suture for the entire time the CVC is in-situ. If not, notify the nephrologist.

    b. Tunnelled (cuffed) CVCs:[2]
        - Neckline/insertion site sutures (#1) are removed on DAY 7 post insertion (or as per unit policy).
        - If present (rarely present), skin closure suture (#2) at exit site is removed on DAY 7 post insertion (or as per unit policy).



[1] Occlusive to moisture, non-occlusive to air.

[2] Refer to site-specific protocol re requirement for nephrologist's order to remove sutures.

- Anchor/wing/hub sutures (#3) (anchor the wings of the catheter to the skin) are removed between WEEKS 6 - 10 post insertion (or as per unit policy).
  - If sutures fall out prior to 6 – 10 weeks, notify the nephrologist (sutures may require replacement or a securement device applied).
  - If history of CVC dislodgement or poor healing, sutures or securement device may be required for a longer time.

6. Prior to patient contact, perform hand hygiene. Don appropriate PPE based on the patient's need for isolation precautions or the risk of exposure to body fluids. Refer to BCR guideline Prevention of Disease Transmission in HD Units.

7. Sterility of "key parts" must be maintained during CVC dressing changes.

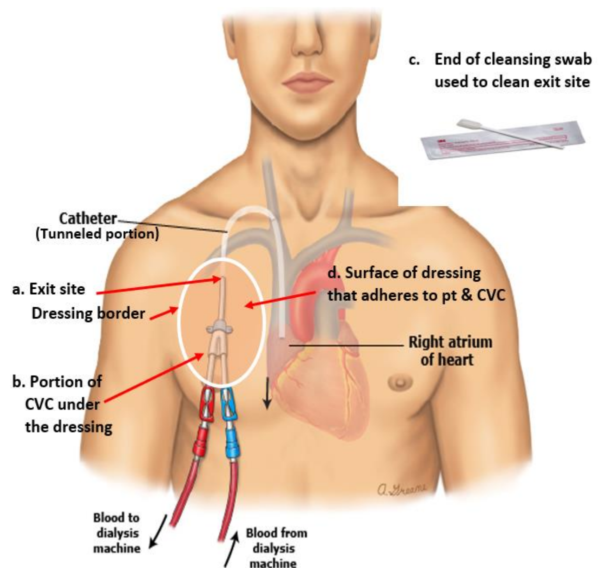
7.1 "Key parts" include:

a) Skin surrounding CVC exit site to the border of the dressing

b) Portion of CVC under the dressing

c) End of cleansing swab

d) Surface of dressing that adheres to patient & CVC



7.2 Aseptic non-touch technique may be used IF sterility of "key parts" can be maintained.

7.3 Sterile supplies are used as needed to maintain sterility of "key parts." Do not open supplies in advance of the procedure. For CVC dressing changes:
- A sterile dressing tray (or equivalent) is recommended.
- Unless sterile gloves are utilized:
  - Gloved hands must not come into contact with "key parts."
  - Swab sticks (vs wipes) are recommended for cleaning the exit site. If swab sticks are not available, clean gloves and antiseptic soaked wipes picked up by forceps from a sterile dressing tray may be used.

8. Recommended antiseptics for cleansing the skin during CVC dressing changes:

   1st choice: 2% chlorhexidine (CHG) with 70% alcohol.
   - Application time: 30 seconds

   2nd choice:
   - 2% chlorhexidine without alcohol - application time: 30 seconds; OR
   - 70% alcohol - application time: 30 seconds; OR
   - 10% povidone-iodine – application time: 60 seconds

   If all options have failed and, after consultation with vascular access team or nephrologist:
   - 0.057% sodium hypochlorite (Anasept) –application time: 30 seconds[3] (single patient use only; 118 mL is the smallest bottle)

   NOTES:
   1. *Application time (contact time) is important to ensure the antiseptic contact time is long enough to achieve the desired "kill" time).*
   2. *After applying the antiseptic, allow to air dry completely.*
      - *Adequate dry time allows the antiseptic to work AND, if using CHG, reduces the risk of CHG sensitivity and sensitization.*
      - *Amount of dry time depends on amount used, presence or absence of hair, humidity, body site, etc.*
      - *Dry time for preparations without alcohol is longer.*
   3. *If skin is sensitive to chlorhexidine, utilize an alternative antiseptic until the sensitivity resolves. Assuming no previous anaphylactic reaction to chlorhexidine, consider a second trial after sensitivity resolves, ensuring adequate dry time after application.*
   4. *DO NOT use normal saline:*
      - *As the primary cleaning solution as it does not have antimicrobial properties.*
      - *To rinse off the skin/CVC after applying an antiseptic. Antiseptics have residual antimicrobial action which lasts beyond the initial application.*
   5. *Use single-use antiseptic preparations when available.*

2.0 Equipment

- Personal protective equipment (gloves, gown, mask/eye protection)
- Clean gloves to remove old dressing
- Sterile gloves (see #7 under "need to know" section)
- Sterile dressing tray (see #7 under "need to know" section)
- Normal saline & C&S swab (if suspect infection)
- Sterile dressing (gauze or transparent)
- If required, based on patient-specific orders or care plan:
  - Antibiotic ointment

[3] www.clwk.ca/get-resource/anasept-skin-wound-cleanser

- Antiseptic swab sticks/wipes (several)
- 4 x 4 sterile gauzes (several)
- Adhesive-backed securement device (e.g., Statlock®); and
- Skin prep pad

Note: To prevent contamination, do not open supplies until needed.

3.0 Assessment & Interventions

Preparation:

1. Gather supplies. Perform hand hygiene.
2. Place patient in a comfortable position and expose the CVC access site.
3. Prepare aseptic field and organize supplies/dressing tray. Perform hand hygiene.
4. Don clean gloves and mask and other PPEs as required.
5. Ask the patient to don mask and turn head away from the CVC exit site during the procedure.
6. Remove exit site dressing and discard. Assess the exit site.
   - If ordered or if local infection is suspected, cleanse the exit site area with normal saline and swab for culture and sensitivity (C&S).
7. If securement device (e.g., Statlock) is present and scheduled to change (changed weekly), unlatch the CVC from the stabilization device and gently remove the device.
8. Check that the CVC is secured.
9. Remove gloves and perform hand hygiene.

Exit site care:

10. Don sterile gloves.
11. Using a dry, sterile 4x4 gauze, grasp and carefully lift the CVC limbs with one hand.
12. Using antiseptic swab stick/wipe, cleanse the skin around the CVC exit site and under the CVC limbs thoroughly. Discard used swab sticks/wipes.
    - Apply solution using repeated back and forth strokes, 15 seconds horizontally and 15 seconds vertically.
    - Continue until approximately 10 cm square area is cleaned.
13. Clean each CVC limb from exit site to the hub with an antiseptic swab stick/wipe.
14. Discard used swab sticks/wipes and 4x4 gauze.
15. Allow to air dry completely to avoid chemical burn on patient's skin.

16. As per patient's care plan:
    - If skin prep is required (e.g., sensitive skin), apply to applicable areas. Allow to dry.
    - If securement device is required, apply skin prep on the area to be covered. Allow to dry, then apply the device.

      Note: Clamp the CVC in the securement device before removing the backing.

Apply dressing:

17. As per care plan, apply sterile, transparent/securement dressing or gauze dressing.
18. Label the exit site dressing as per unit protocol (e.g., date of dressing change and initial).

Follow-up:

19. If C&S taken, send to laboratory and notify the nephrologist and VA nurse of suspected infection. Once results are available, consult with the nephrologist about next steps.

4.0 Patient Education & Resources

1. Keep dressing clean and dry – a tub bath is the best way to wash.
2. If the dressing peels off or gets wet, wash hands well and remove what is left of the dressing. Put on clean, dry 4x4 gauze and tape in place or a new dressing if instruction has been provided. Come to the dialysis unit to have a new dressing applied if instruction has not been provided on self-dressing changes.
3. Notify kidney doctor (nephrologist) or dialysis unit for any of the following:
    - Redness, warmth, or pain along the CVC.
    - Oozing or drainage from CVC exit site.
    - Noticeable swelling or itching around CVC or neck.
    - Feverish and any of the above symptoms.
    - Part of the CVC that is outside the skin seems to be getting longer.
    - Shortness of breath, coughing, chest pain, low blood pressure, wheezing.
    - CVC is accidentally pulled and there is bleeding around the exit site.
    - Gauze around the limbs is damp for an unknown reason.
    - Sutures fall out of a recently inserted CVC.

Patient Resources (BCR Website):

- Your CVC
- Changing your own CVC dressing
- Showering with a HD CVC
- Help us keep you SAFE (needle dislodgement)

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5.0 Documentation

- Document exit site status and dressing change as per site-specific procedures.
- Document that physician and VA nurse was notified if a swab is sent for C&S. Document actions following receipt of C&S results.

6.0 References

The following references were considered in the development of this guideline.

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7.0 Sponsors

Developed by:

- BC Vascular Access Educators Group (VAEG) – 2011; 2017 (minor changes); 2024
- Renal Educators Group (REG) – 2011; 2017 (minor changes); 2024

Approved by:

- BCR Hemodialysis Committee – 2011; 2024
- BCR Medical Advisory Group - 2011; 2024

For information about the use and referencing of BCR provincial guidelines/resources, refer to www.bcrenal.ca.