# Hemodialysis: Central Venous Access Dressing

## Site Applicability

PHC Hemodialysis Units

## Practice Level

Nurses who have completed the required education and who provide nursing care on a Nephrology/Urology Unit, Hemodialysis Unit, as well as Critical Care and IV Therapy perform this procedure

## Need to Know

1. Gentle friction, back and forth and up and down scrubbing motions for 30 seconds should be used in cleaning around exit site.
2. Chlorhexidine gluconate (CHG) swabs and pads that contain alcohol can give off flammable vapors.
3. Hairy areas around CVC exit site should be avoided or clipped. Wet hairy areas take longer to dry (one hour) and are considered flammable
4. A sterile adhesive, semi-permeable dressing is used over the catheter exit site. The frequency of dressing changes is dependent on the type of dressing used.
5. A sterile transparent IV dressing is used when there is no discharge from the catheter exit site and is changed once per week or if necessary to coincide with TEGO change.
6. A sterile breathable absorbent dressing is used when there is discharge such as blood or exudates from the exit site. A gauze dressing must be changed every dialysis treatment.
7. A sterile breathable absorbent dressing is used on all newly inserted hemodialysis central venous catheters for a period of 6 weeks post insertion.
8. A transparent dressing should only be used for cuffed and non-cuffed catheters if anchoring sutures have been removed and there is no discharge from the exit site
9. A sterile 4 X 4 gauze is temporarily placed over the exit site while patient is on dialysis to enhance drying effect and prevent skin irritation around the access area. A breathable absorbent or transparent dressing is applied towards or at the end of dialysis.
10. If the patient's clothing compromises accessing the central line, or maintaining a sterile field, the patient should don a patient gown prior to initiating dialysis.
11. Neck sutures for tunneled catheters (Permcath) should be removed on DAY 7 post insertion. Anchoring sutures for Permcath can be removed minimum 6 weeks post insertion. All other sutures should remain in-situ for 1 week unless specifically ordered by the physician NOT TO be removed.
12. Non-tunneled catheters must be secured in place by at least one suture.
13. Assessment of exit site every hemodialysis run should be performed and documented in CST Cerner Electronic Health Record. Appropriate action plan/s as should be followed as indicated on the communication/conditional order in PowerChart.

14. If infection is suspected, a swab of the catheter exit site should be sent for Culture and Sensitivity, and physician/vascular access nurse are notified.
15. If skin irritations and/or allergic reactions are present and documented, notify the physician and vascular team for alternative antiseptic/antimicrobial preparation (e.g. iodophore [povidone-iodine]) and/or for a different type of dressing. A prescriber order is necessary.

## Equipment and Supplies

1. OR Skin Scrub Tray
2. Masks (2)
3. Breathable absorbent dressing – Mepore® [9 x 10 cm] (1) or Mepore® [6 x cm] (2); Mepilex® [9 x 10 cm] (1)
4. Transparent dressing (IV Advanced Tegaderm™)
5. Sterile gloves
6. Non-sterile gloves
7. Garbage receptacle
8. Tape
9. Antiseptic Isopropyl Alcohol 70% pads (8 to 10)
10. Sterile Chlora-prep™ mushroom (2) or SoluPrep ™ swabs with 2% CHG & 70% alcohol (1)

## Procedure

| Steps | Rationale |
|---|---|
| 1. Wash hands and put on mask | To prevent contamination the patient must also wear a mask |
| 2. Prepare dressing tray | |
| 3. Using non-sterile gloves carefully remove old dressing edges toward insertion site without pulling on catheter. Examine exit site for signs of infection (redness, edema, discharge, unusual warmth, tenderness). If infection is suspected on the exit site, follow action plan from the communication/conditional orders in Cerner PowerChart. Discard dressing and gloves. | To prevent stress on insertion site<br><br>To provide a systemic assessment of the catheter exit site; and for prompt notification of physician for appropriate medical intervention. |
| 4. To remove transparent dressing, use a gauze wet with sterile normal saline while gently grasping from edge of dressing and slowly peeling off from the skin toward insertion site or in direction of hair growth | To facilitate ease of removal of dressing from skin |

| | |
|---|---|
| 5. Wash hands with soap and water or sanitize with foaming alcohol handrub solution | To maintain good hand hygiene practice |
| 6. Put on sterile gloves. | |
| 7. Using sterile 4 x 4 gauze, grasp the catheter lumens with one hand, and place sterile drape under the 4 x 4 gauze. | |
| 8. Clean catheter exit site by using gentle friction, back and forth with scrubbing motions in **two directions** (vertically and horizontally).<br>• With the first sterile Chloraprep™ mushroom begin at the center of the exit site and move outward to the left or right in a back and forth vertical or horizontal motion. Return to the center of the exit site and repeat the back and forth scrubbing motion for 15 seconds.<br>• Continue cleaning with the second sterile Chloraprep™ mushroom swab in the other (vertical or horizontal) direction for another 15 seconds to achieve 30 seconds of total application.<br>• With **one** SoluPrep™ swab stick use the one side in cleaning the exit site following the same instructions as above; then flip to other side to continue on other direction. See Appendix A. | The use of friction scrub motion (back and forth) in two different directions optimally binds CHG to the skin and retains the cleansing ability on skin if swab becomes soiled during cleaning procedure.<br>The use of chlorhexidine with alcohol provides better antimicrobial and antiseptic effect even with body fluids such as blood, serum, and protein.<br>Using two sterile Chloraprep™ mushroom or one SoluPrep™ swab provides an optimal benefit of the antiseptic solution |
| 9. Prior to placing a sterile 4x4 gauze as a **temporary** dressing during dialysis, ensure:<br>• Clinical assessment is completed<br>• CVC exit site and surrounding skin is completely air dried (recommended for at least 3 minutes) | Antiseptic is most effective if it is left to air dry.<br>Wet skin area will not allow dressing to stick well and may cause skin irritation and redness. |
| 10. Apply approved type of sterile adhesive, absorbable and breathable dressing; or transparent securement dressing near the end or at the completion of dialysis treatment using **Aseptic non touch technique (ANTT)** see Appendix B. | |

| | |
|---|---|
| • Ensure catheter exit site is visible near the center of the dressing when using a transparent dressing. | This allows proper visualization of the exit site when assessment is performed each time |

## Documentation

1. Record pertinent assessment and action on Dialysis Management Interactive iView – Central Line
2. Record assessment of exit site every hemodialysis run and follow action plan based on the appropriate communication/conditional orders for vascular access in Cerner
3. Record in Cerner iView Dialysis Management Band under Central Line (see Appendix C)
    1. Dressing activity at start of the treatment
    2. Dressing Type and Dressing Activity towards or at end of treatment
4. Notify treating provider for any actions done on the vascular access

## Patient and Family Education

1. Do not remove the catheter dressing. If the dressing comes off, wash your hands and tape the dressing back in place.
2. Moving or bending the catheter can cause irritation, which may lead to an infection around the catheter exit site.
3. Do not shave hairy areas around exit site to prevent accidental cuts on the skin.
4. Avoid getting the catheter wet. Showering is not recommended while you have a hemodialysis catheter in place.
5. Notify the hemodialysis unit immediately if you experience any of the following: fever or chills; pain, redness, or discharge from the catheter exit site.
6. If the hemodialysis catheter falls out or slips partially out, apply firm pressure with clean gauze and come to the hospital Emergency Department immediately.

## Related Documents

1. B-00-12-10152– Hemodialysis: Accessing a Central Venous Catheter (CVC) with and without TEGO Connectors
2. BD-00-12-40054– Peripherally Inserted Central Catheter (PICC)- Basic Care and Maintenance (Adult)

## References

1. Allon, M. & Sexton, D. [Authors], Berns, J. & Taylor, E. [Editors] (2023). UpToDate® Literature Review: Tunneled hemodialysis catheter-related bloodstream infection (CRBSI): Management and prevention. Retrieved on September 25, 2023 from https://www.uptodate.com/

2. BD ChloraPrep ™ 2% w/v / 70% v/v Cutaneous Solution Chlorhexidine Gluconate/ Isopropyl Alcohol (2021). Retrieved October 5, 2023 from https://www.medicines.org.uk/emc/files/pil.6670.pdf

3. Chippewa Valley Technical College (2021). Nursing Skills, *Aseptic Technique Basic Concepts*. Pressbooks. Retrieved August 14, 2023 from https://wtcs.pressbooks.pub/nursingskills/chapter/4-3-asceptic-technique/
4. Elsevier Performance Manager Clinical Skills (2023). Central Venous Catheter: Maintenance and Dressing Change-CE. Retrieved August 13, 2023 from www.elsevierskills.com
5. Ullman, A. [Author], Cochran, A. & Collins, K. [Editors]. (2022). UptoDate® Literature Review: Routine care and maintenance of intravenous devices. Retrieved Sept. 25 2023 from https://www.uptodate.com/
6. Yuo, T. [Author], Davidson, I. & Collins, K. [Editors]. (2023). UpToDate ® Literature Review: Central venous Catheters for acute and chronic hemodialysis access and their management. Retrieved September 25, 2023 from https://www.uptodate.com/

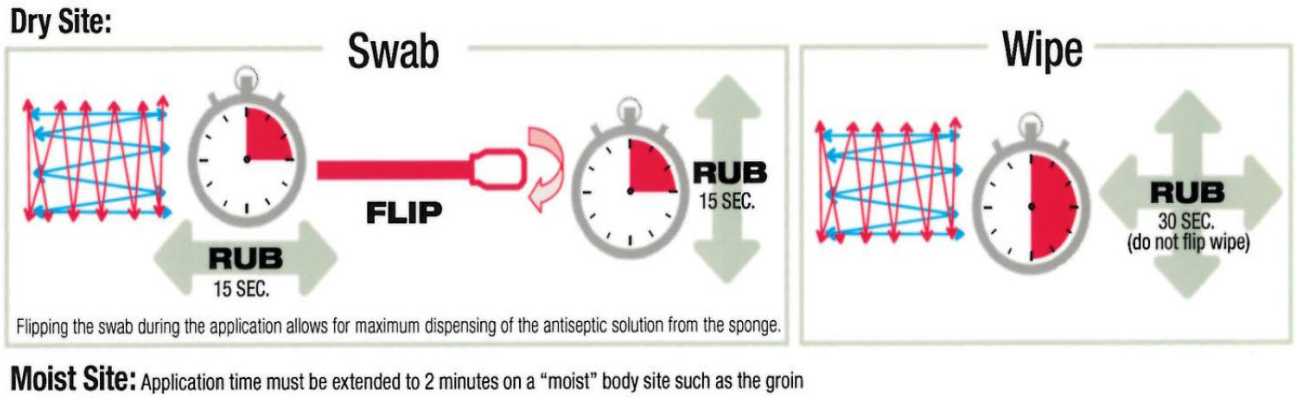
## Appendices

Appendix A - Application Technique for SoluPrep™ Swab (2% Chlorhexidine Gluconate & 70% Isopropyl alcohol)

Appendix B - Tegaderm™ I.V. Advanced Dressing Application and Removal Technique

Appendix C – Central Venous Catheter Dressing Documentation in iView

## Appendix A: Application Technique for SoluPrep™ Swab (2 % Chlorhexidine Gluconate & 70% Isopropyl Alcohol)






Available in Canada from:
**Infection Prevention Solutions**
**3M Canada Company**

1. Apply antiseptic using continuous back and forth friction motion, beginning at one edge, moving horizontally across the middle to the next edge, and repeating the motion over the desired area for 15 seconds.
2. With new swab, continue the back and forth motion, and repeat over the same area moving in a vertical direction from the outer edge, over the centre and outward toward the edge for an additional 15 seconds.
3. Achieve the required application time of 30 seconds for a "dry site"

### Important Points:

1. Apply enough antiseptic to adequately cover the intended area.
2. Apply antiseptic using a "back and forth" motion that provides friction
3. Binding of CHG to the skin is optimized when the product is applied in two different directions
4. Ensure the antiseptic is completely dry prior to applying the dressing

## Appendix B: Tegaderm™ I.V. Advanced Dressing Application and Removal Technique

### 3M™ Tegaderm™ I.V. Advanced Securement Dressings


### 1689 Application Technique

1 Prepare the site according to your facility's protocol. Allow all preps and skin protectants to dry completely. Open package and remove sterile dressing.

2 Remove liner to expose adhesive. Place dressing adhesive side up on sterile field or inside of dressing package.

3 Position notch edge of dressing over catheter hub, placing stabilization border over catheter "wings." Do not stretch dressing over skin surface.

4 Apply dressing to skin applying firm, gentle pressure to window film. Pinch film firmly around catheter tubing connection. Gently lift tubing connection and press border firmly under catheter lumens.

5 Slowly peel frame away from border edge while simultaneously applying firm pressure to border edge. Smooth entire dressing into skin to ensure optimal adhesion.

6 Remove securement tape strip with notch from liner. ***Two small adhesive free tabs from liner will remain on tape strip liner.*** Partially fold securement tape strip in half at notch.

7 Apply tape strip's pre-cut notch completely underneath catheter's molded junction. The notch opening should face the insertion site. Peel paper tabs from liner corners. Smooth entire dressing surface; working from catheter insertion site out toward dressing edge.

8 Prepare and apply documentation label over the top of the exposed molded junction. Press first half of strip against the junction; then adhere the other side.

9 **Apply firm pressure to entire dressing** to ensure optimal adhesion.

### 1689 Removal Technique

1 Remove all securement tape strips from dressing.

2 Gently grasp soft cloth edges below keyhole notch.

3 Lift dressing on each side from skin using low and slow technique.

4 Peel dressing toward catheter insertion site until removed.

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## Appendix C: Central Venous Catheter Dressing Documentation in iView

| | | 20-Aug-2023 | | 17-Aug-2023 | |
|---|---|---|---|---|---|
| | | 11:25 PDT | 07:20 PDT | 11:37 PDT | 07:20 PDT |
| Lumen Colour Type | | | Red, Blue | Red, Blue | Red, Blue |
| Red Lumen Line Care/Action | | Locked/cap... | Aspirated an... | Locked/cap... | Aspirated an... |
| Red Lumen Line Locked Solution | | Sodium Citr... | | Sodium Citr... | |
| Red Patency Status | | | Flushes easil... | | Flushes easily |
| Blue Lumen Line Care/Action | | Locked/cap... | Aspirated an... | Locked/cap... | Aspirated an... |
| Blue Lumen Line Locked Solution | | Sodium Citr... | | Sodium Citr... | |
| Blue Patency Status | | | Flushes easil... | | Flushes easily |
| Lock Volume | mL | | | | |
| Blood Collected Volume | mL | | | | |
| Site Condition | | | No lica... | | No complica... |
| Skin Cleansed With | | | 2% hex... | | 2% chlorhex... |
| Dressing Type | | Other: Mepo... | Other: remo... | Other: mepo... | Other: remo... |
| Dressing Activity | | Applied | Removed, O... | Applied, Oth... | Applied |

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**1 Documentation at Start of Dialysis**

**Dressing Activity**

- ☐ Applied
- ☐ Changed
- ☐ Reinforced
- ☒ Removed
- ☐ Securement Device Removed/Replaced
- ☐ Suture Removed
- ☒ Other

4 x 4 gauze applied temporarily while on HD

**2 Documentation When Permanent Dressing Applied**

**Dressing Type**

- ☐ Chlorhexidine Patch
- ☐ Gauze
- ☐ Hemostatic Patch
- ☒ Transparent → IV Tegaderm
- ☒ Other → Mepore or Mepilex

**Dressing Activity**

- ☒ Applied
- ☐ Changed
- ☐ Reinforced
- ☐ Removed
- ☐ Securement Device Removed/Replaced
- ☐ Suture Removed
- ☐ Other

**Groups/Persons Consulted:**

Renal Clinical Practice Group

**Developed/Revised By:**

Nurse Educator, Hemodialysis

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