# Vascular Access Device (VAD) Management

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CVAD = central venous access device  
PICC = peripherally inserted central catheter  
CICC = centrally inserted central catheter
Vascular Access Device (VAD) Management

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CLABSI = central line-associated blood stream infection
DEFINITIONS

**Acute Care Procedure Team**: A team comprised of specialized Advanced Practice Providers (APP) that are trained in placement, management, and removal of central venous access devices.

**Apheresis catheter**: A large bore CVAD that is typically greater than 10 French or more in size that is used for apheresis procedures as well as other infusions as indicated.

**Central Venous Access Device (CVAD)**: Includes peripherally inserted central catheter (PICC) and all centrally inserted catheters including non-tunneled, tunneled, or implanted catheter with the catheter tip ending in the vena cava, such as a subclavian, femoral, and internal jugular.

**Centrally Inserted Central Catheter (CICC)** [also known as central venous catheter (CVC)]: Includes tunneled or non-tunneled central venous catheters.

**Infusion Therapy Team (ITT)**: A team comprised of registered nurses who are skilled and educated in the management and care of central and peripheral venous access devices.

**Implanted venous port**: A surgically placed central venous catheter that is attached to a reservoir located under the skin.

**Non-Tunneled Centrally Inserted Catheter (Non-Tunneled CICC)**: A catheter inserted by direct venous puncture through the skin in the subclavian, jugular or femoral areas without tunneling.

**Peripherally Inserted Central Catheter (PICC)**: A central venous catheter inserted into an upper extremity vein that is threaded within the superior vena cava.

**Tunneled Centrally Inserted Catheter (Tunneled CICC)**: A catheter that is tunneled under the skin before entering the venous system which can either be cuffed or non-cuffed. Cuffed indicates that the catheter has a small cuff promoting tissue growth for catheter adherence.

**Vascular Access Device (VAD)**: Any device utilized for venous access regardless of location. These include peripheral intravenous catheter (PIV), peripherally inserted central catheter (PICC), centrally inserted central catheter (CICC), and implanted venous port.

**Vascular Access Team (VAT)**: A team that is comprised of the Acute Care Procedure Team and the Infusion Therapy Team engaged in the planning and management of patients requiring vascular access.
Vascular Access Device (VAD) Management

CVAD POST INSERTION DRESSING CARE

**MANAGEMENT**

1. **Post-CICC/PICC insertion**
   - Is a sterile transparent dressing with CHG impregnated disc used?
     - Yes: Dressing change should occur 7 days post insertion or if clinically indicated2
     - No: To ensure gauze dressing is removed3,4; initiate dressing change within 2 days post-insertion or as clinically indicated1

2. **Post-implanted venous port insertion**
   - Is port accessed with needle in place?
     - Yes: Apply sterile transparent dressing with CHG impregnated disc
     - No: Is site open to air?
       - Yes: Dressing and needle must be changed after 7 days or if clinically indicated2,5
       - No: Steri-Strips™ or surgical glue should not physically be removed during the first two weeks post-surgery
         - If a sterile transparent or non-transparent dressing is present, remove after 2 days and leave open to air

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1. See Appendix A for Central Line-Associated Blood Stream Infection (CLABSI) Bundles
2. Immediate dressing change is required when dressing is soiled, damp, reinforced, or no longer intact. Refer to CVAD Maintenance Dressing Change on Page 5.
3. Best practice indicates that gauze should only be used when clinically appropriate; sterile transparent dressing with CHG impregnated disc is recommended post-insertion
4. If unable to determine if gauze is present, initiate CVAD Dressing Care: Maintenance Dressing Change within 2 days post-insertion or as clinically indicated
5. Needle change is only required if port has been accessed greater than 7 days

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VAD MAINTENANCE CARE: DRESSING CARE

DRESSING TYPE AT PRESENTATION

- Transparent chlorhexidine gluconate (CHG) impregnated dressing or transparent dressing with CHG impregnated disc
- Non-transparent dressing with CHG impregnated disc
- Transparent dressing without CHG impregnated disc
- Gauze dressing (i.e., any non-transparent dressing without CHG impregnated disc or gauze and tape)

MANAGEMENT

- Change dressing using institutional standard dressing change process at least every 7 days or as clinically indicated
- If skin or site related complications are noted, refer to Pages 10-11 for management

Note:
- For patients with CHG allergy, follow CHG allergy standard of care dressing deviation protocol:
  - First line: alternative bordered transparent dressing with equivalent skin prep; change every 7 days or as clinically indicated
  - Second line: non-transparent dressing with equivalent skin prep; change every 2 days or as clinically indicated

- Change dressing using institutional standard dressing change process at least every 2 days or as clinically indicated
- If skin or site related complications are noted, refer to Pages 10-11 for management

1 See Appendix A for Central Line-Associated Blood Stream Infection (CLABSI) Bundles
2 Institutional standard; considered best practice and recommended as dressing of choice for standard of care
3 Avoid in patients with implanted ports, receiving vesicants, or inability to verbalize pain or discomfort
4 Immediate dressing change is required when dressing is soiled, damp, reinforced, or no longer intact (i.e., dressing corners are lifted to the extent that allows access to the insertion site, or exposure of catheter wings)
5 Refer to Infection Control Associated with Vascular Access Devices (VADs) Policy (CLN0441)
Vascular Access Device (VAD) Management

VAD MAINTENANCE CARE: FLUSH MANAGEMENT - ADULT

CATHETER TYPE

- PIV
- Adult CICC 10 French or less (excluding implanted venous ports)
- Implanted venous ports or CICC greater than 10 French (i.e., dialysis catheters)

MANAGEMENT

Flush with preservative-free (PF) 0.9% NS 10 mL before and immediately after each use, and every 12 hours when not in use

- Inpatient: Flush each lumen with PF 0.9% NS 10 mL before and immediately after each use, every 12 hours for all lumens not in use, and all lumens upon hospital discharge
- Outpatient: Flush each lumen with PF 0.9% NS 10 mL before and immediately after each use, and upon completion of outpatient treatment
- Home care: Flush each lumen with PF 0.9% NS 10 mL daily

- Inpatient: Flush each lumen with PF 0.9% NS 10 mL before and immediately after each use, every 12 hours for all lumens not in use, and all lumens upon hospital discharge
- Outpatient: Flush each lumen with PF 0.9% NS 10 mL before and immediately after each use, and upon completion of outpatient treatment
- Home care: Flush each lumen with PF 0.9% NS 10 mL daily for CICC and monthly for implanted venous port

CICC

- Inpatient: Flush each lumen with PF 0.9% NS 10 mL before and immediately after each use. Flush with PF 0.9% NS 10 mL followed by a heparin 2 mL (100 units/mL) daily for lumens not in use and upon hospital discharge
- Outpatient: Flush each lumen with PF 0.9% NS 10 mL and heparin 2 mL (100 units/mL) upon completion of treatment
- Home care: Flush each lumen with heparin 2 mL (100 units/mL) daily

- Implanted venous port
  - Inpatient: Flush with PF 0.9% NS 10 mL before and immediately after each use, or every 12 hours when not in use. Upon discharge and deaccess, flush with PF 0.9% NS 10 mL and heparin 2 mL (100 units/mL).
  - Outpatient: Flush with PF 0.9% NS 10 mL before and after each use, and heparin 2 mL (100 units/mL) upon completion of treatment
  - Home care: Flush with PF 0.9% NS 10 mL and heparin 2 mL (100 units/mL) monthly

1 See Appendix A for Central Line-Associated Blood Stream Infection (CLABSI) Bundles
2 For flushing locking arterial catheters, dialysis catheters, or implanted peritoneal ports, follow specific institutional orders as directed by physician
3 Order appropriate flush from Flush Panel, see Appendix B
4 Manage CVAD as clinically indicated, see Appendix C for Venous Access Procedure Orders
5 See Catheter Patency Problems in Appendix C (Venous Access Procedure Orders) and Central Vascular Access Devices (CVAD) – Restoring Patency Due to Thrombotic or Precipitant Occlusion Policy (#CLN0859)

For pediatric flush management, see Appendix D
Pediatric Routine Catheter Flush

Appendix A
Appendix B
Appendix C
Appendix D

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VAD MAINTENANCE CARE: NEEDLELESS CONNECTOR MANAGEMENT

**EVALUATION**

1. Is needleless connector present? 
   - Yes: Move forward to the corresponding MANAGEMENT section.
   - No: Go back and check if the connector is accessed. If not, contact the Vascular Access Team for decontamination procedure prior to use. If accessed, follow the corresponding MANAGEMENT section.

**MANAGEMENT**

- **Is connector accessed?**
  - Yes: Proceed with the following steps:
    - Scrub needleless connector injection sites before and in between each access using a CHG antiseptic swab per manufacturer’s recommendations, unless contraindicated by patient allergy.
      - If contraindicated, scrub needleless connector with alcohol for a minimum of 30 seconds and allow to dry for a minimum of 30 seconds. Refer to Infection Control Associated with Vascular Access Devices (VAD) Policy (#CLN0441) for additional considerations (i.e., blood culture collection).
    - Access the needleless connector using only sterile devices and with clean technique.
    - Change needleless connectors during primary tubing change.
    - Needleless connectors are not to be changed earlier than 4 days, unless blood is visible or needleless connector is removed.

  - No: Proceed with the following steps:
    - Change un-accessed needleless connector at least every 7 days.
      - Needleless connectors are not to be changed earlier than 4 days, unless blood is visible or needleless connector is removed for therapy.
    - For any un-accessed needleless connectors or unused y-sites or ports, use a single-use passive disinfecting port protector (i.e., Curos cap) according to manufacturer’s recommendations.

- For lumens without needleless connector: clamp lumen and attach new needleless connector.
- Contact Vascular Access Team for decontamination procedure prior to use.

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2. A neutral needleless connector should be used with all vascular access devices.
3. CHG antiseptic swab is comprised of 3.15% chlorhexidine gluconate and 70% isopropyl alcohol.
**VAD MAINTENANCE CARE: TUBING MANAGEMENT**

**EVALUATION**

- **Will the VAD be used immediately?**
  - Yes
    - Aseptically connect new primary tubing to VAD lumen needleless connector
    - Use extension tubing minimally and only when indicated [i.e., outpatient self-care or for procedure(s)]
    - If applicable, use new secondary tubing
  - No
    - Refer to Flush Management on Page 6 and VAD Needleless Connector Maintenance on Page 7

- **Is this a new VAD insertion?**
  - Yes
    - Change primary and secondary tubing at least every 4 days unless otherwise indicated
  - No
    - Change primary tubing and secondary tubing at least every 4 days unless otherwise indicated

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1 See Appendix A for Central Line-Associated Blood Stream Infection (CLABSI) Bundles
2 Change extension tubing in the inpatient setting every 4 days during manifold change when in use. In the outpatient setting, or when not in use, change within 7 days. Change as clinically indicated if blood is noted in the tubing or needleless connector.
3 Change tubing:
   - Every 24 hours if used for intermittent infusions when directly connected to VAD lumen
   - Every 24 hours if used for blood products, total parenteral nutrition (TPN), or lipid emulsions
   - Every 6-12 hours if used for propofol (dependent on indication and per manufacturer’s recommendation)
   - Every 3 days if used for Interleukin-2
IMPLANTED VENOUS PORT: ACCESS AND MANAGEMENT

PRESENTATION

Patient presents with an implanted port and requires access\(^1\),\(^2\)

- Verify port placement\(^3\) and documentation

Is access site intact and free of signs\(^4\) of infection?

- Yes
  - Proceed with port access\(^5\)
  - For dressing management, see Page 5
  - For flushing, needleless connector and tubing maintenance, see Pages 7-8
  - Contact Vascular Access Team and/or primary team

- No
  - Contact Vascular Access Team

MANAGEMENT

Is port patent?

- Yes
  - Port ready for use
  - For pain or swelling during infusion:
    - Stop infusion, assess site, and contact primary team
    - For suspected infiltrations or extravasations, initiate infiltration/extravasation protocol immediately. Refer to Vascular Vesicant/Irritant Administration and Extravasation Policy (#CLN0986).
  - Port can remain accessed for sequential daily treatment but requires a needle change every 7 days

- No
  - Port cannot be used until patency has been restored\(^6\),\(^7\)

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\(^1\) Manage, access, and de-access implanted ports as clinically indicated
\(^2\) For patients requiring a topical anesthetic, see Appendix B Venous Access Procedure Orders
\(^3\) Refer to Central Vascular Access Device (CVAD) Assessment and Tip Position Verification Policy (#CLN1036)
\(^4\) Pain, swelling, tenderness, and redness
\(^5\) Needle selection based on:
  - Appropriate gauge for therapy or testing (i.e., 20 gauge is considered standard of care; some diagnostic imaging studies require a 19 gauge needle)
  - Appropriate length based on reservoir palpation (i.e., 3/4 inch, 1 inch, 1 1/2 inch)
  - Appropriate needle type: access power injectable ports with power rated needles
\(^6\) Refer to Central Vascular Access Devices (CVAD) - Restoring Patency Due to Thrombotic or Precipitant Occlusion Policy (#CLN0859)
\(^7\) For orders, see Catheter Patency Problems in Appendix C (Venous Access Procedure Orders)

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VAD COMPLICATIONS: SKIN IMPAIRMENT

Patient presents with skin impairment (i.e., MARSI)

- Is the skin intact?
  - Yes
    - Consider using an alternative dressing that is non-irritating and non-sensitizing, see Appendix F
    - Ensure skin prep solution is completely dry before applying dressing
    - Ensure skip barrier is applied to area of skin where dressing is placed (do not apply at insertion site)
    - If skin injury not resolved within 1 week, contact primary team/Vascular Access Team for further evaluation
  - No
    - Consult Vascular Access Team
      - Assess and approximate size of skin injury
      - Use a non-alcohol containing antiseptic agent and an alternative dressing that is non-irritating, see Appendix E and Appendix F
      - If skin injury not resolved within 3 days, contact primary team/Vascular Access Team for further evaluation

- Skin injury
  - Presence of skin tears, blistering, irregular shiny skin, appearance or lesions lasting longer than 30 minutes
  - Redness, burning, presence of lesions, and/or pruritis

- Skin irritation (i.e., contact dermatitis)
  - Rule out other skin complications (i.e., infiltration/extravasation, phlebitis, or other skin conditions)
  - Change type of skin prep solution, see Appendix E for Skin Prep Allergy Recommendations and reassess in 24 hours or if symptoms worsen. In the inpatient setting, notify VAT. In the outpatient setting, instruct patient to return to Vascular Access Clinic for reassessment.
  - If unresolved, consider changing type of dressing and reassess in 24 hours or if symptoms worsen, see Appendix F for Alternative Adhesive Dressing Recommendations
  - Contact primary team/Vascular Access Team if symptoms have not improved in 3 days. Dermatology consult or referral may be warranted for persistent skin irritation.

MARSI = medical adhesive-related skin injury

1 Presence of skin tears, blistering, irregular shiny skin, appearance or lesions lasting longer than 30 minutes
2 Redness, burning, presence of lesions, and/or pruritis
VAD COMPLICATIONS: SITE COMPLICATION/INFECTION

1. Lymphatic drainage and/or bleeding
2. Redness, warmth, induration, and/or purulent drainage
3. Follow VAD Maintenance Care: Dressing Care on Page 5

Patient presents with site complication

Are there signs of site infection?

Yes

Is the patient febrile?

Yes

- Outpatient nursing:
  - Notify primary team or send patient to Emergency Center for evaluation
- Inpatient nursing:
  - Notify covering provider/primary team immediately
  - Use sterile non-woven gauze and a transparent dressing if exudates present
  - Monitor for signs of bloodstream infection

No

- Outpatient nursing:
  - Notify Vascular Access Team for further evaluation. For after clinic hours and on weekends, notify primary team.
  - Use sterile non-woven gauze and a transparent dressing if exudates present
  - If site impairment worsens or requires more than 2 dressing changes within 2 days, notify primary team/Vascular Access Team immediately
- Inpatient nursing:
  - Use sterile non-woven gauze and a transparent dressing if exudates present
  - Monitor for signs of bloodstream infection
  - Notify covering provider/primary team

- Assess site, apply new gauze dressing, and notify primary team/Vascular Access Team
- If site impairment worsens or requires more than 2 dressing changes within 2 days, notify primary team/Vascular Access Team for further interventions

No
VAD COMPLICATIONS: PHLEBITIS

**POTENTIAL CAUSE(S)**

- Suppurative
- Mechanical
- Chemical

**MANAGEMENT**

**For PICC:**
- Notify primary team to consider alternative vascular access and order removal of PICC
- Post-catheter removal, assess exit site daily for 2 days
- For PICC: Consider alternative vascular access and removal. Assess site daily for 2 days

**For PIV:**
- Remove catheter immediately and monitor site for 2 days
- If signs or symptoms worsen, notify primary team and Vascular Access Team for possible removal or other vascular access options

**During infusion**
- Stop infusion
- Contact primary team for further interventions

**Post infusion (up to 2 days after completion)**
- Assess site and notify primary team. Other pharmacologic interventions may be warranted.
- For PICC:
  - Consider alternative vascular access and removal. Assess site daily for 2 days.
  - For PIV: Remove catheter immediately and monitor site for 2 days

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1 Use phlebitis scale to grade; see Appendix G
2 Thrombophlebitis associated with fever, purulent drainage, or positive culture
3 Refer to Care of Phlebitis Associated with PICC and Peripheral Venous Catheter Device Policy (#CLN0857)
Vascular Access Device (VAD) Management

VAD COMPLICATIONS: CVAD DEVICE-RELATED

Severed, ruptured, or leaking catheter (CICC, PICC, implanted port)

- Assess for symptoms of embolism¹ and clamp catheter above the severed or ruptured portion (if applicable and visible)

Is patient hemodynamically stable?²

Yes

- Notify primary team and Vascular Access Team for further interventions

No

- Immediately position patients showing symptoms of air embolism onto left side in Trendelenburg and place patient on oxygen
- Notify Merit team/Code Blue (Rapid Response) team
- Notify primary team and Vascular Access Team

Ballooning catheter (CICC, PICC)

(Do not use catheter unless approved by provider)

- Stop any infusion and clamp catheter. Assess catheter integrity if severed or ruptured (if present, refer to Severed, ruptured, or leaking catheter pathway above).
- Notify primary team for further interventions
- Exchange or removal must occur immediately, consult Vascular Access Team for recommendations

Catheter resuture²,³ (CICC, PICC)

Consult Vascular Access Team⁵ to evaluate for resuture if loose, tight or missing sutures are noted

CVAD tip malposition⁴,⁵ (Do not use catheter unless approved by provider)

Consult Vascular Access Team to evaluate/recommend appropriate intervention

¹Catheter embolism symptoms: changes in blood pressure, arrhythmias, cough, shortness of breath, chest pain, or weak pulse
²See Appendix C for Venous Access Procedure Orders
³Catheter resuture may be performed by specially trained provider
⁴Malposition refers to when catheter tip is not located in acceptable position for infusion. Refer to policy Central Vascular Access Device (CVAD) Assessment and Tip Position Verification Policy (#CLN1036).
⁵Obtain new chest x-ray if malposition is greater than 30 days from insertion confirmation x-ray

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Central Line Insertion Bundle

- Choose the best insertion site, catheter type, and number of lumens based on individual patient assessment to minimize infections and other related noninfectious complications. For adults, the femoral vein should be avoided unless other sites are unavailable.
- Adhere to a strict hand hygiene protocol
- Use a Standardized Central Line Insertion Checklist
- Use a Standardized Central Line Insertion Supply Kit
- Insert catheter using aseptic technique, which includes maximum sterile barrier precautions (i.e., mask, cap, gown, sterile gloves, and sterile full body drape)
- Prepare the insertion site using greater than 0.5% chlorhexidine with alcohol skin prep; allow prep solution to completely dry before inserting the catheter
- If a CHG skin prep solution is contraindicated, use an alcohol combined with an alternative skin prep solution (i.e., Duraprep™)
- Proper application of a sterile dressing placement with a chlorhexidine disc. A transparent dressing with a chlorhexidine disc is standard of care for all CVADs or accessed implanted ports post insertion
- Application of an institutionally approved needleless connector post insertion
- Application of an institutionally approved needleless connector post insertion
- Adhere to strict hand hygiene practice when handling any VAD
- Standardized catheter hub, needleless connector, and administration tubing care:
  - Use only sterile devices to access the catheter
  - Scrub the access port of the needleless connector using friction with a CHG device swab prior and in between each access (i.e., between each syringe attachment) and allow to dry per manufacturer’s recommendations
  - Use a passive disinfecting port protector (i.e., Curos™ cap) on all unused lumens or open ports according to manufacturer’s recommendation
  - Aseptically change needleless connector and administration sets per policy
  - Maintain a closed administration system by limiting tubing disconnections
- Standardize flushing care:
  - Daily maintenance flushing of each lumen
  - Use push-pause technique when flushing
- Standardized dressing change care:
  - Perform daily site inspection and dressing integrity audits
  - Perform routine dressing change using aseptic technique including the use of sterile gloves and mask, CHG skin prep scrub for a minimum of 30 seconds and allow to dry per manufacturer’s recommendation
  - Change gauze dressing (i.e., any type of dressing where gauze has been applied over the insertion site or non-transparent dressing without a CHG disc) every 2 days
  - Change all transparent dressing without gauze or non-transparent dressing with a CHG disc every 7 days
  - Immediately replace dressings that are soiled, damp, no longer intact, have been reinforced, have corners that are lifted allowing accessibility to insertion site, or expose catheter wings
- Perform daily audits regarding VAD necessity
- Patient education on personal and oral hygiene (i.e., CHG bathing)
### APPENDIX B: Flush Panel

#### Adult VAD Flush Panel
- Preservative-free (PF) 0.9% Normal Saline (NS) 10 mL flush syringe
- 0.9% NS 50 mL
- 0.9% NS 100 mL
- 0.9% NS 250 mL
- Lock-flush heparin\(^2\) solution 2 mL (100 units/mL)
- Dextrose 5% in water (D5W) injection flush syringe 10 mL
- D5W 50 mL
- D5W 100 mL
- D5W 250 mL

#### Pediatric CVAD Flush Panel
- Preservative-free (PF) 0.9% Normal Saline (NS) 10 mL flush syringe
- For patients **less than or equal to 10 kg**:
  - Lock-flush heparin\(^2\) solution 2 mL (100 units/mL)
- For patients **greater than 10 kg**:
  - Lock-flush heparin\(^2\) solution 2 mL (100 units/mL)
  - 0.9% NS 25 mL
  - 0.9% NS 100 mL
  - D5W 50 mL

\(^1\) Selection of supply is dependent on manufacturer’s availability

\(^2\) If patient has heparin allergy, may use alteplase (tPA) or saline as directed by physician

### APPENDIX C: Venous Access Procedure Orders

<table>
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<th>Procedure</th>
<th>Per Parameter: No Cosign Required</th>
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<tbody>
<tr>
<td>PIV insertion and implanted venous port access</td>
<td>Lidocaine/Prilocaine 2.5/2.5% cream</td>
</tr>
<tr>
<td>PICC insertion/non-tunneled CICC exchange</td>
<td>Adult/Pediatric CVAD Flush Panel</td>
</tr>
<tr>
<td>Non-tunneled CICC insertion</td>
<td>Lidocaine 1% 10 mL (buffered or non-buffered) Chest x-ray (2 view preferred)</td>
</tr>
<tr>
<td>PIV insertion and implanted venous port access and deaccess/routine CVAD flush</td>
<td>Adult/Pediatric CVAD Flush Panel</td>
</tr>
<tr>
<td>Resuture</td>
<td>Lidocaine 1% 10 mL (buffered or non-buffered)</td>
</tr>
<tr>
<td>Catheter patency problems</td>
<td>Adult/Pediatric CVAD Flush Panel</td>
</tr>
<tr>
<td>Suspected site infection</td>
<td>Alteplase (Cathflo™ Activase®) 2 mg/2 mL Chest x-ray (2 view preferred)</td>
</tr>
<tr>
<td>Non-tunneled CICC/PICC removal</td>
<td>Mupirocin 2% ointment (Bactroban(^®))</td>
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<tr>
<td>Malposition/rapid saline power flush</td>
<td>Single dose petrolatum-based ointment packet</td>
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<td>First time CVAD assessment</td>
<td>Adult/Pediatric CVAD Flush Panel</td>
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<td>Chest x-ray (2 view preferred)</td>
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APPENDIX D: Pediatric Routine Catheter Flush

<table>
<thead>
<tr>
<th>Pediatric PICC/CVAD/Accessed Implanted Port (excluding hemodialysis catheters)</th>
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</thead>
<tbody>
<tr>
<td><strong>For patients greater than 10 kg:</strong></td>
</tr>
<tr>
<td>○ Flush before and immediately after each use with PF 0.9% NS 10 mL.</td>
</tr>
<tr>
<td>○ Flush each unused lumen once daily with PF 0.9% NS 10 mL and PF heparin 2 mL (100 units/mL).</td>
</tr>
<tr>
<td>○ Prior to discharge/de-accessing, flush all lumens with PF 0.9% NS 10 mL and PF heparin 2 mL (100 units/mL).</td>
</tr>
<tr>
<td>○ Un-accessed Implanted ports should be flushed monthly with PF 0.9% NS 10 mL and PF heparin 2 mL (100 units/mL).</td>
</tr>
<tr>
<td>○ May flush with a minimum PF 0.9% NS 5 mL when clinically indicated</td>
</tr>
</tbody>
</table>

| **For patients less than or equal to 10 kg:** |
| ○ Flush before and immediately after each use with PF 0.9% NS 5 mL. |
| ○ Flush each unused lumen once daily with PF 0.9% NS 5 mL and PF heparin 2 mL (10 units/mL). |
| ○ Prior to discharge/de-accessing, flush all lumens with PF 0.9% NS 5 mL and PF heparin 2 mL (10 units/mL). |
| ○ Un-accessed Implanted ports should be flushed monthly with PF 0.9% NS 5 mL and PF heparin 2 mL (10 units/mL). |
| ○ May flush with a minimum of PF 0.9% NS 3 mL when clinically indicated |

**Pediatric Peripheral Intravenous Catheter (PIV)**

- Flush with PF 0.9% NS 10 mL before and immediately after use and every 12 hours when not in use.
- May flush with a minimum PF 0.9% NS 5 mL based on patient when clinically indicated.

APPENDIX E: Skin Prep Allergy Recommendations

- **Allergy to CHG:**
  - Intact skin: Use 70% isopropyl alcohol followed by povidone-iodine or a combination of alcohol and iodine solution.
  - Non-intact skin: Use povidone-iodine only.
- **Allergy to alcohol:**
  - Use a non-alcohol containing chlorhexidine gluconate prep solution if available or povidone-iodine.
  - If CHG allergy, use povidone-iodine only.
- **Allergy to povidone-iodine and CHG:**
  - Use 70% isopropyl alcohol only.
  - Do not use CHG impregnated dressing or disc.
- **Allergy to all skin prep dilutions (CHG, povidone-iodine, and alcohol):**
  - Use sterile saline.
  - Do not use CHG impregnated dressing or disc.

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1. Selection of supply is dependent on manufacturer’s availability.
2. For flushing/locking arterial catheters, hemodialysis catheters, or implanted peritoneal ports, follow specific institutional orders as directed by physician.
3. Scrub site using friction with isopropyl alcohol for a total of 60 seconds, and allow to dry.
4. Scrub site with povidone-iodine for a total of 60 seconds or per manufacturer’s recommendations, and allow to dry for 2 minutes.
5. Refer to manufacturer’s recommendations.
6. High risk for infection related to sterile saline use.
### APPENDIX F: Alternative Adhesive Dressing Recommendations

<table>
<thead>
<tr>
<th>Dressing</th>
<th>Skin Injury</th>
<th>Skin Irritant</th>
<th>Other Considerations</th>
<th>Dressing Change Frequency</th>
</tr>
</thead>
</table>
| Sobraview Shield Dressing | • Skin Intact: 1st choice dressing  
• Non-Intact Skin: Contact Vascular Access Team for usage | 1st choice dressing | 1st choice dressing for patients that are diaphoretic and are unable to tolerate Tegaderm with CHG | • Every 7 days with or without presence of Biopatch  
• Every 2 days if gauze is present over insertion site with or without presence of Biopatch |
| Covaderm Plus Vascular Access Dressing | • Skin Intact: Contact Vascular Access Team for usage  
• Non-Intact Skin: Contact Vascular Access Team for usage | 3rd choice dressing | 1st choice dressing if patient requires pressure dressing | • If used as pressure dressing: change every 2 days with or without presence of Biopatch  
• If used due to patient irritant: change every 7 days if Biopatch is present |
| Allevyn dressing 1 | • Skin Intact: 2nd Choice dressing (preferred when patient diaphoretic)  
• Non-Intact Skin: 1st choice dressing (preferred when patient diaphoretic) | 2nd choice dressing | N/A | • Every 7 days with presence of Biopatch  
• Every 2 days if no Biopatch is present |
| Mepilex Border Dressing | • Skin Intact: 2nd choice dressing  
• Skin Non-Intact: 1st choice dressing | 2nd Choice Dressing | N/A | • Every 7 days with presence of Biopatch  
• Every 2 days if no Biopatch is present |
| Duoderm Extra Thin Dressing | • Skin Intact: Not recommended, contact Vascular Access Team  
• Non-Intact Skin: Not recommended, contact Vascular Access Team | 4th choice dressing | N/A | • Every 7 days with presence of Biopatch  
• Every 2 days if no Biopatch is present (Gauze must be placed over insertion site) |
| Kerilex Gauze Dressing | • Skin Intact: Contact Vascular Access Team for usage  
• Non-Intact Skin: Contact Vascular Access Team for usage | Contact Vascular Access Team for usage | N/A | • Dressing must be changed daily by Vascular Access Team |

1 Perform and document assessment every 12 hours in inpatient setting

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## APPENDIX G: Infusion Nurses Society Phlebitis Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Clinical Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No symptoms</td>
</tr>
<tr>
<td>1</td>
<td>Erythema at access site with or without pain</td>
</tr>
<tr>
<td>2</td>
<td>Pain at access site with erythema and/or edema</td>
</tr>
</tbody>
</table>
| 3     | • Pain at access site with erythema and/or edema  
|       | • Streak formation  
|       | • Palpable venous cord |
| 4     | • Pain at access site with erythema and/or edema  
|       | • Streak formation  
|       | • Palpable venous cord greater than 1 inch in length  
|       | • Purulent drainage |

SUGGESTED READINGS


SUGGESTED READINGS - continued


MD Anderson Institutional Policy #CLN0441 – Infection Control Associated with Vascular Access Devices (VADs)

MD Anderson Institutional Policy #CLN0537 – Flushing of All Central Venous Catheters & Peripheral Venous Catheter Devices Policy

MD Anderson Institutional Policy #CLN0617 – Central Venous Catheters (CVCs) with Persistent Withdrawal Occlusion (No Blood Return) Policy

MD Anderson Institutional Policy #CLN0655 – Central Venous Catheters (CVC)/Midline Catheters-Percutaneous Removal Policy

MD Anderson Institutional Policy #CLN0656 – CVC Overwire Exchange: Assisting Physicians, Advanced Practice Providers, and Infusion Therapy Nurse-Performed Exchange Policy

MD Anderson Institutional Policy #CLN0857 – Care of Phlebitis Associated with Peripherally Inserted Central Catheter and Peripheral Venous Catheter Devices

MD Anderson Institutional Policy #CLN0859 – Central Venous Catheters (CVCs)-Restoring Patency to CVCs Due to Thrombotic or Precipitant- Occlusion Policy

MD Anderson Institutional Policy #CLN0944 – Central Venous Catheters (CVCs)-Drawing Blood Policy

MD Anderson Institutional Policy #CLN0986 – Vascular Veniscant/Irritant Administration and Extravasation Policy

MD Anderson Institutional Policy #CLN1036 – Central Venous Catheter Assessment and Tip Position Verification Policy

MD Anderson Institutional Policy #CLN1154 – Percutaneous Central Venous Catheter (CVCs) - Suture Securement and Replacement Policy

MD Anderson Institutional Policy #CLN1094 – Clinical Practice Patient Care Management Tools

MD Anderson Institutional Policy #CLN1165 – Central Venous Catheter- Peripherally Inserted Central Catheter (PICC) Insertion


Vascular Access Device (VAD) Management

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