CONSIDERATIONS FOR CVAD SELECTION

● Choosing the correct venous access device and location for patients requires a prior thorough assessment and evaluation\(^1\). Priority is given to vessel health preservation and minimizing the risk of infection by avoiding sites like the femoral vein. In some cases, consideration may include availability of assistance from caregiver for dressing changes and prior surgical history (i.e., mastectomy). The patient's activity level and lifestyle should also be considered.

● Providers should be aware that the higher the number of catheter lumens, the higher the risk of a catheter related infection and thrombotic complications for the patient. Selecting catheters with the least number of lumens may minimize infectious and thrombotic complications.

  ○ Separating infusions over time and working with pharmacists may help reduce the need for multi-lumen devices, reducing cost and complications

● For patients with chronic kidney disease requiring central venous access (not for the purpose of hemodialysis), avoid placement of peripherally inserted central catheters (PICCs) and subclavian approach centrally inserted central catheters (CICCs). Based on observational studies demonstrating high rates of new central vein lesions after PICC placement, PICCs and subclavian CICCs are not recommended in patients with low glomerular filtration rates (< 45 mL/minute or stage IIIb or higher kidney disease) to avoid complications (i.e., deep vein thrombosis, venous stenosis) that may interfere with future hemodialysis arteriovenous access placement.

\(^1\) Considerations include anticipated dwell time, associated risks, relevant vascular history, and urgency of procedure. Interprofessional collaboration is recommended in the decision process.
Vascular Access Device (VAD) Selection and Procedures

**SELECTION OF VAD**

1. Catheter choices are listed in order of preference
2. Good = A vein that is easily visible and/or easy to palpate when tourniquet is applied
3. Fair = veins are small, scarred or difficult to palpate or unable to access with ultrasound
4. Poor = vein unable to be seen or palpated (requires heat pack to aid vasodilation)

**SOLUTION**

- **PIV**
- **Consider PICC for patients with fair/poor** peripheral veins requiring frequent blood draws or multiple IV access

**DURATION OF THERAPY**

- **< 7 days**
  - **PIV**
  - **Consider PICC for patients with fair/poor** peripheral veins requiring frequent blood draws or multiple IV access

- **1 week – 1 month**
  - **Non-tunneled CICC**
  - **PICC**

- **> 1 month – 6 months**
  - **Non-tunneled or tunneled CICC**
  - **Implanted port**

- **> 6 months**
  - **Implanted port**
  - **Non-tunneled or tunneled CICC**

- **< 1 month**
  - **Non-tunneled CICC**

- **1 month – 6 months**
  - **Non-tunneled or tunneled CICC**

- **> 6 months**
  - **Implanted port**
  - **Non-tunneled or tunneled CICC**

**CATHETER CHOICE(S)**

1. **PIV**
2. **Consider PICC for patients with fair/poor peripheral veins requiring frequent blood draws or multiple IV access**

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PIV = peripheral intravenous line

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1. Catheter choices are listed in order of preference
2. Good = A vein that is easily visible and/or easy to palpate when tourniquet is applied
3. Fair = veins are small, scarred or difficult to palpate or unable to access with ultrasound
4. Poor = vein unable to be seen or palpated (requires heat pack to aid vasodilation)
5. PICCs should be avoided in patients with renal disease [chronic renal disease is Stage IIIB or higher with glomerular filtration rate (GFR) < 45 mL/minute]
6. Subclavian catheters should be avoided in patients with coagulopathy and renal disease [chronic renal disease is Stage IIIB or higher with GFR < 45 mL/minute]
7. Implanted venous ports and tunneled CICCs are not recommended for leukemia and stem cell transplant patients
8. Consider if duration of treatment is > 3 months
9. Irritant is defined as any agent (i.e., chemotherapy, electrolytes) that causes inflammation or irritation characterized by aching, tightness, and phlebitis but without necrosis. Vesicant is defined as any agent (i.e., chemotherapy) that has the potential to cause tissue destruction, blistering, severe tissue injury, or tissue necrosis when extravasated. Refer to Vascular Vesicant/Irritant Administration and Extravasation Policy (#CLN0986) and Extravasation Management (Vesicant and Contrast Agents) algorithm.
**Vascular Access Device (VAD) Selection and Procedures**

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**PRE/POST-PROCEDURE EVALUATION AND INTERVENTIONS**

**PRE-PROCEDURE**
- Consult Cardiac Device Clinic if patient has an implanted cardiac device (ICD)
- Perform catheter insertion assessment\(^1\)
- Post insertion chest x-ray

**POST-PROCEDURE**

**Is tip of CVAD in satisfactory position**\(^2\) on chest x-ray?
- Yes
  - CVAD ready for use
  - Document procedure and tip verification\(^3\)
  - Complete Lines, Drains and Airways (LDA) documentation
  - See VAD Management algorithm for Post-insertion Dressing & Maintenance and Flush Management
- No
  - Reposition catheter as clinically indicated
  - Repeat chest x-ray

**PRE-PROCEDURE**
- Perform catheter removal assessment\(^4\) and document\(^3\)
- Apply petrolatum-based ointment\(^5\) with sterile gauze dressing to exit site. Dressing can be removed after 24 hours.
- Hold pressure at site for at least 3 minutes and until bleeding resolves

**POST-PROCEDURE**
- Perform catheter removal assessment\(^4\) and document\(^3\)
- Apply petrolatum-based ointment\(^5\) with sterile gauze dressing to exit site. Dressing can be removed at ≥ 48 hours.
- For platelets > 20 K/microliter: Hold pressure at site for at least 5 minutes; if bleeding persists, continue to hold pressure until bleeding resolves
- For platelets ≤ 20 K/microliter: Hold pressure at site for at least 10 minutes; if bleeding persists, continue to hold pressure until bleeding resolves

\(1\) Insertion assessment includes patient’s renal function; vein ratio assessment; history of surgical or anatomical variant(s); venous thromboembolism, and/or multiple failed catheter attempts

\(2\) Tip of the CVAD is in satisfactory position when the tip resides in the superior vena cava or upper right atrium. See Central Vascular Access Device (CVAD) Assessment and Tip Position Verification Policy (#CLN1036).

\(3\) Document in EHR procedure note

\(4\) Removal assessment includes reviewing the ordering indication, patient labs, and medications

\(5\) Use single-dose petrolatum-based ointment packet

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VA&P = Vascular Access & Procedures

See Page 4

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Department of Clinical Effectiveness V5
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Vascular Access Device (VAD) Selection and Procedures

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PRE/POST-PROCEDURE EVALUATION AND INTERVENTIONS - continued

**PRE-PROCEDURE**

- Patient evaluation and assessment of allergies, medication, recent labs, medical, and vascular access history completed and documented by VA&P RN and reviewed by VA&P APP
  - For CICC insertion/exchange or removal of implanted venous port, consult Cardiac Device Clinic if patient has an implanted cardiac device (ICD)

  **Imaging**
  - For CICC insertion and CICC exchange to a greater French size
    - Chest x-ray if no existing prior chest imaging (i.e., chest x-ray and CT chest) showing current port or tunneled catheter placement within last six months
    - Repeat chest x-ray, CT Chest, and/or bilateral venous duplex study as indicated if history of prior upper extremity, chest or vascular surgery, such as stenting, graft, mastectomy, lymph node resection and/or thoracic surgery; known history of superior vena cava syndrome; history of upper extremity deep vein thrombosis or multiple failed catheter attempts

  For implanted venous port removal/Tunneled CICC removal:
  - Chest x-ray if no existing prior chest imaging (i.e., chest x-ray and CT chest) showing current port or tunneled catheter placement within last six months

  **Pre procedure lab assessment**
  - PT/INR and platelet count within 7 days of procedure if patient has a history of:
    - Chemotherapy within 1 month
    - Liver disease
    - Coagulopathy
    - Recent history of thrombocytopenia
    - History of anticoagulation medication use
  - PT/INR and platelet count within 2 months of procedure if the above comorbidities do not apply
  - Discuss with proceduralist and contact primary team to correct INR or platelet count if INR > 2 or platelet count < 20 K/microliter

  **Low platelet parameters (threshold to infuse platelets during procedure)**
  - Platelet count between 10-20 K/microliter for implanted venous port removal, tunneled CICC removal, and for internal jugular (IJ), subclavian and femoral catheter insertions

  **Recommendations for anticoagulation management**
  - See Peri-Procedure Management of Anticoagulants algorithm

**POST-PROCEDURE**

- CVAD ready for use
  - Document procedure and tip verification
  - VA&P RN to complete LDA documentation
  - See VAD Management algorithm for Post-insertion Dressing & Maintenance and Flush Management

- Is tip of CVAD in satisfactory position on chest x-ray?
  - Yes
    - VA&P RN to complete LDA documentation
    - See VAD Management algorithm for Post-insertion Dressing & Maintenance and Flush Management
  - No
    - Reposition catheter as clinically indicated
    - Repeat chest x-ray

- Post insertion chest x-ray
  - CICC insertion/exchange
  - Implanted venous port or tunneled CICC removal

- Place sterile dressing post removal
- Remove dressing after 48 hours

1 Other providers performing these procedures should follow department specific guidelines for pre- and post-procedural assessments and interventions
2 Tip of the CVAD is in satisfactory position when the tip resides in the superior vena cava or upper right atrium. See Central Vascular Access Device (CVAD) Assessment and Tip Position Verification Policy (#CLN1036).
3 Document in EHR procedure note

Performed by VA&P APP:
- CICC insertion/exchange to a greater French size
- Implanted venous port removal
- Tunneled CICC removal

Department of Clinical Effectiveness V5
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SUGGESTED READINGS


*Continued on next page*


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

MD Anderson Institutional Policy #CLN1036 – Central Vascular Access Device (CVAD) Assessment and Tip Position Verification Policy


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This practice consensus statement is based on majority opinion of the Vascular Access Devices Management experts at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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