NATIONAL INSTITUTES OF HEALTH
CLINICAL CENTER
NURSING DEPARTMENT

Standard of Practice: Care of the Patient with a Peripheral Venous Access Device (PVAD)

SUMMARY OF SIGNIFICANT CHANGES SINCE LAST REVIEW

- Updated to reflect Infusion Nursing Society guidelines that PVADs can stay in place until there is a clinical indication to change or discontinue the site, change from 96 hour rule
- Added guidance to use Vein Viewers/Finders for vascular visualization
- Changed the acronym PIV to PVAD consistent with the title
- Made minor grammar and spelling edits
- Updated TOE references

Clinical Nurse Specialist: Assumpta Ude
Primary Stakeholder(s): Mary Bowes

Deletes or Replaces -Venous Access Device, Peripheral (06/13)

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Essential Information:

1. Intravenous Therapy Competency required.
2. Midline catheter is a PVAD and dressing changes are performed using sterile technique. Refer to CVAD Dressing Change PRO.
3. For infusion therapy guidelines, refer to SOP: Care of the Patient Receiving an Intravenous Infusion.
4. Needleless and luer lock systems are used with all intravenous devices and infusions.
5. 0.9% Sodium Chloride is the preferred solution to flush all PVADs. All PVADs in adult and pediatric patients are flushed with 0.9% Sodium Chloride every 8 hours for inpatients and at least once daily for outpatients. Heparin flush can only be used with a licensed independent practitioner (LIP) order. [2, 3, 5, 7]
6. Topical or local anesthetic as ordered by LIP may be used prior to initiating a PVAD [4]
7. Blood return may be required prior to infusion of certain agents. Refer to SOP: Medication Administration and SOP: Care of the Patient receiving Cytotoxic or Biologic Agents.
8. Steel/metal PVAD is used only for adult patient apheresis/dialysis procedure and central line is used for apheresis/dialysis procedure in pediatric patients. [2, 9]
9. For additional information on PVAD site selection and preparation, refer to Elsevier's clinical skills: Intravenous Therapy Initiation (CE: Pediatric).

I. Assessment:

A. The PVAD insertion site is objectively and subjectively assessed every 8 hours in the adult population and every 4 hours in the pediatric population and high risk patients (use nursing judgment to determine if patient is high risk; i.e. neutropenic, skin impairment from GVHD or cognitively impaired, etc.) for: [2, 6, 9]
    1. Signs and symptoms of complications
    2. Dressing integrity
B. Prior to use of any PVAD, ensure patency through site assessment and ease of flushing as verification of blood return may not always be possible with PVAD [1, 5]

II. Interventions:

A. As per new Infusion Nurses Society (INS) standard of practice, consider the use of a vein finder especially for patients with difficult venous access. If unable to obtain access in an upper extremity, consult the LIP. [9]
B. For Pediatrics
    1. Use the smallest gauge and the venous site most likely to last the full length of the prescribed therapy, considering veins in the hand, forearm, and upper arm below

the axilla. PVAD should not be inserted in joints, wrists and antecubital area, which has a higher failure rate. [7]

2. Not more than two short-term successive attempts to insert a peripheral intravenous access per clinician, and limit total attempts to no more than four. Multiple unsuccessful attempts cause patient pain, delay treatment, limit future vascular access, increase cost, and increase the risk for complications.

C. Patients with difficult vascular access require a careful assessment of VAD needs and collaboration with the health care team to discuss appropriate options. [9]

D. Site Preparation:
   1. Clean injection caps or catheter hubs with 70% alcohol and allow site to dry prior to each access. [1, 2]
   2. Prepare the site with a 2% chlorhexidine (CHG) alcohol based preparation (i.e. ChloraPrep™) for skin antisepsis. [1, 2, 6]
   3. Do not use CHG in patients younger than 2 months. [3]
   4. Apply CHG using a bidirectional scrub for 30 seconds over the entire insertion area [1,6]
   5. Allow CHG to dry completely before inserting the PVAD and applying dressing. [1, 2,5, 6]

E. Flushing:
   1. Blood return must be attempted prior to flush of any PVAD [1]
   2. Flush all PVAD with 0.9% Sodium Chloride (NACL) every 8 hours for inpatients and at least daily for outpatients [2, 5]
   3. In adults, flush with 1-10 mLs 0.9% NACL before and after administration of medication/solutions and after specimen collection. [1]
   4. In pediatric patients flush with up to 5mLs using a 10 mL syringe to reduce pressure to the PVAD [9]
   5. Single dose syringe of preservative free 0.9% NACL is preferred.[1, 2, 5]
   6. If heparin is necessary, a medical order is required. [5]

F. Cap Change:
   1. Change the cap after each blood draw only if there is a visible sign of blood or debris[6]
   2. Change infusion cap every 72 hours when catheter is in use.[6]
   3. When PVAD is not in use, infusion caps are changed every 7 days or if there is blood or debris within the device.[6]
   4. There is no need to prime the infusion caps.[6]

G. Dressings:
   1. Dressings are labeled with time and date of insertion, including the nurse's initials.[1]
   2. For patients who cannot use CHG alcohol-based cleansers, povidone-iodine is to be used and the dressing must be changed in 3 days. [1]
   3. PVAD transparent dressings are changed when integrity of dressing is compromised. [1, 8]

4. Non-transparent dressings and dressings that have gauze underneath are changed every 48 hours and when the integrity of the dressing is compromised. [1, 2, 8]
5. Anchoring device is changed with each dressing change.

H. PVAD Removal/Replacement:
1. PVAD's can be left in as long as there are no clinical indications to change site such as phlebitis, infection or catheter malfunction.
2. Use new intravenous solution, tubing, and injection cap when inserting a new PVAD. [1, 2]
3. Change adult patients' steel/metal PVAD's every 4 hours or after completion of apheresis/dialysis procedure.[2, 9]

III. Documentation:

A. In the adult population document PVAD site assessment in CRIS every 8 hours.
B. In the pediatric population and high risk patients (use nursing judgment to determine if patient is high risk i.e. neutropenic, skin impairment from GVHD, or cognitively impaired, etc.) the site assessment is documented every four hours.[1, 2, 6]
C. Site, gauge, and length of catheter, number of attempts, and any complications during insertion.
D. Interventions are documented as performed:
1. Dressing change
2. Cap change
3. Dysfunction of PVAD [7]
4. Catheter occlusion
5. Site infection
6. Signs & symptoms of phlebitis/ inflammation
7. Unplanned removal
8. Flushes administered
9. Patency
10. Response to interventions
11. Planned removal/routine site change
12. Patient/family education

IV. References:

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8. Marsh, N.M., Webster, J., Mihala, G., & Rickard, C.M. (2015). Devices and dressings to secure peripheral venous catheters to prevent complications. The Cochrane database of systematic reviews, 6, CD011070.
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V. Contributing Policy, Procedure, Standard of Practice

A. PRO: Obtaining Blood Specimens
B. SOP: Care of the Patient Receiving an Intravenous Infusion
C. PRO: CVAD Obtaining Blood Specimens
D. PRO: CVAD Dressing Change

VI. Additional Resources

A. Elsevier Clinical Skills: Search term 'Intravenous Therapy' from http://lms.elsevierperformancemanager.com/ContentArea/NursingSkills?virtualname=nationalinstitute-mdbethesda

Approved:

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Gwenyth R. Wallen, PhD, RN
Chief, Clinical Center Nursing Department

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