


<b>Name of Policy:</b> <u>Vascular Access Management</u> <b>Policy Number:</b> 3364-109-GEN-705 <b>Department:</b> Infection Control Medical Staff Hospital Administration  <b>Approving Officer:</b> Chair, Infection Control Committee Chief of Staff Chief Medical Officer  <b>Responsible Agent:</b> Infection Preventionist  <b>Scope:</b> The University of Toledo Medical Center and its Medical Staff	          <b>Effective Date:</b> 06/01/2022 Initial Effective Date: 6/30/1986
<input type="checkbox"/> New policy proposal <input type="checkbox"/> Major revision of existing policy	
<input checked="" type="checkbox"/> Minor/technical revision of existing policy <input type="checkbox"/> Reaffirmation of existing policy	

**(A) Policy Statement**

This policy represents the minimum standard of care that must be followed to prevent bloodstream infections in all patients with a vascular access device.

**(B) Purpose of Policy**

To prevent infection risk associated with the use of vascular access therapy and to provide guidelines for appropriate insertion and maintenance of vascular access devices within the University of Toledo Medical Center (UTMC).

**(C) Procedures**

The following is a list of vascular access management devices:

- CVC – Central Venous Catheter (non-tunneled) - temporary line (less than thirty (30) days) percutaneously inserted in the subclavian, internal-jugular, or femoral vein by a credentialed physician. Tip terminates in the superior vena cava (SVC). Ideally removed within 10 days.
- CVC – Central Venous Catheter (tunneled) - long term venous catheter (greater thirty (30) days) implanted in subclavian, internal-jugular, or femoral vein by a credentialed physician requiring surgical insertion. Tip terminates in the window of the SVC and right atrium.
- PICC – Peripherally Inserted Central Catheter-short or long term catheter (dwell time based on need) inserted into basilic, brachial, or cephalic vein. Tip terminates in the window of the SVC to the cavoatrial junction.
- PORT – Subcutaneous Access Port-long term catheter (less than ninety (90) days) completely implanted under the skin and requires surgical insertion. Tip terminates in the window of the SVC and right atrium.
- PIV – Peripherally Inserted Venous Catheter-short term catheter (less than thirty (30) days) inserted percutaneously. Can include Midline catheters which are inserted in upper extremity.
- PA – Peripheral Arterial Catheters-short term catheter inserted percutaneously for arterial pressure monitoring.

**(1) Education and training:**

**(a) Medical staff**

Only trained personnel who have demonstrated competency will be permitted to insert and maintain vascular catheters. Training includes education upon hire and annually. This training will include but is not limited to:

- (i) Indications for use.
- (ii) Proper procedures for insertion and maintenance of intravascular catheters.
- (iii) Appropriate infection control measures to prevent infection.

**(b) Patients**

All patients will receive education on bloodstream infection prevention when a CVC is placed.

**(2) Insertion:**

Appropriate indications must be met to place a CVC and are included in the electronic medical record. Daily review by the clinical care team for line necessity must occur, with prompt removal when indications for central access are not met.

**(a) Site selection:**

- (i) Monitoring the procedure for safe insertion will be done by an alternate staff member. Insertion checklist must be completed during the procedure, and if there is a breach in sterile technique, the procedure will be stopped.
- (ii) Use ultrasound guidance to place a CVC.
- (iii) When adherence to aseptic technique cannot be ensured (e.g., catheters inserted during medical emergency), replace the catheter as soon as possible [within forty-eight (48) hours].
- (iv) Use subclavian site, rather than internal jugular (IJ) or femoral for non-tunneled access when possible.
- (v) IJ non-dialysis catheters should be removed within five (5) days of insertion.
  - (a) If long-term catheter is required, consider replacing with PICC or a midline catheter (if applicable) on day six (6).
    - i. In CKD patients, nephrology approval is required prior to PICC/midline insertion.
- (vi) Avoid using the femoral vein for access.
  - (a) If unavoidable due to patient condition, remove within twenty-four (24) hours and replace with alternative CVC.
- (vii) Remove non-tunneled, non-hemodialysis CVCs prior to transferring patient out of the ICU.
- (viii) Use a device with minimum number of ports or lumens essential for the management of the patient.

(ix) Do not routinely replace CVC to prevent catheter-related infections.

(b) Hand hygiene:

Adhere to the Hand Hygiene Policy ([3364-109-GEN Hand Hygiene](#)). Hand hygiene must be performed before and after palpating catheter insertion sites as well as before and after inserting, replacing, accessing, repairing, or dressing an intravascular catheter.

(c) Maximal sterile barrier precautions:

(i) Maximal sterile barrier precautions must be used, including a cap, mask with face shield, sterile gown, sterile gloves, and a sterile full body drape for insertion of all CVCs, PICCs, or guidewire exchanges.

(ii) A minimum of a cap, mask, sterile gloves and small sterile drape must be used during peripheral arterial insertion. For axillary or femoral artery insertion, maximum sterile barrier precautions must be used.

(iii) Insertor and assisting personnel must wear cap, mask, sterile gown, and sterile gloves. Other personnel in the room not assisting must have a mask on.

(d) Skin preparation:

(i) Excessive hair at the insertion site may be removed by clipping only.

(ii) Prepare skin with a 2% chlorhexidine -70% alcohol preparation before insertion. Scrub the site for thirty (30) seconds and allow to dry for a minimum of thirty (30) seconds or until it's completely dry. If patient has an allergy to chlorhexidine, tincture of iodine, iodophor, or 70% alcohol can be used.

(iii) If the catheter is sutured, sutures must be at least one inch from the insertion site to allow for placement of the chlorhexidine-impregnated dressing.

(iv) Chlorhexidine-impregnated dressing must be placed around the insertion site.

(v) Transparent or a gauze dressing must be placed, timed and dated.

(vi) Use a sterile sleeve for all pulmonary artery catheter insertions.

(3) **Maintenance and care:**

For standard operating procedures and protocols pertaining to manipulation of the line and clinical care, please refer to Mosby Nursing Skills Clinical Skills online.

(a) Hand hygiene:

(i) Adhere to the Hand Hygiene Policy ([3364-109-GEN Hand Hygiene](#)). Hand hygiene must be performed when entering and exiting the patient's room. In addition, hand hygiene must be performed immediately before touching or manipulating any components of a vascular device.

(b) Bathing:

- (i) Patients with tunneled and non-tunneled vascular access devices should be bathed daily with chlorhexidine liquid or chlorhexidine bath wipes.

(c) Catheter site:

The PICC team will change CVC dressings every seven (7) days. If the dressing needs to be changed sooner, it is the responsibility of the primary nurse. All patients admitted with a vascular access dressing in place will have the dressing and components changed upon admission. All dressings should be dated and timed.

- (i) Vascular access sites should be assessed at least every four (4) hours, or every one (1) to two (2) hours in critically ill, sedated, or cognitively impaired patients.
- (ii) Peripheral intravenous (PIV) sites should be assessed each shift for signs of infection, infiltration, and phlebitis. These sites should only be replaced if issues are identified with the current PIV site. This will reduce the risk of infection and phlebitis in adults (e.g., pain, swelling, redness).
- (iii) Site must be kept clean with either a transparent semipermeable dressing or sterile gauze:
  - (a) Transparent dressings will be changed every seven (7) days, or sooner if they become damp, loose, or visibly soiled.
  - (b) Gauze dressings are changed at least every forty-eight (48) hours.
  - (c) All dressings must be dated and timed.
- (iv) Chlorhexidine-impregnated dressings will be used around the insertion site of short-term, non-tunneled CVC.
- (v) Do not use topical antibiotic ointment or creams on insertion sites, except for dialysis catheters.
- (vi) Do not submerge the catheter or site in water.
  - (a) Showering is permitted if precautions are taken to reduce the likelihood of introducing organism into the catheter (e.g., if the catheter and all components can be protected with an impermeable cover).

(d) IV tubing and attached components:

- (i) Needleless neutral displacement caps must be used on the end of each lumen. Caps are changed with each tubing change but not more frequently than every seventy-two (72) hours.
- (ii) Disinfectant caps must be attached to all unused needless connections of the tubing. Change the disinfectant cap with each use.
  - (a) Cap may be left on for seven (7) days if not used.
- (iii) Scrub the hub of each access port with alcohol for at least fifteen (15) seconds for each access.

- (iv) Replace administration sets that are continuously used without blood, blood products, or lipids, including secondary sets and add-on devices, at least every ninety-six (96) hours.
- (v) Replace tubing used to administer blood, blood products, or lipids within twenty-four (24) hours of initiating the infusion.
- (vi) Replace tubing used to administer propofol infusions every six (6) to twelve (12) hours.
- (vii) Primary and secondary IV tubing that is used intermittently must be changed every twenty-four (24) hours.
- (viii) All tubing must be dated and timed.
- (e) Peripheral arterial catheters and pressure monitoring device components:
  - (i) Replace disposable or reusable transducers at ninety-six (96)-hour intervals.
    - (a) Replace other components of the system (tubing, flush solution) at the time the transducer is replaced.
  - (ii) Keep all the components of the pressure monitoring system sterile.
    - (a) Minimize the number of entries and manipulations into the pressure monitoring system.
  - (iii) Do not administer dextrose-containing solutions or parenteral nutrition fluids through the pressure monitoring system.

References:

APIC text of Infection Control and Epidemiology 2019, 4<sup>th</sup> Edition, Volume 2, 35:1-71

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Journal of Infusion Nursing. *Infusion Therapy Standards of Practice.* 2021

The Joint Commission. (2013). *Preventing Central Line-Associated Bloodstream Infections: Useful Tools. An International Perspective, Nov 20, 2013.* Retrieved 5/17/2022 from <https://www.jointcommission.org/resources/patient-safety-topics/infection-prevention-and-control/central-line-associated-bloodstream-infections-toolkit-and-monograph/>

<p><b>Approved by:</b></p> <p><u>/s/</u>        Michael Ellis, MD        Chair, Infection Control Committee</p> <p><u>06/06/2022</u>        Date</p> <p><u>/s/</u>        Andrew Casabianca, MD        Chief of Staff</p> <p><u>06/29/2022</u>        Date</p> <p><u>/s/</u>        Michael Ellis, MD        Chief Medical Officer</p> <p><u>06/06/2022</u>        Date</p> <p><i>Review/Revision Completed By:        Infection Control Committee</i></p>	<p><b>Review/Revision Date:</b></p> <p>06/16/87        01/09/89        11/27/89        01/08/90        09/11/91        07/08/92        02/05/96        05/01/99        08/19/02        05/16/05        01/23/06        06/20/11        07/16/14        06/23/15        01/23/19        05/12/22</p>
<p><b>Next Review Date:</b> 06/2025</p>	
<p><b>Policies Superseded by This Policy:</b></p>	