**Accessing Vascular Devices**

**Date Implemented:**

**Review/Updated Date:**

**Policy**

Vascular access devices, especially central venous catheters (CVC), increase the risk for local and systemic infections as well as additional complications such as septic thrombophlebitis. Intravascular access devices such as implanted ports may be accessed multiple times per day, for hemodynamic measurements or to obtain samples for laboratory analysis, thus increasing the risk of contamination and subsequent clinical infection.

Peripheral IV is a catheter inserted into a small vein, usually in the arm or hand. It generally is only a few inches long and is placed for short term treatments.

Central Venous Catheter (CVC) is a long, flexible, intravascular catheter that is inserted into a larger vein in the neck, chest, groin or arm and terminates in one of the great vessels of the body. A CVC is generally placed for longer durations or when medications are unsafe to administer into smaller, peripheral veins.

Non-tunnel CVC is a large bore catheter inserted into the subclavian, internal jugular and rarely placed in the femoral vein. A non-tunneled CVC is held in place by stiches or a sutureless securement device and is not designed for prolonged use or use outside of an acute care hospital.

Tunneled Catheter can remain in place for months to years and is generally inserted by a surgeon or a radiologist. The catheter travels under the skin before entering into a vein and is used for medication administration and specialized procedures such as hemodialysis.

Peripherally Inserted Central Catheter (PICC) is the most common type of CVC used in nursing homes. A PICC is inserted into a peripheral vein, usually in the upper arm, and threaded into a central vein. A PICC line can be placed for weeks to months and is generally inserted by radiologists or specially trained nurses.

Midline Catheters are a peripheral IV, not a CVC. A Midline catheter appears similar to a PICC line, but terminates in the basilic or cephalic vein and is not intended for long-term use.

Implanted Port is a surgically placed CVC that can be used for months to years. The implanted port is placed completed under the skin with no external parts visible and requires a specialized needle to be able to access the port.

Components of a CVC include but are not limited to:

* Exit Site – the site where the catheter exits the body.
* Lumen(s) – the number of branches off the catheter.
* Clamp – sealing device to close the flow through the catheter/tubing.
* Hub(s) – used to seal the ends of the lumens.
* Cap(s) – closed end pieces that are removed to access the catheter line.
* Needless Connector – allows for a direct attachment of syringes to the IV tubing without the use of needles.

Infectious Harms associated with CVC’s include but are not limited to:

* Localized infections such as exit site infections, tunnel infections with the soft tissue along the path of the catheter and pocket site infections associated with implanted ports. Localized infections generally present with redness, pain and/or pus at the catheter exit site.
* System infections such as bloodstream infections and sepsis. Systemic infections generally present with fever, hypotension (low blood-pressure) and/or delirium. A central-line associated bloodstream infection (CLABSI) occurs when pathogens enter the bloodstream while the CVC is in place.

**Procedures**

Insertion: Prior to insertion of a CVC documentation should include the appropriate indication for use of a CVC and placement site. After placement of a CVC a chlorhexidine-impregnated dressing is recommended. Generally, CVC’s are inserted prior to a resident being admitted or readmitted to this facility.

Maintenance:

* Daily assessments shall be conducted by the RN or an LPN that has demonstrated competency in assessment of CVCs. The daily assessment must include the status of the dressing (generally should be clean, dry and intact), the dressing and/or the CVC appear securely in place and that the CVC is functioning properly.
* An RN or an LPN with IV certification and demonstrated competencies will flush the CVC with at least 10 ml of normal saline daily to assure patency of the CVC.
* Assessment for signs and symptoms of infection. The CVC site shall be palpated (touched/felt) to evaluate for site tenderness. Transparent dressings are ideal for daily maintenance of the CVC so a visual inspection can be completed to assess for infection and/or thrombosis. If an opaque dressing is placed, an RN or IV-certified LPN shall remove the dressing and following proper technique replace the dressing with a transparent dressing for further visual inspection.

Dressing Changes:

* A gauze dressing, if applied, must be changed every 2 days.
* A transparent, semipermeable dressing must be changed at least every 5-7 days.
* If used, a chlorhexidine impregnated dressing should be changed according to the manufacturer’s instructions.
* Damp, loose or visibly soiled dressings should be replaced immediately.
* To complete a dressing change for a CVC:
	+ The dressing change must be a sterile procedure, generally including a sterile mask that is provided in the dressing change kit.
	+ The nurse shall sanitize the area where the CVC dressing will be changed. (Such as a bedside table). If the area is unable to be sanitized the nurse will assure that the area is as clean as possible and assure that objects are not in the immediate area that could penetrate the sterile field.
	+ Place a sterile drape or barrier under the location of the CVC (for example a PICC line would be under the arm).
	+ Complete hand hygiene, don sterile gloves and remove the PICC dressing. Assure that when you are removing the dressing the catheter is not pulled out.
	+ Note the length of the catheter (generally marked on the catheter) and include in documentation.
	+ Change gloves assuring hand hygiene is completed and replace with another pair of sterile gloves.
	+ Cleanse the area with an alcohol or betadine swab generally provided with the dressing change kit. Cleansing should start with the exit site and in a circular motion move away from the exit site until the area that the dressing will cover is cleaned. Assure that you are not going back to a clean site from a dirty area.
	+ Change gloves, complete hand hygiene and replace with another pair of sterile gloves.
	+ Apply new dressing and label the dressing with date changed and initials. Place a transparent dressing on the exit site as often as possible for visual inspections of the CVC.
	+ Discard all dressing change items and sanitize the area.
	+ Remove gloves and complete hand hygiene.
* Documentation must be placed in the resident’s medical record regarding the dressing change and a label shall be placed on the dressing indicating the date and initials of the nurse changing the dressing.

Accessing CVC Lines:

* All CVC lines should be capped when not in use by placing a cap on the hub of the lumen.
* Anytime you remove the cap to place infusion tubing or remove tubing and place the cap back on you should cleanse the hub with an alcohol swab.
* Caps should be replaced every 72 hours or when the infusion administration sets are changed.

Administration Sets:

* If infusions are running continuously, administration sets should be changed at least every 7 days, but not more frequently than every 4 days.
* If completing a daily infusion, administration sets should be changed with each infusion.
* When administering blood, blood products or fat emulsions, administration sets should be changed at least every 24 hours.

Care of CVC’s:

* Direct care staff should be educated to take care when providing cares for a resident with a CVC to protect the CVC from dislodgement and contamination.
* CVC’s should not be submerged in water. During a shower the direct care staff should place a transparent film (such as clingwrap) around the CVC to prevent it from getting wet and aide with infection prevention.
* During transfers and ambulation direct care staff should be cautious to not pull on the device.

**Resources**

CMS. (2017, Nov. 2). *State Operations Manual, Appendix PP – Guidance to Surveyors for Long Term Care Facilities, F880*. <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/GuidanceforLawsAndRegulations/Downloads/Appendix-PP-State-Operations-Manual.pdf>

CDC. (2020, June 10). *Infection Prevention Training | LTCF*. <https://www.cdc.gov/longtermcare/training.html>