Central Venous Catheter Template

Date Revised: /_____/_____
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Authorization: _____
Committee

Define the Infection Prevention and Control (IPC) Practice

A central venous catheter (CVC) is a "long, thin, flexible tube used to give medicines, blood, nutrition, and other treatments over an extended time, usually weeks to months and sometimes a year. It is inserted into a large vein often in the arm, chest, or groin and threaded through this vein until it reaches a large vein near the heart." It is also known as a central line. Implementing evidence-based, infection prevention practices during both the insertion and maintenance of CVCs has been shown to prevent the occurrence of central line–associated bloodstream infection (CLABSI) and other complications.

Purpose (provides background to explain the rationale for the policy/procedure)

Both infectious and noninfectious risks and harms are associated with CVCs, including CLABSI and deep vein thrombosis. Microorganisms can migrate along the external or internal surface of the catheter to enter the bloodstream. Failure to adhere to evidence-based practices during catheter insertion and maintenance increases the likelihood that CLABSIs will occur.

To protect our residents, our staff follow evidence-based insertion and maintenance practices to minimize use of CVCs and maintain their safety when inserting and handling CVCs.

Responsibility (defines who is responsible for following this policy/procedure)

For each policy and procedure related to insertion and maintenance of CVCs, the staff credentialed to perform tasks related to CVC care will be identified and will undergo training and education along with an assessment of competency. For example, staff in the facility who will be responsible for following CVC insertion policies and procedures include, but are not limited to Registered Nurses (RN), Nurse Practitioners (NP), Licensed Practical Nurses (LPN), Physicians (MD/DO), and Physician Assistants (PA).

In addition, it is important for other staff to be aware when a resident has a CVC so that is does not become dislodged and is protected during resident activities. These other staff include, but are not limited to Respiratory Therapists (RT), Pharmacists, any External Consultants (e.g., Phleobotomy, Wound Care Services, Podiatrists), Case Management, Environmental Services, paramedics, Students, and Volunteers.

Policy Content Considerations

- Define and document appropriate indications for inserting or maintaining CVCs.
    - Intravenous access for medications and other treatments on a long-term basis.
    - Certain types of medications or treatments that can only be given through a CVC. For example, some chemotherapeutic agents may be harmful to small peripheral veins and must be administered via a CVC.
    - Other specialized treatments such as dialysis.

  - Provide nutrition (such as total parenteral nutrition).
  - Frequent blood sampling.
- Assess and document ongoing need for CVCs.
- Define criteria for CVC removal and processes for monitoring residents following CVC removal.
- Develop guidance for when and how to do blood sample collection from CVCs.
- Develop guidance for personal protective equipment (PPE).
- Assess and document CVC maintenance practices.
  - Adhering to aseptic technique for insertion and maintenance of CVCs.
    - Hand hygiene before and after palpating CVC insertion sites, as well as before and after inserting, replacing, accessing, repairing, or dressing a CVC.
    - Appropriate use of PPE.
- Guidance about CLABSI surveillance.
- Maintain adequate CVC supplies in appropriate facility locations and define who is responsible and appropriate practices for monitoring supply levels (e.g., accessibility of insertion and maintenance kits, PPE, frequency of checking supply levels), maintaining adequate CVC supplies in all facility locations including who is responsible and appropriate practices (e.g., insertion and maintenance kits, PPE).

Note: Other resident care policies and procedures should reinforce CVC policies and procedures by incorporating monitoring/maintenance as a critical step during activities. Examples include physical therapy to ensure stability of catheter during activity and showering or bathing to ensure protection of CVC from water.

Procedure Content Considerations (outlines the steps/supplies to perform the practice)

General Considerations:

- CVC insertion and maintenance and blood sample collection should only be performed by trained personnel.
- Hand hygiene should be performed before and after insertion and any manipulation of CVC.
- Use standard precautions, including use of gloves and gown as appropriate, during any manipulation of the CVC.
- Document indication for use, date of insertion, and assessment of daily need for CVC.

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Practices during Insertion of CVCs:

- Aseptic technique during insertion.
- Use maximal sterile barrier precautions, including the use of a cap, mask, sterile gown, sterile gloves, and a sterile full body drape for insertion of CVCs.
- Choose the best insertion site to minimize infectious and noninfectious complications based on individual resident characteristics. For example, avoid femoral site in obese adult patients.
- Prepare the insertion site with >0.5% chlorhexidine preparation with alcohol.
- Place a sterile gauze or transparent, semipermeable dressing over the insertion site.
- For residents ≥18 years of age with a non-tunneled catheter, a chlorhexidine impregnated dressing is recommended.
- Insertion checklists and bundles can help ensure staff involved in insertion follow all recommended practices.

Maintenance of CVCs:

- Cover open lumens.
- Scrub the access port or hub with friction immediately prior to each use with an appropriate antiseptic (e.g., chlorhexidine, povidone iodine, an iodophor, or 70% alcohol).
- Caps and other needleless components should be changed no more frequently than every 72 hours (or according to manufacturer's instruction or whenever the administration set is changed).
- Dressing changes:
    - Immediately whenever wet, soiled, or dislodged.
    - At least every 2 days for gauze dressings.
    - At least every 7 days for semipermeable dressings.
- For patients ≥18 years of age, use a chlorhexidine-impregnated dressing with an FDA-cleared label that specifies a clinical indication for reducing CLABSI are recommended to protect the insertion site of short-term non-tunneled CVCs (unless the facility is demonstrating success at preventing CLABSIs with baseline prevention practices).
- Administration set changes.

- Continuous infusions, no more frequently than every 4 days but at least every 7 days.
- Blood products or fat emulsions, every 24 hours.
- Propofol, every 6–12 hours or when vial is changed.

Blood Sample Collection:

- Blood samples should be obtained aseptically.
- Every attempt should be made to obtain at least one set of blood cultures from a peripheral venipuncture.

Guidelines, Standards, and Resources for Policy/Procedure Development

CVC policies and procedures should be developed using evidence-based guidelines or national standards, such as resources from the Centers for Disease Control and Prevention (CDC) and/or the Agency for Healthcare Research and Quality. The following resources could be used for developing the CVC policy and procedures for your facility:

- CDC. Guidelines for the prevention of intravascular catheter-related infections. https://www.cdc.gov/infectioncontrol/guidelines/bsi/index.html.
- Society for Healthcare Epidemiology of America/Infectious Diseases Society of America (SHEA/IDSA): Strategies to prevent central line-associated bloodstream infections in acute care hospitals: 2014 update. https://www.jstor.org/stable/10.1086/676533#metadata_info_tab_contents