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**DEFINITIONS**

**Central Venous Catheter (CVC)** - A venous access device whose tip dwells in a great vessel.

**Central Line Associated Blood Stream Infection (CLABSI)** - is a primary blood stream infection (BSI) in a patient that had a central line within the 48-hour period before the development of a BSI and is not bloodstream related to an infection at another site.

1. **PURPOSE**

   1.1 To minimize the risks of central line-associated bloodstream infections and other complications associated with the insertion of central venous catheters.

2. **POLICY**

   2.1 This policy applies to insertion of all central venous catheters (CVCs).

   2.2 All licensed staff assisting with the insertion of CVCs will be educated in CVC care and prevention of CLABSI.

   2.3 An all-inclusive catheter insertion bundle should be utilized for all CVC insertions. See Appendix A.

   2.4 Insertion is performed using maximal sterile barrier technique

      2.4.1 Personal Protective Equipment (PPE) to be worn: sterile gown and gloves as well as a mask with attached visor & cap to be worn by all personnel directly involved in the insertion.

**HIGH ALERT**: Central line-associated bloodstream infection (CLABSI) continues to be one of the most deadly and costly hospital-associated infections. - Institute for Healthcare Improvement
procedure. Circulating staff need to wear a cap and mask with attached visor within 2 meters of the sterile field.

2.4.2 Patient to be covered with a full body sterile drape

**Note:** *If a CVC is changed over an existing line using a guidewire, steps need to be taken to maintain sterile technique.*

2.5 All personnel involved must perform hand hygiene before donning and after doffing PPE (e.g. gloves).

2.6 A 2% chlorhexidine-based antiseptic must be used for skin preparation. Providone-iodine may be used if patient allergic to chlorhexidine.

**Note:** *The antiseptic solution must be allowed to dry prior to making the skin puncture.*

2.7 Placement must be confirmed by chest X-ray prior to accessing. CVP pressure monitoring set may be connected prior to the X-ray. In an emergency situation, access may be confirmed by the presence of blood return.

2.8 CVC site must be dressed with a sterile semi-permeable transparent dressing.

- Exception: A sterile gauze dressing must be applied if drainage is anticipated (diaphoresis, bleeding or oozing). Gauze to be changed q24hr and if visibly soiled using aseptic technique.

2.9 A needleless adapter is attached to all unused lumens of a central venous catheter.

- Exception: Hemodialysis catheters will have a male-female luer lock plug (dead-ender)

3. PROCEDURE

3.1 Collect supplies:

- Central venous catheter insertion supplies as per Appendix A
- Sterile gloves: will need one pair for each staff member directly involved with the line insertion
- Central venous catheter: see Appendix A for SKU number to order product

3.2 The Physician will

3.2.1 Obtain verbal consent and prescribe any medications as needed during the procedure

3.2.2 Indicate optimal positioning of the patient depending on the site of insertion

3.2.3 Perform hand hygiene prior to donning PPE.

3.2.4 Use a 2% chlorhexidine-based antiseptic for skin preparation. Providone-iodine may be used if patient allergic to chlorhexidine.

**Note:** *The antiseptic solution must be allowed to dry prior to making the skin puncture.*

3.2.5 Full sterile drapes are placed on the client.

3.2.6 CVC inserted by physician.

3.2.7 Suture/secure the CVC in place following insertion

3.2.8 Cleanse insertion site with 2% chlorhexidine-based solution following insertion, allow to dry, apply sterile dressing using aseptic technique.
3.2.9  Connect needleless adaptors to each unused lumen.

3.2.10 Flush and lock unused lumen(s) as per protocol

3.2.11 Perform hand hygiene after doffing PPE.

3.2.12 Order X-ray to confirm placement

3.2.13 Prescribe IV solution and rate to commence after x-ray verification of the catheter tip location.

3.2.14 Document procedure on Central Venous Catheter Record #103405. See Appendix B.

**Note:** In the OR the electronic record is utilized to record the insertion

3.3 The Assisting Staff Will:

3.3.1 Assist in positioning the patient as directed depending on the site of insertion.

- **Jugular/Subclavian** - Place the patient in slight trendelenburg or flat, remove head of the bed (optional). May place rolled towel between scapulae.

**Note:** This position distends the vein for easier insertion and decreases the risk of venous air embolism.

- **Femoral** - Place patients flat.

3.3.2 Assist the physician as required with placement of drapes and catheter insertion.

3.3.3 Administer medications as ordered.

3.3.4 Prepare CVP monitoring system for short term CVC where applicable ie.connect pressure monitoring line to distal lumen.

3.3.5 Review and complete insertion checklist with physician throughout procedure. See Appendix B page 2.

3.3.6 Ensure CVC is not accessed until xray of placement is confirmed, or in an emergency until placement is confirmed by blood return.

3.3.7 Document

- Record date, time, catheter type (single, multi-lumen), site, physician inserting catheter and patient’s tolerance in the progress notes
- Any medications used during the procedure on appropriate record.
- Label all IV tubings with date and time to be changed.

3.3.8 Report

Report to physician any signs or symptoms of complications of insertion:

- Dyspnea, cardiac arrhythmias, hematoma, excessive bleeding
- Pressures outside ordered/normal parameters
4. REFERENCES


CVC insertion Bundle

Appendix A

Collect:

I. **Insertion supplies**
   One for each person directly involved with CVC insertion
   - Masks with attached visor
   - Cap
   - Protective eye wear
   - Sterile gowns
   - Sterile gloves
   - Chlorhexidine 2%/isopropyl alcohol ie.Chloroprep
   - Full drape
   - CVP insertion tray SKU#510014
   - Local anaesthetic Xylocaine 1% without Epinephrine
   - 3 ml syringe (for administration of local)
   - 18g blunt fill needle
   - 25 gauge safety needle
   - 10 ml syringe of normal saline (one to flush/lock each lumen)
   - Sterile gauze (4x4)
   - 2-0 silk
   - Scalpel blade
   - Needle driver
   - Sterile Semi-permeable transparent or gauze dressing
   - Chlorhexidine 2% prep stick
   - Needleless adapter(s) as required
   - Protective pad (to place under patient to keep bedding dry)
   - Sterile sleeve for the ultrasound (will be located with the equipment)

II. **Sterile gloves**: will need to obtain for each staff member involved in placing the central line

III. Ultrasound guidance is recommended.

IV. **Central line**

<table>
<thead>
<tr>
<th>Description</th>
<th>SKU #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triple lumen 7Fr x 16cm</td>
<td>88617</td>
</tr>
<tr>
<td>Triple lumen 7Fr x 20cm</td>
<td>83383</td>
</tr>
<tr>
<td>Percutaneous Sheath Introducer 8.5Fr</td>
<td>62403</td>
</tr>
<tr>
<td>Hemodialysis catheter</td>
<td></td>
</tr>
<tr>
<td>□ 11.5Fr x 13.5cm</td>
<td>63056</td>
</tr>
<tr>
<td>□ 11.5Fr x 19.5cm</td>
<td>46797</td>
</tr>
<tr>
<td>□ 13.5Fr x 24cm</td>
<td>200538</td>
</tr>
<tr>
<td>□ PICC:</td>
<td></td>
</tr>
<tr>
<td>□ single lumen (4fr)</td>
<td>30932</td>
</tr>
<tr>
<td>□ double lumen (5fr)</td>
<td>30934</td>
</tr>
<tr>
<td>□ triple lumen (6fr)</td>
<td></td>
</tr>
</tbody>
</table>

Utilization of a catheter insertion checklist has been shown to reduce the incidence of Central Line associated blood stream infections (CLABSI)
Patient Label

SASKATOON HEALTH REGION
Saskatoon, Saskatchewan

☐ RUH  ☐ SCH  ☐ SPH  Other _________

CENTRAL VENOUS CATHETER RECORD
Page 1 of 2

Date: ____________________________     Time: _______________     Unit line placed: ________________________

Procedure:  ☐ New line     ☐ Rewire

Site:         ☐ Right  ☐ Left  ☐ Internal jugular  ☐ Subclavian  ☐ Femoral

PROCEDURE NOTE

Type of line:  ☐ Triple lumen 7Fr x 16 cm     ☐ Triple lumen 7Fr x 20 cm
☐ Triple lumen 7Fr x 20 cm  ☐ Percutaneous Sheath Introducer 8.5Fr
☐ Hemodialysis catheter  ☐ Single lumen
☐ Double lumen
☐ Other _________________________________________________________________________

Conditions:  ☐ Ultrasound guidance     ☐ Local anesthetic
☐ Chlorhexidine based prep     ☐ Trendelenberg position

Maximal barriers:  ☐ Hat, mask, sterile gown and gloves  ☐ Full body drape

POST-PROCEDURE NOTE

☐ CXR reviewed     ☐ Pneumothorax     ☐ Hematoma     ☐ Bleeding     ☐ Arterial puncture

Time spent performing procedure: ________________ minutes

Observed by:

Assisted by:

Inserted by:  ___________________________________________  Signature

DOCUMENT AT TIME OF REMOVAL

CVC removed: ____________________________  ____________________________  Signature

Date/Time     Signature

Reason for removal:

Form #103405    09/2017    Category: Progress Notes
Utilization of a catheter insertion checklist has been shown to reduce the incidence of Central Line Associated Blood Stream Infections (CLABSI).

Assistant to complete this checklist following insertion of the line:

<table>
<thead>
<tr>
<th>Set up supplies to allow maximum barrier precautions.</th>
<th>Check on completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wash hands; Jewellery to be removed</td>
<td></td>
</tr>
<tr>
<td>2. Sterile glove and gown, mask and cap are to be worn by all personnel directly involved in the insertion procedure</td>
<td></td>
</tr>
<tr>
<td>- Circulating staff within one (1) meter of the sterile field need to wear a cap and mask</td>
<td></td>
</tr>
<tr>
<td>3. Procedural site cleansed with 2% chlorhexidine based solution</td>
<td></td>
</tr>
<tr>
<td>4. Drape in sterile fashion using a large drape</td>
<td></td>
</tr>
<tr>
<td>5. Ultrasound used to visualize vessel</td>
<td></td>
</tr>
<tr>
<td>6. Line sutured in place</td>
<td></td>
</tr>
<tr>
<td>7. Insertion site cleansed; dressing applied</td>
<td></td>
</tr>
<tr>
<td>8. Lumens flushed/locked</td>
<td></td>
</tr>
<tr>
<td>9. Chest x-ray following insertion</td>
<td></td>
</tr>
</tbody>
</table>

Please provide a copy of Page 2 to the unit manager following insertion.