



Policies & Procedures

Title: **CENTRAL VENOUS CATHETERS
INSERTION – ASSISTING**

LPN / RN: Entry Level Competency

I.D. Number: **1073**

Authorization

- Pharmacy Nursing Committee
- MAC Motion #:
- Former SHtHR Nursing Practice Committee

Source: Nursing

Cross Index:

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Scope: **Former SKtHR Acute Care**

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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*

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 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

Association for professionals in infection control and epidemiology (APIC). (2015) Guide to Preventing Central Line Associated Bloodstream Infections.

https://apic.org/Resource_/TinyMceFileManager/2015/APIC_CLABSI_WEB.pdf

Bernier, P. et al. (2009) Getting Started Kit: Prevent Central Line Infections, How to Guide. Institute for Healthcare Improvement – *Safer Healthcare Now!* Campaign

Marschall, J., Mermel, L., Fakhri, M., Hadaway, L., Kallen, A., O'Grady, N., . . . Yokoe, D. (2014). Strategies to Prevent Central Line–Associated Bloodstream Infections in Acute Care Hospitals: 2014 Update. *Infection Control and Hospital Epidemiology*, 35(7), 753-771. doi:10.1017/S0950268814000001.

O'Grady et al. (May 2011). Guidelines for prevention of catheter-related infections. *Clinical Infectious Diseases*, 52(9), 162-69.

CVC insertion Bundle

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)

Maximal
Barrier
precautions

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

Triple lumen 7Fr x 16cm	SKU # 88617
Triple lumen 7Fr x 20cm	SKU # 83383
Percutaneous Sheath Introducer 8.5Fr	SKU # 62403
Hemodialysis catheter	
<input type="checkbox"/> 11.5Fr x 13.5cm	SKU # 63056
<input type="checkbox"/> 11.5Fr x 19.5cm	SKU # 46797
<input type="checkbox"/> 13.5Fr x 24cm	SKU # 200538
<input type="checkbox"/> PICC: _____	
<input type="checkbox"/> single lumen (4fr)	SKU # 30932
<input type="checkbox"/> double lumen (5fr)	SKU # 30934
<input type="checkbox"/> triple lumen (6fr)	
Other	

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

SASKATOON HEALTH REGION

Saskatoon, Saskatchewan

RUH SCH SPH Other _____

Patient Label

NAME: _____

HSN: _____

D.O.B.: _____

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 PICC _____
 Triple lumen 7Fr x 20 cm Single lumen
 Percutaneous Sheath Introducer 8.5Fr Double lumen
 Hemodialysis catheter Triple lumen
 11.5Fr x 13.5 cm 11.5Fr x 19.5 cm 13.5Fr x 24 cm
 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:	_____	_____
	Date/Time	Signature
Reason for removal:		

CENTRAL VENOUS CATHETER RECORD

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CENTRAL VENOUS CATHETER – INSERTION CHECKLIST

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:

Set up supplies to allow maximum barrier precautions.	Check on completion
1. Wash hands; Jewellery to be removed	<input type="checkbox"/>
2. Sterile glove and gown, mask and cap are to be worn by all personnel directly involved in the insertion procedure <ul style="list-style-type: none">• Circulating staff within one (1) meter of the sterile field need to wear a cap and mask	<input type="checkbox"/>
3. Procedural site cleansed with 2% chlorhexidine based solution	<input type="checkbox"/>
4. Drape in sterile fashion using a large drape	<input type="checkbox"/>
5. Ultrasound used to visualize vessel	<input type="checkbox"/>
6. Line sutured in place	<input type="checkbox"/>
7. Insertion site cleansed; dressing applied	<input type="checkbox"/>
8. Lumens flushed/locked	<input type="checkbox"/>
9. Chest x-ray following insertion	<input type="checkbox"/>

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