

CENTRAL VENOUS ACCESS DEVICE (CVAD) LEARNING WORKBOOK

Level One Skills: General Care and Use



Nursing Education

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Central Venous Access Device (CVAD) Workbook

INTRODUCTION

The CVAD Workbook is intended to provide the nurse with background information necessary to understand the care of patients with Central Venous Access Device (CVAD) at the Alberta Children's Hospital. The learning workbook is intended to complement the information provided in the [Provincial Clinical Care Topic – Vascular Access Device Infusion Therapy, Adults and Pediatric](#).

LEARNING GOALS

On completion of the CVAD Workbook, the learner will be able to:

1. Discuss the standards for care and use of CVAD related to all aspects of Level One catheter care including:

- Infection prevention and control practices
- Understanding of the rationale for the recommendation of the central line placement and the methods of insertion
- Confirmation of tip placement
- Assessment of the CVAD catheter/skin junction
- Needleless Connector replacement
- Dressing of the catheter/skin junction
- Administration of medications and solutions
- Flushing and locking
- Accessing the port of an implanted CVAD
- Obtaining blood specimens
- Patient and family education
- Troubleshooting, complications and emergency situations
- General understanding of CVAD device and can identify a damaged or occluded CVAD line.
- General understanding of Central Line Associated Bloodstream Infection (CLABSI), Hospital Acquired Condition (HAC) and Safest Together Kamishibai Cards (KCARD).

TARGET AUDIENCE

Registered Nurses, License Practical Nurses and Graduate Nurses who are seeking qualification in the Specialized Clinical Competency of CVAD catheter care. Nursing students under direct supervision of their preceptor and who has received appropriate training.

SPECIALIZED CLINICAL COMPETENCIES

Specialized Clinical Competencies are those restricted activities (as defined under the Health Professions Act) that demand preparation beyond entry level practice taught in nursing educational programs. Competence to perform these activities must be acquired through successful completion of additional education (generally specific, work-place sponsored learning programs).

The care and the use of CVAD is a Specialized Clinical Competency for Registered Nurses and Licensed Practical Nurses at the Alberta Children's Hospital. The Scope of Practice for VAD

Interventions is located in the [Provincial Clinical Care Topic – Vascular Access Device Infusion Therapy, Adults and Pediatric](#).

Qualification is required to perform Specialized Clinical Competencies. At the Alberta Children's Hospital RNs and LPNs become qualified by completing educational programs (such as this one for CVAD).

QUALIFICATION

Qualification in CVAD care requires the following:

- Thoroughly review the content in the workbook and complete the workbook.
- Demonstrate competence in applicable Level One CVAD skills to a qualified Clinical Nurse Educator (CNE) (or designate) in a skills lab or clinical setting (under direct supervision) using standardized performance skills checklists.

MAINTAINING COMPETENCE

It is the responsibility of the individual nurse to ensure competence with CVAD catheter care as per their unit requirements. Nurses are encouraged to independently review the CVAD workbook as necessary, or repeat portions of the entire educational program, as negotiated with their Unit Manager/Clinical Nurse Educator.

TRANSFER OF COMPETENCE

CVAD qualified nurses who transfer within the Alberta Health Services-Calgary Area from one clinical area to another should review CVAD care specific to the new setting. Please discuss the expectation with the Unit Manager and or Clinical Nurse Educator in your area.

LEARNING RESOURCES

To complete the workbook the learner should review the:

[Provincial Clinical Care Topic – Vascular Access Device Infusion Therapy, Adults and Pediatric](#).

[Central Line-Associated Bloodstream Infection \(CLABSI\)](#)

[Safest Together](#)

For additional references:

Canadian Vascular Access and Infusion Therapy Guidelines 2019

INS Standards 2016

Special Interest Group: [Association of Vascular Access, Best Practice Guidelines in the Care and Maintenance of Pediatric Central Venous Catheter, second edition](#).

WORKBOOK

Please review [Provincial Clinical Care Topic – Vascular Access Device Infusion Therapy, Adults and Pediatric](#) and the [Central Line-Associated Bloodstream Infection \(CLABSI\) Safest Together Website](#) and answer the following questions:

PRE-INSERTION

1. Please provide 3 reasons for CVAD insertion
2. Optimal position for the tip of a central venous catheter is:
3. Name three common veins of the anatomy associated with central venous access devices.
4. What nursing responsibilities should be considered prior to CVAD insertion?
5. What action **MUST** be taken to prevent air entry into the non-valved catheter prior to changing the injection cap?

INSERTION

1. Direct percutaneous central venous catheters are for short-term, emergency, and inpatient use only. True / False
2. Access to an implanted CVAD requires a special needle called:
3. What must the nurse review prior to a CVADs initial use? What exception is there to this requirement?

4. For a patient in hospital, a nurse must assess the catheter/skin junction every _____ hours for the first _____ hours after the CVAD has been inserted.
5. If a patient is admitted with a CVAD insitu, what actions must be taken prior to use?
6. Outside the hemodialysis or apheresis programs, under what circumstances can a hemodialysis or apheresis catheter be accessed? Who should be contacted if the line is accessed?
7. Pediatric nurses can insert CVAD True / False

MAINTENANCE

1. What 4 CVAD interventions require the use of a mask and sterile gloves, in addition to hand hygiene?
2. What are the three components of a CVAD site assessment?
3. When is a needleless connector replaced?
4. What assessment would indicate the need to change a dressing from transparent to gauze?
5. What action must be done initially when accessing a catheter locked with any solution other than normal saline or low dose heparin?
6. What specimen should be collected PRIOR to any flush or discard?

7. What is an important action that helps prevent occlusion of a CVAD after blood specimens have been obtained?
8. Scenario: You have a patient with a Cook TPN Double Lumen, size 6 french, catheter and needs a flush and lock post medication administration. Referring to the information provided on the [Pediatric Common CVAD Device and Volumes](#) CCT document, what is the minimum flush solution volume (blue lumen) that you would use to flush the catheter line? What is the locking solution, concentration and the volume (ml) you would use to lock the CVAD line?

ONE-PAGE REFERENCE TOOL

1. Name the solution that is typically used for flushing the following types of CVADs:
Non-valved: _____ Valved: _____
2. What specimen should be collected PRIOR to any flush or discard?

TROUBLESHOOTING AND COMPLICATIONS

1. List 5 preventative measures to take to avoid air embolism:
2. If the CVAD tip is inserted into the right atrium, what signs and symptoms may be noticed?
3. What actions should be taken if blood has backed up in the CVAD?
4. The measurement of the external portion of the PICC has increased from 4 cm to 10 cm (1.6 to 4 inches). What action should be taken?

5. What are the signs and symptoms of a CVAD catheter infection? Local Infection & Systemic Infection

6. What steps should be taken for occlusion management?

7. What are the signs and symptoms of CVAD Occlusions?

REMOVAL

1. List two indications for removal of a CVAD.

2. Please list at least four risks related to CVAD removal:

3. When may a nurse remove a CVAD?

PATIENT AND FAMILY EDUCATION

1. What 3 nursing actions would you do when discharging or transferring your patient to:
 - Another health care facility

 - Community setting

 - Home with self-care

2. List 4 topics that are essential when teaching the patient or caregiver to care for the patient's CVAD.

3. Which skills are included in the Safe Standards of Practice Demonstration?

4. What techniques are key to help evaluate the competence of the patient/family or caregiver in caring for a patient with a CVAD?

5. What key teaching information should the nurse document on the patient's health record?

