PRACTICE STANDARD

Section 3 Clinical Practice Standards, Standard 3.32: Blood Sample Collection.
IH Clinical Transfusion Practices Manual for pre-transfusion blood sample collection

SPECIAL CONSIDERATIONS

Ensure the sample is packaged according to Lab protocols and received in the Lab in a timely manner to avoid compromised specimen.

The most accurate results are from fresh venipuncture sites and prior to infusion therapy with newly inserted VAD:

- Venous access devices (VADs) may be appropriate for blood sample collection following a risk benefit assessment of client specific circumstances, e.g., when there is an anticipated shortage of venipuncture sites, frequent samples required and client expresses considerable anxiety regarding venipuncture;
- When individual patients request the sample be drawn from an existing VAD, the nurse should evaluate the risks and benefits and inform the patient.
- It is not recommended that the same lumen be used for infusing medication and subsequent lab draws for medication levels due to the risk of inaccurate results.
- VAD samples shall be avoided when the sample is for coagulation studies when the thrombolytic is being administered through the same lumen;

Refer to Standard 3.32: Blood Sample Collection

Refer to IH Clinical Transfusion Practices manual for pre-transfusion blood collection procedure.

Staff taking samples on request from RCMP for legal evidence of blood alcohol levels must follow strict IH protocols AL0300.

Refer to the Venous Blood Collection Order of Draw chart when information is needed on the type of tube to be used, the number of times it is to be inverted or when more than one specimen is required.

DEFINITIONS AND ABBREVIATIONS

Refer to: Section 2 Definitions and Abbreviations
EQUIPMENT

Protocols and guidelines

- IH Lab Services: [Venous Blood Collection Order of Draw chart](#)
- **Appendix B3**: IH Guidelines for Collection of Cultures for Suspected CRBSI
- [Pre-transfusion Blood Sample Collection](#) procedure and supplies PRN
- Blood Alcohol level protocols forms and supplies. IH Administrative Policy [AL0300](#) PRN
- **Appendix A4**: IH Vascular Access Device Care and Maintenance Protocol chart

Supplies

- Vacutainers (blood tubes) per Venous Blood Collection Order of Draw chart
- 70% Alcohol Pad(s)

**Exception:** Providone-Iodine swab if drawing Blood Alcohol Sample

- Clean gloves
- Personal Protective Equipment (PRN) – e.g. gloves, mask, gown, eye shield
- Blood sample labels as per IH lab protocols and test-specific protocols, e.g. blood alcohol or pre-transfusion testing. (labels must be applied at the bedside)
- Two (2) 10 to 12mL pre-filled sterile 0.9% NaCl syringes (for flushes)
- Sterile needleless cap PRN
- Pre-filled syringe of Heparin 100 units / mL prn (if open-ended VAD)
- Equipment for access:

**Syringe method:**

- Empty 10 -12mL syringes for discard & sample collection (number of syringes is dependant on sample volume.)
- Blood Transfer device

**Vacutainer method**

- BC Vacutainer® LuerLok™ access device
- Extra blood collection tube for initial discard sample
PROCEDURE

1. Verify orders/protocols.

2. Determine appropriateness of drawing the sample from VAD versus from a fresh venipuncture.

RATIONALE

The most accurate results are from fresh venipuncture sites and prior to infusion therapy with newly inserted VAD.

4 Fr or larger PVAD-midline can be used for blood sample collection:
- when a client is in an anti-coagulated state following administration of thrombolytics;
- when there is an anticipated shortage of venipuncture sites.

Refer to Standard 3.32: Blood Sample Collection

Refer to Special Considerations above when blood is being drawn for therapeutic drug levels of coagulation studies.

3. Identify type of VAD and whether it is non-valved or valved.

Locking protocols differ for non-valved and valved catheters.

Refer to Appendix A4: Vascular Access Device Care and Maintenance Protocol chart

4. Coordinate blood sampling with lab personnel, if applicable.

5. Collect equipment.

- For pre-transfusion samples supplies refer to pre-transfusion sample procedures
- For Blood alcohol sampling refer to Blood Alcohol policy AL0300 prn
- If sample is required for investigation of catheter related blood stream infections (CRBSI), refer to Appendix B3: Guidelines for Collection of Cultures for Suspected CRBSI

6. Verify client identity by using at least two identifiers.

Positive client identification must be established prior to drawing blood samples.

Refer to Standard 3.3: Client Identification
4.1.2 D PVAD MIDLINE CATHETER: BLOOD COLLECTION

If patient identity is unknown, refer to IH policy: AH1500.

Neither identifier may be the client’s room number. (INS, 2006, pg S18)
- Refer to IH Clinical Transfusion Practices manual for pre-transfusion procedures, identification and banding.

7. Perform hand hygiene.

8. Apply clean gloves.

9. Don personal protective equipment PRN (gloves, mask, gown, eye shield).

10. Turn off continuous infusions through all lumens of the VAD for a minimum of 1 minute prior to blood collection, if applicable.

11. Disconnect the administration set from the lumen used for blood collection.

12. Vigorously cleanse the client’s needleless cap with 70% alcohol pad, for at least 15 to 30 seconds, and allow to air dry.

**Exception:** Use povidone-iodine swab instead of alcohol if drawing Blood Alcohol Sample.

13. Obtain blood sample by method A or B below:

**A. Syringe Method:**
   i. Determine the sequence of draw when obtaining multiple specimens.
   ii. Luer-lock an empty 10-12mL syringe onto the client’s needleless cap.
   iii. Gently pull back on plunger, pausing for 1-2 seconds, until 3mL of blood is obtained. Discard this sample (unless a blood culture is ordered).

When obtaining multiple samples, draw the samples in appropriate sequence in accordance with IH lab protocol: Venous Blood Collection Order of Draw chart.

If an EPPV is attached, the clamping sequence will vary from a neutral displacement cap. Contact your educator or designate for more information.
iv. Luer-lock another empty 10 - 12mL syringe onto needleless cap.

v. Aspirate gently to obtain required blood sample(s).

vi. Give the syringe(s) with blood sample to the lab personnel in attendance or, using the blood transfer device, luer lock the syringe onto the transfer device and transfer the blood sample into the appropriate vacutainers.

vii. Gently invert the vacutainer.

Troubleshooting Tip: If blood aspiration is difficult, consider using a smaller syringe to aspirate blood sample. A smaller syringe creates less pressure upon aspiration but exerts more pressure when instilling. (Caution: always use a 10mL syringe when instilling solution into a Midline catheter)

Refer to Appendix B1: PVAD Complications
Refer to Appendix A5: Troubleshooting Potential CVAD Complications

Follow Venous Blood Collection Order of Draw chart for the volume of blood required for specific blood samples.

Note: Caps of Vacutainers intended for blood culture must be cleansed with 70% alcohol and allowed to dry prior to use.

Gentle handling of blood sample to maintain integrity of the sample; e.g., prevent hemolysis. Invert to mix additive.

When obtaining multiple samples, draw the samples in appropriate sequence in accordance with IH lab protocol: Venous Blood Collection Order of Draw chart
14. Label the blood samples before leaving the bedside according to lab protocols. Unequivocal identification of lab sample with the client’s unique identifiers is required: Client’s first and last name, date of birth, and the date and time of sample collection plus any specific criteria per lab protocols.

- For pre-transfusion samples refer to on Pre-Transfusion Sample procedures
- For Blood Alcohol level samples refer to AL0300

15. **Flush:**

Using a turbulent flush technique, flush needleless cap with a minimum of 20 mL of 0.9% NaCl until housing is clear of visible blood.

Refer to Procedure 4.1.2C: Midline Flushing and Locking

Refer to Standard 3.13: Needleless cap

One Link needleless cap provides neutral displacement. If blood is present, repeat flush and replace needleless cap.

If an EPPV is attached, the clamping sequence will vary from a neutral displacement cap. Contact your educator or designate for more information.

Use two (2) pre-filled 0.9% NaCl syringes.

The larger volume of saline and the turbulence helps prevent blood and fibrin build-up on the inner surface of the VAD.

Residual blood in the valve will increase the risk of blood stream infection.
16. **Lock:**

   **A. Non-valved catheter**
   
   Ensure excess Heparin solution is discarded from pre-filled syringe prior to instillation.

   Using a 10 – 12mL syringe, instill 3mL of Heparin 100 units / mL (300 units total).

   **B. Valved catheter**
   
   Remove syringe from needleless cap. (Heparin not routinely required).

   For more detail see [Procedure 4.1.2C: Midline Flushing and Locking procedure](#) and [Appendix A4: IH Venous Access Device Care and Maintenance Protocols chart](#).

   If an EPPV is attached, the clamping sequence will vary from a neutral displacement cap. Contact your educator or designate for more information.

   Discard excess Heparin prior to use to ensure accuracy of dose. Heparin pre-filled syringes are single-use items.

17. Restart IV infusion as ordered.


   Refer to Documentation Considerations below.

**DOCUMENTATION CONSIDERATIONS**

- When the sample is from a VAD, ensure the type of VAD is identified on the lab requisition and on the chart to assist with trending of results
- Date and time sample drawn
- Volume of blood discard and blood sample
- Ease of blood aspiration & flush
- Type, concentration, and volume of flush/lock solution
- Concern/complications identified
- Change of needleless cap if applicable
- Blood alcohol refer to [AL0300](#)
- Refer to test-specific documentation requirements, (e.g.; when the sample is for pre-transfusion testing, blood cultures, medications therapeutic levels etc.)

**REFERENCES**

*Refer to: Reference Section*

Disclaimer: The procedure steps may not depict actual sequence of events. Patient/Client/Resident specifics must be considered in applying Interior Health Clinical Practice Decision Support Tools.