

Venipuncture – Central Zone

Applicability This document applies to all Central Zone personnel of AHS Laboratory Services and laboratories administered under the Covenant Health Group and United Church collectively referred to here as Laboratory Services.

Purpose This procedure provides instruction for collecting patient blood samples by venipuncture, according to the current standard of care for phlebotomy as established by the Clinical and Laboratory Standards Institute (CLSI). When proper techniques for blood specimen collection are followed, the risks of preanalytic errors and injury to patients and/or employees are reduced.

Materials

- Laboratory Requisition/Sample Labels
- 70% isopropyl alcohol swabs or other skin disinfectant
- Gauze pads
- Latex free tourniquet – single use
- Latex free bandage or tape
- Latex free gloves
- Other personal protective equipment as required
- Sharps container
- Safety needles of various gauges and lengths
- Tube holder adapters
- Safety winged collection sets
- Sterile syringes of various sizes
- Safety transfer device
- Collection tubes of various types and sizes
- Stock collection areas and trays/carts with sufficient quantities in a manner that protects the integrity of the items and provides easy access. Monitor expiration dates of supplies as appropriate.
- An assortment of venipuncture supplies and equipment should be within reach when drawing blood samples. Ensure the integrity and quality of all supplies and equipment is adequate before use.
- Dropped items should not be used on a patient even if sterility has not been compromised due to the perception of contamination by the patient. These items should be discarded.
- Due to the undersides of phlebotomy trays carrying a host of bacteria, avoid placing them directly on inpatient surfaces such as bedside trays and night stands. Never place a phlebotomy tray on the patient's bed.

Sample Requirements

- Refer to the appropriate Guide to Lab Services or Lab Manual for the amount of blood, type of tube additive and any other special instructions required for the ordered tests.

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Safety

- Employee Exposure – Immediately report an accidental needle stick or exposure to blood or body fluids to a supervisor. Use the information in the red folder labeled “Post-Exposure Management of Blood/Body Fluids” supplied by Workplace Health and Safety.
- Disposal of Equipment:
 - Gauze pads, tourniquets, gloves – into normal waste containers.
 - All needles/sharps – into sharps container.
 - Partially filled/broken collection tubes/vials – discard in biohazard container.
- Refer to appropriate Safety Manual.

Procedure

- Approaching the patient

Step	Details	
1.	Knock on the patient's door before entering their room.	
2.	If the curtain is pulled ask permission to enter to avoid embarrassing the patient.	
	If the patient	Then
	<ul style="list-style-type: none"> • Is occupied (using bedpan, urinal, etc.) • Is sleeping or sedated. 	<ul style="list-style-type: none"> • Offer to return at a later time if the order for lab work is not urgent. • Attempt to wake the patient.
3.	Identify yourself using NOD (Name, Occupation, Duty).	
	If the patient	Then
	<ul style="list-style-type: none"> • Asks questions about the procedure or the nature of the tests ordered. 	<ul style="list-style-type: none"> • Laboratory personnel are required to tell the patient what tests are being collected if the patient asks. • If the patient wants to know why a particular test is being done, refer them to their physician. DO NOT try to interpret the order. The physician should be the one to explain his/her reasons for testing to the patient.
	<ul style="list-style-type: none"> • Demonstrates apprehension about the procedure. 	<ul style="list-style-type: none"> • Reassure the patient by explaining the steps.
	<ul style="list-style-type: none"> • Is needle phobic. 	<ul style="list-style-type: none"> • Respond with compassion and appropriate pain intervention strategies.
	<ul style="list-style-type: none"> • Refuses the procedure. 	<ul style="list-style-type: none"> • Make a reasonable attempt to explain the importance of the test to the patient's care.
<ul style="list-style-type: none"> • Is not persuaded to consent to the procedure. 	<ul style="list-style-type: none"> • Honor the patient's refusal and notify the caregiver. • Pediatric Patients: Determine whether it is best for the parent to leave or remain in the room and ask them to comply. Refer to Job Aid D – The Top Ten Things To Do During Pediatric Venipuncture. 	

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<ul style="list-style-type: none"> Is violent/psychiatric patients. 	<ul style="list-style-type: none"> Ask for assistance, do not attempt to calm violent patients by yourself.
<ul style="list-style-type: none"> Has tremors, is unconscious or unresponsive. 	<ul style="list-style-type: none"> Recruit a suitable person to hold the patient's arm. The patient may still have a pain reflex and may struggle or move suddenly.

- Identify the Patient
 - Refer to *PROC.1310 - Patient Identification*.
- Collection Requirements
 - Certain laboratory tests require specific patient conditions to be met (i.e. fasting, time of medication dosing, recumbent positioning, etc.). Time of collection requirements and dietary restrictions vary according to the test and must be followed to ensure accurate test results.

Step	Details	
1.	Verify that the patient meets the specified requirements for the test(s) ordered.	
	If	Then
	<ul style="list-style-type: none"> The patient meets the requirements. 	<ul style="list-style-type: none"> Proceed with the collection.
	<ul style="list-style-type: none"> The patient does not meet the requirements. 	<ul style="list-style-type: none"> Notify the appropriate caregiver and explain the situation. Reschedule the test. Arrange for cancellation of the test and/or follow up collection.

- Observe Standard Precautions

Step	Details	
1.	All phlebotomists will wash their hands/use hand sanitizer and apply gloves before performing a venipuncture.	
2.	Exercise Standard Precautions.	
	If	Then
	<ul style="list-style-type: none"> The patient is on isolation. 	<ul style="list-style-type: none"> Follow the posted isolation instructions. Take only collection supplies necessary to obtain the sample into the room. In some cases these supplies must remain in the room or be discarded.
3.	Remove gloves when the venipuncture, labeling of samples and disposal of waste is completed.	
4.	Wash hands.	

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- Patient Positioning
 - To ensure patient safety, perform the venipuncture with the patient seated in an appropriate chair. Inpatients should not be drawn sitting on the side of their beds.

Step	Details	
1.	If	Then
	<ul style="list-style-type: none"> • Drawing the patient in a seated position. 	<ul style="list-style-type: none"> • Ask the patient to sit in a chair with arms to ensure support and prevent falls, should the patient lose consciousness. • Have the patient position their arm on the armrest.
	<ul style="list-style-type: none"> • Drawing the patient in a reclined position. 	<ul style="list-style-type: none"> • Ask the patient to lie on their back. • Place a pillow under the patient's arm if additional support is needed.
	<ul style="list-style-type: none"> • Performing a venipuncture on a child under one year of age. 	<ul style="list-style-type: none"> • Micropuncture is recommended from birth to 1 year. • 1 to 6 years – Two people must be present during the procedure, one to collect and one to hold. The second person may be lab personnel, a nurse or family member. • 6 to 12 years – One person may perform the collection alone, but if in doubt, request assistance. • Pediatric patients should be collected lying down when possible or sitting in a parent's lap depending on the situation. Older children may request to sit alone in the collection chair. • Refer to Job Aid C – Maximum Blood Draw Guidelines for Pediatric Patients.
2.	Have the patient extend their arm, forming a straight line from the shoulder to the wrist.	
3.	Ask the patient to remove any foreign objects (i.e. food, gum) from their mouth.	
	Note: It is critical that the patient is never out of the view of the collector while under their care. Should the patient lose consciousness, the collector must be prepared to protect the patient from injury. Do not turn away from the patient after removing the needle to label specimens or perform other tasks as this fails to fully protect the fainting patient from possible injury.	

- Site Selection
 - The antecubital area is the area of choice for venipunctures because this site contains several large veins that are often close to the skin's surface. However, many factors must be taken into consideration when selecting a vein for venipuncture.

Step	Details	
1.	Evaluate the patient.	
	If the patient	Then
	<ul style="list-style-type: none"> • Requires restraint. 	<ul style="list-style-type: none"> • Consider drawing from a site that is easier to immobilize. With the antecubital area in the joint of the arm, it may be difficult to stabilize.

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<ul style="list-style-type: none"> Exhibits edema. 	<ul style="list-style-type: none"> Whenever possible avoid drawing from an arm with edema. Swelling makes locating veins more difficult, can prolong healing and closure of the puncture site and result in specimen contamination with tissue fluids.
<ul style="list-style-type: none"> Has had a prior mastectomy. 	<ul style="list-style-type: none"> Do not collect the sample from the arm on the same side as the mastectomy. Punctures to the arm on the same side are not permitted without physician approval (requires signed Unusual Phlebotomy Form to be completed) because the blood collected will contain higher levels of lymphocytes and waste products. Punctures to the same side as a mastectomy also place the patient at risk for long-term pain and infection.
<ul style="list-style-type: none"> Has injuries to the arm (i.e. burns, scars, infection, etc.). 	<ul style="list-style-type: none"> Whenever possible avoid draws from the affected arm. Select an alternative site.
<ul style="list-style-type: none"> Is unable to hyperextend the arm (i.e. stroke patient). 	<ul style="list-style-type: none"> Avoid draws from the affected arm. Select an alternative site.
<ul style="list-style-type: none"> Lacks veins that are visible and/or palpable in either antecubital area. 	<ul style="list-style-type: none"> Select an alternative site.

- Skin puncture is recommended as an alternative collection method, where appropriate, when venous access is not readily available.
- Indwelling Lines, Locks and Vascular Access Devices (VADs)
 - Blood specimens obtained from indwelling lines or VADs can be compromised by hemolysis, contamination or dilution due to improper collection techniques (i.e. inadequate flushing of the collection site, etc.). Nurses or physicians must collect blood specimens in these situations. Lab staff may be asked to be in attendance to ensure the correct labeling with the Transfusion Medicine Wristband Identification System (TMID) system is done. Record details of the device used for subsequent entering of comments into the LIS system (i.e. blood drawn from an arterial line).

NOTE: Nursing procedures vary according to the particular line in terms of volumes that must be flushed prior to collection.

- Vein Selection
 - For site selection Guidelines in order of preference refer to Job Aid B.

Step	Details
1.	Apply a tourniquet 3-4 inches above the bend of the arm. Ensure that the tourniquet does not roll up and remains flat against the circumference of the arm. Create a loop in the tourniquet to provide for an easy one handed release.

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	If	Then
	<ul style="list-style-type: none"> The patient has a skin problem. 	<ul style="list-style-type: none"> Apply the tourniquet over the patient's clothing so that the skin is not pinched.
2.	Instruct the patient to make a fist, do not allow them to pump their hand as it may elevate some analytes.	
3.	Identify the most prominent of acceptable veins in the antecubital area visually and by palpitation. Attempt to locate the median veins first.	
	If	Then
	<ul style="list-style-type: none"> A median or cephalic vein cannot be located. 	<ul style="list-style-type: none"> Consider the basilic vein <u>only</u> when no other vein is more prominent in either arm.
	<ul style="list-style-type: none"> The basilic vein is selected. 	<ul style="list-style-type: none"> Locate the brachial artery and <u>only</u> attempt the puncture if confident the artery will be avoided.
	<ul style="list-style-type: none"> Locating the vein takes more than one minute. 	<ul style="list-style-type: none"> Release the tourniquet and allow the blood to circulate through the arm for two minutes. Reapply the tourniquet and perform the puncture.
4.	Select and assemble equipment appropriate to the vein and patient variables. Keep all supplies, including a sharps container, within reach. Winged collection sets should only be used when a straight needle and vacutainer system is not a suitable choice, such as small veins in infants, small children, difficult adult veins (i.e. hand or foot veins) and blood culture collection.	
	If	Then
	<ul style="list-style-type: none"> Equipment is ready and assembled. 	<ul style="list-style-type: none"> The tourniquet can remain tightened as long as finding the most acceptable vein, cleansing the site and accessing the vein take no longer than one minute.

- Proper Tourniquet Use
 - Studies show that if a tourniquet is left on longer than one minute, results can be altered due to the effects of hemoconcentration. It is preferable to release the tourniquet immediately upon accessing the vein. If it is anticipated that releasing the tourniquet before all tubes are filled will result in an incomplete collection, the collector must make a professional judgment on which outcome will have the lesser impact on the patient and act accordingly.
 - Ionized calcium and lactate must be collected without a tourniquet.** If you need to use a tourniquet to locate a vein, once the vein has been located, remove the tourniquet and wait at least two minutes before collecting the specimen. Pediatric specimen must be collected by venipuncture, microcollections are not acceptable for these tests.
- Cleansing the Site

Step	Details	
1.	Cleanse the site with 70% isopropyl alcohol or an alcohol prep pad.	
	If	Then
	<ul style="list-style-type: none"> The patient's arm requires excessive cleansing. 	<ul style="list-style-type: none"> Repeat the process several times.

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2.	Allow the area to air dry. Excess alcohol can hemolyze the sample and create a burning sensation felt by the patient when the skin is punctured. Blowing or fanning on the site is not recommended.	
	If	Then
	<ul style="list-style-type: none"> Blood cultures are ordered A blood alcohol for medical purposes is ordered Lab personnel do collect blood alcohol levels for legal purposes. 	<ul style="list-style-type: none"> Refer to PROC.1150 - Blood Culture Collection. Do not use alcohol based cleansers when drawing blood alcohol samples. Use soap and water to cleanse the site or hibitane. If for legal purposes it should be a separate venipuncture.
	<ul style="list-style-type: none"> The vein's location is lost and repalpation is required. 	<ul style="list-style-type: none"> Recleanse the site.

- Performing the Puncture

- Tube Holder Method:

Step	Details	
1.	Place the first tube, stopper end first, into the tube holder without advancing it fully onto the interior needle. Ensure the tube is placed in a manner to allow the view of blood flow.	
2.	Remove the sheath from the needle.	
3.	Grasp the holder with the fingertips, placing the thumb on top and two or three fingers underneath.	
4.	Rest the backs of the fingers firmly on the patient's forearm so that the bevel of the needle faces up and lies just off the skin at the intended puncture site.	
5.	Anchor the vein. Using the thumb of the free hand, stretch the skin by pulling downward on the arm from below the intended puncture site.	
6.	Inform the patient of the imminent puncture. <u>Note:</u> Do not assume the patient is prepared for the puncture. A verbal warning should be given, even if the patient appears unconscious or sedated.	
7.	Guide the needle into the skin and vein with a steady, forward motion at an angle of 30° or less.	
8.	Using the flanges of the tube holder, advance the collection tube fully forward so that the interior needle punctures the stopper of the tube. Keep the needle assembly as stable as possible in the vein.	
9.	Loosen the tourniquet with the free hand once blood begins to flow (refer to Proper Tourniquet Use).	
	If	Then
	<ul style="list-style-type: none"> A hematoma develops. 	<ul style="list-style-type: none"> The needle is only partially penetrating the vein, allowing blood to leak into the soft tissue. Discontinue the procedure, apply pressure to the site and try again in an alternate site.
<ul style="list-style-type: none"> Blood is not obtained. 	<ul style="list-style-type: none"> The tube may have lost its vacuum. The needle may be improperly positioned in the vein. The vein may be too small for the needle gauge used or a vacuum assisted draw. 	
10.	Allow the tube to fill to its stated capacity.	
11.	Remove the filled tube from the tube holder, ensuring the needle is not pulled out of the vein when the tube stopper is unseated from the interior needle in the vacutainer holder.	
12.	Gently invert the tubes as appropriate. Refer to Job Aid A – Order of Draw for mixing instructions.	

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	If	Then
	<ul style="list-style-type: none"> More tubes are required. 	<ul style="list-style-type: none"> Insert, fill, remove and mix tubes following the proper order of draw. Refer to Job Aid A – Order of Draw.
13.	Instruct the patient to unclench their fist.	
14.	Release the tourniquet if still in place.	
15.	Lay a gauze pad lightly on the insertion point without applying pressure.	
16.	Withdraw the needle, immediately activating the device's safety feature according to manufacturer's instructions.	
17.	Apply pressure to the puncture site.	
18.	Discard the activated device in a sharps container.	
19.	Using an alcohol swab, wipe away any excess blood from the top of the tube(s)	

- Winged Collection Set (Butterfly) Method:

NOTE: Always attach a vacutainer holder or syringe to the winged collection set.

Step	Details				
1.	<ul style="list-style-type: none"> Peel back the packaging at the arrow so the back end of the winged set is exposed. Grasp the rear barrel of the wing set and remove from package, being careful to avoid activating the button. 				
2.	<ul style="list-style-type: none"> Attach a vacutainer holder or syringe to the winged set. If a syringe is being used, unseat the plunger from the barrel by pulling back on the syringe to break the seal. Return the plunger fully forward, expelling all the air from the barrel. 				
3.	Remove the sheath from the needle.				
4.	Prepare to access the vein. <ul style="list-style-type: none"> Grasp the wings of the set so that the bevel faces up and squeeze them together with the thumb and index finger. The body of the device may be held instead of the wings if preferred. 				
5.	Anchor the vein. Using the thumb of the free hand, stretch the skin by pulling downward on the arm from below the intended puncture site.				
6.	Inform the patient of the imminent puncture. <u>Note:</u> Do not assume the patient is prepared for the puncture. A verbal warning should be given, even if the patient appears unconscious or sedated.				
7.	Guide the needle into the skin and vein with a steady, forward motion at an angle of 30° or less. Proper access to the vein will be indicated by the presence of a flash of blood directly behind and below the button.				
8.	Loosen the tourniquet with the free hand once the blood begins to flow (refer Proper Tourniquet Use).				
	<table border="1"> <thead> <tr> <th>If</th> <th>Then</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> A hematoma develops. </td> <td> <ul style="list-style-type: none"> The needle is only partially penetrating the vein, allowing blood to leak into the soft tissue. Discontinue the procedure, apply pressure to the site and try again in an alternate site. </td> </tr> </tbody> </table>	If	Then	<ul style="list-style-type: none"> A hematoma develops. 	<ul style="list-style-type: none"> The needle is only partially penetrating the vein, allowing blood to leak into the soft tissue. Discontinue the procedure, apply pressure to the site and try again in an alternate site.
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	<ul style="list-style-type: none"> Blood is not obtained. 	<ul style="list-style-type: none"> The needle may be improperly positioned in the vein. The pulling pressure may be excessive, causing the needle's bevel to adhere to the upper wall of the vein.
9.	If Using a Tube Holder	
	<ul style="list-style-type: none"> Push the tube onto the attached holder. Allow tube to fill to its stated capacity. Remove the filled tube from the tube holder. Gently invert the tube as appropriate. If additional tubes are required, insert, fill, remove and mix tubes following the proper order of draw. Instruct the patient to unclench their fist. Release the tourniquet, if still applied. Place a gauze pad on the venipuncture site without applying pressure. Allow the gauze to cover the front of the winged set barrel. Press the button to activate the safety device which withdraws the needle from the patient's arm. Refer to manufacturer's instructions. Apply pressure to the puncture site. Discard the activated device and tube holder into a sharps container. Using an alcohol swab, wipe away any excess blood from the top of the tube(s) 	
	If	Then
	<ul style="list-style-type: none"> Drawing Blood Cultures The first tube to be drawn is a Light Blue Top (Sodium Citrate) or Black Top for ESR. 	<ul style="list-style-type: none"> Refer to PROC.1150 Blood Culture Collection A discard tube must be drawn to prevent the air in the tubing from causing the tube to be under filled. The discard tube should be the same as the tube being collected for analysis.
10.	If Using a Syringe	
	<ul style="list-style-type: none"> Pull the plunger back slowly to withdraw the blood keeping the needle in place during the collection. <u>Note</u>: Excessive pulling pressure may collapse the vein and/or hemolyze the specimen. Allow the syringe to fill. Instruct the patient to unclench their fist. Release the tourniquet, if still applied. Place a gauze pad on the venipuncture site without applying pressure. Allow the gauze to cover the front of the winged set barrel. Press the button to withdraw the needle from the patient's arm and activate the safety device. Refer to manufacturer's instructions. Apply pressure to the puncture site. Remove the winged set from the syringe and replace it with a safety transfer device. Discard the activated wing set. Fill the tube(s) to their stated volumes, following Job Aid A Proper Order of Draw. Gently invert tubes as appropriate. Discard the syringe. Using an alcohol swab, wipe away any excess blood from the top of the tube(s). 	

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- Post Puncture Care

Step	Details	
1.	Apply firm pressure to the puncture site for at least 5 minutes using a gauze pad until bleeding has stopped. <u>Note:</u> Bending the patient's arm up is not an adequate substitute for pressure. http://insite.albertahealthservices.ca/9966.asp	
	If The Patient	Then
	• Offers to apply pressure.	• Allow cooperative, able patients to assist.
2.	Lift gauze and observe the puncture site for 5 to 10 seconds for superficial bleeding and any mounding or raising of the surrounding tissue.	
	If	Then
	• Bleeding has not ceased.	• Reapply pressure for 1 to 2 minutes and re-examine the site. • Repeat the process until the bleeding has stopped.
	• Bleeding persists longer than 5 minutes.	• Continue to apply pressure and notify the nurse or healthcare provider.
3.	Apply a bandage or gauze with tape to the puncture site once the bleeding has stopped.	
4.	Instruct the patient to leave the bandage/tape in place for at least 15 minutes.	
	If The Patient	Then
	• Is under 2 years of age.	• Bandaging the site is not recommended.
5.	Instruct patient.	• To carry items with the opposite arm for at least 2 hours after blood collection. • Avoid lifting heavy objects for at least 2 hours after collection. • Avoid activities that ay put stress on the puncture site.

- Labeling

- It is imperative that specimens be properly and permanently labeled at the time of collection at the patient's side. Under no circumstances should specimen tubes be labeled before they are filled.
- Refer to PROC.1320 - Sample Labeling for detailed instructions.

- Dismissing/Leaving the Patient

- Always keep the patient in site until they are dismissed from your care. Patients who faint during or after the procedure may sustain serious injury.

Step	Details	
1.	Evaluate the patient for signs of dizziness, nausea, hyperventilation, perspiration, pallor, etc.	
	If The Patient	Then
	• There is any indication the patient did not tolerate the procedure well.	• Do not release the patient from your care until the signs and symptoms subside.

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2.	For inpatients, ensure the room is returned to its previous arrangement.	
	If	Then
	<ul style="list-style-type: none"> Bedside trays, chairs, wastebaskets, bedside rails, etc. were moved. 	<ul style="list-style-type: none"> Return items to their original positions for the convenience and safety of the patient.
3.	Thank and dismiss/leave the patient.	
4.	Discard gloves and other waste in appropriate receptacles.	
5.	Wash hands.	
6.	Transport, process and test samples according to institutional policy.	

- Patient Complications

- Follow policy when responding to a patient who demonstrates any adverse reaction or complication to the procedure. Call for assistance, as necessary, without leaving the patient's side.

Step	Details	
1.	If The Patient	Then
	<ul style="list-style-type: none"> Faints or becomes unresponsive. 	<ul style="list-style-type: none"> Discontinue the venipuncture immediately, apply pressure to the site. Call for assistance from coworkers or other healthcare professionals. Lower the patient to the floor with assistance, supporting the head as required. Lay patient on their side and apply a cold cloth to forehead or back of neck. Monitor for vomiting or convulsions, seek medical assistance if needed. Follow on site protocol. These incidents must be entered into the RLS system.
	<ul style="list-style-type: none"> Experiences nausea. 	<ul style="list-style-type: none"> Make the patient as comfortable as possible. Ask the patient to take slow, deep breaths. Follow on site protocol.
	<ul style="list-style-type: none"> Vomits. 	<ul style="list-style-type: none"> Give the patient a basin or garbage can. Provide the patient with tissues. Offer the patient water. Follow on site protocol.
	<ul style="list-style-type: none"> Has convulsions which may be triggered by a venipuncture. Symptoms include loss of color, eye rolling or body stiffening. 	<ul style="list-style-type: none"> Immediately discontinue the venipuncture. If required, lower the patient gently to the floor to protect them from hurting themselves. Do not restrain a convulsing patient. Protect their head. Call for medical assistance and monitor the patient. Follow on site protocol. Place the patient on their side to avoid aspiration. Never leave the patient unattended. These incidents must be entered into the RLS system.

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	<ul style="list-style-type: none"> Experience a shooting, electrical pain sensation, tingling or numbness during the procedure. 	<ul style="list-style-type: none"> A nerve may have been hit. Immediately remove the needle and repeat the procedure on an alternative site.
	If	Then
	<ul style="list-style-type: none"> An accidental arterial puncture is suspected. 	<ul style="list-style-type: none"> Remove the needle immediately. Apply direct, firm pressure for a minimum of 5 minutes until bleeding has stopped. Notify the nurse or healthcare provider. Consult with the testing lab to determine suitability of suspected arterial specimen. Recollect sample if required.
	<ul style="list-style-type: none"> Patient has latex allergies. 	<ul style="list-style-type: none"> Ensure latex free supplies are used.
2.	The Unusual Phlebotomy Form may be used to document any unusual event. Use the RLS system to document any non conforming events.	

- Minimum Fill Requirements

- Blood collection tubes with additives are manufactured with carefully calculated quantities of anticoagulants to ensure that a completely filled tube will be effectively anticoagulated. Under filling these tubes disrupts the proper blood to anticoagulant ratio, which dilutes the specimens and/or causes excessive anticoagulation, both of which contributes to erroneous results. Follow manufacturer's instructions for proper tube filling. Blood collection tubes without additives may be filled to a level that will provide sufficient serum to perform the requested tests.
- For lithium heparin tubes:
 - If it is not possible to fill to the draw capacity, collect to the fill capacity based on the patient (minimum 25% of draw capacity; exception 100% of draw capacity for all samples tested on the iSTAT).
 - Routine short collections for lithium heparin tubes are unacceptable.

Step	Details	
1.	Fill all tubes to their stated capacity.	
	If	Then
	<ul style="list-style-type: none"> A low volume draw is expected (i.e. difficult veins) A low volume draw is necessary (i.e. infants, children, geriatrics). 	<ul style="list-style-type: none"> Use lower volume "pediatric tubes" to maintain optimum blood to additive ratio. <p><u>Note:</u> Do not combine the contents of under filled additive tubes, even if the tubes are of the same type.</p>

- Unsuccessful Venipunctures

Step	Details	
1.	If	Then
	<ul style="list-style-type: none"> You anticipate the needle has advanced too far. 	<ul style="list-style-type: none"> Slowly withdraw the needle until you perceive to be within the vein. Attempt to establish a blood flow.

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<ul style="list-style-type: none"> You anticipate the needle has not advanced far enough. 	<ul style="list-style-type: none"> Anchor the vein and slowly advance the needle until you perceive to be within the vein. Attempt to establish a blood flow.
<ul style="list-style-type: none"> You are in the area of the basilic vein. 	<ul style="list-style-type: none"> Lateral (side to side) needle relocation should not be attempted.
<ul style="list-style-type: none"> It is suspected the tube has lost its vacuum. 	<ul style="list-style-type: none"> Place a new tube on the vacutainer holder.
<ul style="list-style-type: none"> The vein is too small for the needle gauge used or a vacuum assisted draw. 	<ul style="list-style-type: none"> Use a smaller gauge needle. Use a winged set (butterfly) and syringe.

- Number of Venipunctures

- A phlebotomist may perform two venipunctures on the patient to obtain blood samples. If the phlebotomist feels there is a reasonable probability of obtaining a sample, a third attempt may be tried, or recruit another qualified lab staff member to perform the repeat collection. If there is no reasonable probability of obtaining the sample, or the third attempt is unsuccessful, then inform the attending physician if an outpatient, or the attending nurse if an inpatient.

- Unusual Phlebotomy Form

- Certain phlebotomies have a higher than usual level of risk to the patient or to the specimen integrity and require appropriate documentation or notification in the LIS (Lab Information System). In cases where a signature is required by medical staff before the phlebotomy can be performed an Unusual Phlebotomy Form is used to document the approval by the medical staff. It can also be used to document unusual phlebotomy occurrences that require documentation in LIS.
- When the form is used the phlebotomist will enter the appropriate codes into the LIS on return to the lab or send with the specimen if more appropriate. The form will then be left for review by a supervisor and held for two months before discarding. Nonconforming events are to be entered into RLS as required (i.e. patient complications)
- The Unusual Phlebotomy Form (# 09761) can be ordered from AHS Central Zone Printing Service in Wetaskiwin. They come as pads (50 forms per pad). Place order on the Wetaskiwin Printing Service order form # 05511. The printing order form can be obtained by phoning Wetaskiwin Printing at 780-312-3611.

- How to use the Unusual Phlebotomy Form**

Mandatory Use of Form:	
If	Then
Patient identified by physician, nurse or other responsible adult <ul style="list-style-type: none"> Signature required. Specimen comment must be added to each accession number on return to the lab. 	<ul style="list-style-type: none"> If the patient does not have an armband, request that an armband be placed on the patient. Check this box on the form when it is necessary for a nurse/physician to identify a patient because there is no armband and/or the patient is unable to identify themselves.

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	<ul style="list-style-type: none"> Patients that are permanent residents of a facility and do not wear identification bands do not need the unusual phlebotomy form filled out (for example Long Term Care and Nursing Homes).
Blood collected from foot or ankle <ul style="list-style-type: none"> Signature required. Specimen comment must be added to each accession number on return to the lab. 	<ul style="list-style-type: none"> Should only be done after assessing sites using the Order of Preference Guidelines. Inpatients this form needs to be signed by the nurse for each collection to verify the order exists on the patients chart. Outpatients it is permissible for the permission for foot collection to accompany the requisition. For Standing Orders the permission for the foot poke is good for the length of the order up to one year. If permission is not attached, contact the physician and fax a copy of the form to be completed and returned. If the physician cannot be reached and the test is routine the patient will be recalled after the physician is contacted. If the physician cannot be reached and the test is stat ask the patient to proceed to ER.
Blood collected from area above an IV <ul style="list-style-type: none"> Signature required. Specimen comment must be added to each accession number on return to lab. 	<ul style="list-style-type: none"> Should only be done after assessing sites using the Order of Preference Guidelines. Check this box when it is necessary to collect blood from above an IV. Do not suggest this site, decision to collect from this site is solely up to the medical staff.
Other <ul style="list-style-type: none"> Signature required A free text internal comment describing the situation should be entered on one accession number on return to the lab. 	<ul style="list-style-type: none"> There will be rare and unusual circumstances where it is necessary to collect from an alternate site or perform a procedure that contradicts the accepted standards of practice. Check this box when it is necessary to collect blood in these situations. Examples: <ul style="list-style-type: none"> Physician requests blood to be drawn from the same side as a mastectomy. Physician requests blood to be drawn from the same side as a renal fistula. Physician requests greater than maximum allowable blood volume to be drawn on a pediatric patient. Patient has an unknown identity.
Optional Use of Form to aid in documentation	
If	Then
Blood drawn from antecubital area of arm above or below a lock. <ul style="list-style-type: none"> No signature required. Specimen comment must be added to each accession number on return to lab. 	<ul style="list-style-type: none"> Should only be done after assessing alternate sites using Job Aid B Site Selection Guidelines.

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<p>Blood collected below IV site after solution was shut off for 2 minutes.</p> <ul style="list-style-type: none"> No signature required. Specimen comment must be added to each accession number on return to lab. 	<ul style="list-style-type: none"> Should only be done after assessing alternate sites using <i>Job Aid B Site Selection Guidelines</i>.
<p>Other</p> <ul style="list-style-type: none"> Leave for follow up and documentation by supervisor. 	<p>Examples:</p> <ul style="list-style-type: none"> Patient faints/has a seizure during procedure. Hematoma develops during procedure. Patient experiences nerve injury – shooting, electric-like pain, tingling or numbness around the collection site.

Procedural Notes

- Thrombolytic Therapy (TPA, Streptokinase, etc) – When a patient is given thrombolytic therapy venipunctures must not be done in the first 24 hours.
- Corrected Tubes – When the hematocrit is >0.55 L/L a correction in the blood to anticoagulant ratio is required for coagulation testing (excludes D-dimer, SimpliRed). This requires the collection of a “corrected” tube as well as the regular citrate tube. Hematology will prepare the tube and notify the collector. NOTE: When the corrected tube is prepared the vacuum has been destroyed.
- Laboratory Staff do not collect:
 - Deceased patients
 - Cord blood

References

- Clinical Laboratory Standards Institute, Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard – Sixth Edition H3-A6 Vol. 27 No. 26 October 31, 2007.
- Ernst, D.J. Applied Phlebotomy. Lippincott Williams & Wilkins. 2005.
- CLSI, Procedures for the collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard – Sixth Edition GP41-A6 October 31, 2007.

Related Documents

- [PROC.1100 Job Aid A](#) - Order of Draw
- [PROC.1100 Job Aid B](#) - Site Selection Guidelines
- [PROC.1100 Job Aid C](#) - Maximum Blood Draw Guidelines for Pediatric Patients
- [PROC.1100 Job Aid D](#) - The Top Ten Things To Do During Pediatric Venipuncture
- [PROC.1100 Job Aid E](#) - Patient Instruction Sheet - Fasting

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- [PROC.1310](#) - Patient Identification
- [PROC.1320](#) - Sample Labeling
- [PROC.1130](#) - Type and Screen Sample Collection
- [PROC.1150](#) - Blood Culture Collection
- [PROC.1110](#) - Cold Technique
- [PROC.1120](#) - Pre Warm Technique
- [PROC.1330](#) - Transfusion Reaction Investigation Sample Collection

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