CONWAY MEDICAL CENTER

PROCEDURE

When in hard copy form, refer to Policy Manager to validate this as the most current revision.

TITLE:	LAB-SPC-04.00-Blood Specimen Collection By Venipuncture-PRO		
ISSUED BY:	Assistant Administrative Lab Director	REFERENCE #:	LAB-SPC-04.00-PRO
APPROVED BY:	Lab Director	EFFECTIVE DATE:	2011-11-01

SCOPE: All collectors of lab samples for submission to CMC laboratory for testing.

PROCEDURE:

I. Materials:

Stock collection areas and trays with sufficient quantities in a manner that protects the integrity of the items and provides easy access. Monitor expiration dates of supplies, as appropriate.

II. Supplies and Equipment:

70% isopropyl alcohol prep pads	Single-use Needle Protection Device
2x2 gauze sponges	Safety Butterflies
Latex-free disposable tourniquets (Single Patient use)	Sterile syringes of various sizes
Latex-free gloves	Safety transfer devices
Lab Jacket (impervious front)	Collection tubes of various types and sizes
Needles of various lengths and gauges	Laptop and printer

Healthcare personnel should have an assortment of venipuncture supplies and equipment within reach when drawing blood specimens. To ensure the integrity and quality of all supplies and equipment before use. Dropped items should not be used on a patient even if sterility has not been compromised, due to the perception of contamination to the patient. The undersides of phlebotomy trays carry a host of bacteria; avoid placing phlebotomy trays on inpatient surfaces such as bedside trays and nightstands. Never place a phlebotomy tray on the patient's bed.

III. Approaching the Patient:

Follow the activities below to properly approach hospitalized patients. For outpatients, follow the same procedure beginning with Step 3.

Step	Action	
1.	Knock on the patient's door before entering his/her room.	
2.	Ask Permission to enter if the curtain is pulled, as to not embarrass the patient	
	If the patient	**Then**

	• Is occupied (using the bedpan, urinal, etc	• Offer to return at a later time if the order for lab work is not urgent
	• Is sleeping	• Attempt to rouse the patient
3.	Identify yourself and state your purpose	
4.	Use Proper Hand Hygiene	
5.	Put on gloves	
	If the patient	**Then**
	• Asks question about the procedure	• Answer briefly in layman's terms.
	• Requires additional clarification about the nature of the tests ordered	• Suggest the patient refer to the nurse or ordering physician for more information
	• Demonstrates apprehension about the procedure	• Reassure the patient, through explanation of the steps
	• Is needle phobic	• Respond with compassion and appropriate pain intervention strategies
	• Withdraws consent of refuses the procedure	• Make a reasonable attempt to explain its importance to the patient's care.
	• Is not persuaded to consent to the procedure	• Honor the patient's refusal and notify the patient's nurse-document refusal in the computer
	•	•

IV. Identifying Inpatients

Step	Action
1	Ask the patient to state his/her full name and date of birth while checking patient armband. Scan armband with barcode scanner. **Note:** Ask the patient his/her name in the following manner: *"Could your tell me*

	your name and DOB, please?" Asking the patient to simply affirm their name: *"Are you John Smith?"* is not acceptable.	
	If the patient	**Then**
	• If unconscious, or unable to respond or does not speak the language	• Ask patient's nurse or family to verify the patient's identity. Compare the information with computer and arm bracelet. Document the name of the verifier.
	• Does not have an arm bracelet attached to their arm	• Do not proceed until ID bracelet has been placed on the arm.
		• Do not proceed. Notify the patient's nurse and delay collection until proper identification has been affixed. **Note:** If the ID bracelet is not attached to the patient, it is invalid and cannot be used as a reliable source of identification.
2	Resolve all discrepancies in patient identification prior to collection.	
3	Proceed with sample collection only when patient identification is properly verified.	

V. Collection Requirements:

Certain laboratory tests require specific patient conditions to be met (e.g., fasting, time of medication dosing, recumbent positioning, etc). Time of collection requirements and diet restrictions vary according to the test and must be followed to ensure accurate test results.

Step	**Action**	
1	Verify that the patient meets the specified requirements for the test(s) ordered.	
	If	**Then**

	• The patient does not meet the conditions required	• Inpatient-contact the patient's nurse • Outpatient-contact Dr. office

VI. Patient Positioning:

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

Step	**Action**	
	If	**Then**
	• Drawing the patient in a seated position	• Ask the patient to sit in a chair with arms to ensure support and prevent falls. Have the patient position his/her arm on the armrest.
	• Drawing the patient in a reclining position	• Ask the patient to lie on his/her back. Place a pillow under the patient's arm if additional support is needed.
	• Performing a venipuncture on a child under one year of age	• For infants or small children, have a second individual, such as a parent, hold the arm of the child firmly so that the arm will not jerk suddenly when the needle is inserted into the vein.
2.	Have the patient extend his/her 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 the mouth	
	Note: It is critical that the patient is never out of the view of the collector while under his/her 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, etc., as this fails to fully protect the	

	fainting patient from an injury.

VII. 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 before selecting a vein from the antecubital area for venipuncture.

Step	Action	
1	**Evaluate the patient**	
	If the patient	**Then**
	• Requires restraint	• 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
	• Exhibits edema	• Avoid drawing from an arm with edema. Swelling makes locating veins more difficult, this can prolong healing and closure of the puncture site, and result in specimen contamination with tissue fluids.
	• Has had a prior mastectomy	• 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 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.
	• Have injuries to the arm (i.e., burns, scars, infection, inflammation, etc.)	• Avoid draws from the affected arms. Select an alternative site.
	• Is unable to hyperextend the arm (i.e., stroke patients)	• Avoid draws from the affected arm. Select an alternative site.
	• Lack veins that are visible and/or palpable in either antecubital	• Select an alternative site
	• Is receiving IV fluids	• Avoid draws from the same arm being infused, if possible
	• Has a fistula	• Do not draw from the affected arm. Selected an alternative site.
	• Has a indwelling line, lock or VAD	• Refer to section entitle *"Indwelling Lines, Locks, and Vascular Access Devices (VADs)".*

If any of these conditions preclude the use of the antecubital area, an alternative site should be considered such as the dorsal side (back of the hand or the lateral (thumb) side of the wrist. The anterior (palm) side of the wrist should not be considered due to the close proximity of nerves and tendons to the skin's surface. Feet and ankle vein collections are not to be attempted. When venous access if not readily available, skin puncture is recommended as an alternative collection method, where appropriate. **Note:** Arterial punctures are not to be considered an alternative to venipuncture.

VIII. Vein Selection:

Generally, the median veins are the veins of choice because they are:

- Typically the closest to the skin's surface;
- The most stationary, making a successful puncture more probable;

- Less painful to the patient;
- Associated with the least degree or risk to underlying structures;

Step	Action	
1.	Apply the tourniquet 3-4 inches above the bend of the arm. Ensure that the tourniquet does not roll up, but remains flat against the circumference of the arm. Create a loop in the tourniquet to provide for an easy one-handed release.	
	If	**Then**
	• The patient has a skin problem	• Apply the tourniquet over the patient's clothing or gauze so that the skin is not pinched.
	• A blood pressure cuff is used in place of a tourniquet	• Inflate it to 40 mmHg or below the patient's diastolic blood pressure
2	Instruct the patient to make a fist but discourage hand pumping as it can elevate some analytes.	
3.	Identify the most prominent of acceptable veins in the antecubital area (median, cephalic and basilic) visually and by palpation. Attempt to locate the median veins first.	
	If	**Then**
	• A median vein or cephalic vein cannot be located	• Consider the basilic vein only when no other vein is more prominent in either arm.
	• The basilic vein is selected	• Locate the brachial artery and only attempt the puncture if confident the artery will be avoided.
	• Locating the vein takes more than one minute	• 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 within reach.	
	If	**Then**
	• Equipment is already assembled	• The tourniquet can remain tightened as long as finding the most accurate vein, cleansing the site and accessing the vein take no longer than one minute.

IX. Veinpunctures and IV Infusion:

Fluids infusing in the hand, wrist, or forearm can corrupt blood specimens collected from the antecubital area of that arm. Drawing from the same arm as infusing fluids should be avoided when possible. Only when there is no alternative and the tests are critical to patient care should blood be drawn from a limb being infused. Skin punctures is recommended as an alternative collection method, where appropriate, when venous access is not readily available. **Note: Due to the risk of specimen contamination, collection above an IV is discouraged in the standards and should only be considered when all other options are exhausted, if at all.**

Step	**Action**	
1	**If**	**Then**
	• Drawing **below** (distal to) an IV site	• Ask the patient's nurse to turn off the IV for a minimum of two minutes before venipuncture. Apply the tourniquet between the IV and the intended puncture site, and perform the venipuncture
	• Drawing above (proximal to) an IV site that is below the antecubital fossa	• Ask the patient's nurse to turn off the IV for a minimum of two minutes before venipuncture. Apply the tourniquet 3 to 4 inches above the antecubital fossa, and

		perform the venipuncture
2	Identify specimens as being drawn distal or proximal to an active IV site. This information must be documented in computer	
	Note: Some test recommend drawing a discard blood volume of 5 ml prior to collecting a blood sample from the same arm as receiving infusing fluids, but the CLSI standards do not**.**	

X. Indwelling Lines, Locks, and Vascular Access Devices (VADs):

Blood specimens obtained from indwelling lines or VADs can be compromised by hemolysis and/ or heparin contamination due to improper collection techniques (i.e., inadequated flushing of the collection site, etc.). **The phlebotomy staff is not permitted to draw from VADS.**

XI. 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 therefore to release the tourniquet immediately upon accessing the vein. However, 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. Tourniquets are single patient use.

XII. **Observe Standard Precautions**:

Step	**Action**	
1	Put on gloves prior to cleansing the venipuncture site.	
2	Exercise Standard Precautions	
	If	**Then**
	• The patient is on isolation	• Follow CMC isolation Policy

XIII. Cleansing the Site:

Step	**Action**	
1	Cleanse the site with 70% isopropyl alcohol prep pad	
	If	**Then**
	• The patient's arm requires excessive cleansing	• Repeat the process with several alcohol pads.

2	Allow the area to air dry or wipe to dry. Excess alcohol can hemolyze the sample and create a burning sensation felt by the patient when the skin in punctured. Blowing on the site is not recommended.	
	If	**Then**
	• Blood cultures are ordered	• Clean the site using a Chlorascrub Swabstick
	• Blood alcohol is ordered	• Use a non-alcohol base product to cleanse the site. Cleanse site with (Povidone-Iodine, soap and water)
	• The vein's location is lost and repalpation is necessary	• Recleanse the site.

XIV. Performing the Puncture:

A. <u>Tube Holder Method:</u>

Step	Action	
1	Place the first tube, stopper-end first, into the tube holder without advancing it fully onto the interior needle.	
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	Inform the patient of the imminent puncture. **<u>Note:</u>** Do not assume that the patient is prepared for the puncture. A verbal warning should be given, even if the patient appears unconscious or sedated.	
6	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.	
7	Guide the needle into the skin and vein with a steady, forward motion at an angle of 30 degrees or less.	
8	Advance the collection tube fully forward so that the interior needle punctures the stopper of the tube, using the flanges of the tube holder. Keep the needle assembly as stable as possible in the vein.	
9	Loosen the tourniquet with the free hand once blood begins to flow.	
	If	**Then**

	• Blood is not obtained	• The tube may have lost its vacuum. • The needles 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 stopper is unseated from the interior needle.	
12	Gently invert tubes that contain an additive 5-10 times.	
	If	**Then**
	• More tubes are required.	Apply, fill, remove and mix tubes, following the proper order of draw *(see Table 1: Order of Draw).*
13	Instruct the patient to unclench his/her fist.	
14	Release the tourniquet, if still applied.	
15	Lay a gauze sponge lightly on the insertion point without applying pressure.	
16	Withdraw the needle, immediately activating the device's safety feature.	
17	Apply pressure to the puncture site.	
18	Discard the activated device in a sharps container without disassembling from the tube holder.	

B. Syringe Method:

Step	**Action**
1	Unseat the plunger from the barrel by pulling back on it to break the seal, then return the plunger fully forward, expelling all air from the barrel.
2	Peel blister pouch open half way. (Do not touch needle protector.) Grasp sheath using the plastic peel pouch. To protect contamination, be careful not to touch the Needle-Pro device's Luer connector.
3	With an easy twisting motion, attach syringe to the Luer connection of the Needle-Pro device
4	Adjust Needle-Pro sheath away from needle-bevel by turning the needle sheath to desired position.
5	Seat the needle firmly on the Needle-Pro device with a push and a slight twist.
6	Pull sheath straight away from needle. *DO NOT TWIST* sheath as needle may be

	loosened from Needle-Pro device.	
7	Grasp the syringe at the fingertips with the thumb on top and two or three fingers underneath. **Note:** The plunger must remain accessible so it can be withdrawn without hindrance, and the barrel of the syringe in view throughout the collection.	
8	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.	
9	Inform the patient of the imminent puncture. **Note:** Do not assume that the patient is prepared for the puncture. A verbal warning should be given, even if the patient appears unconscious or sedated.	
10	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.	
11	Guide the needle into the skin and vein with a steady, forward motion at an angle of 30 degrees or less. **Note:** A flash of blood may appear in the hub of the needle. However, absence of a flash of blood should not be misinterpreted as an indication that the vein has not been accessed.	
12	Loosen the tourniquet with the free hand once blood begins to flow.	
	If	**Then**
	• Blood is not obtained	• The needle may be improperly positioned in the vein • The pulling pressure is excessive, causing the needle's bevel to adhere to the upper wall of the vein.
13	Pull the plunger back slowly to withdraw the blood, keeping the needle in place during collection. **Note:** Excessive pulling pressure may collapse the vein and/or hemolyze the specimen.	
14	Allow the syringe to fill	
15	Instruct the patient to unclench his/her fist.	
16	Release the tourniquet, if still applied.	
17	Lay a gauze pad lightly on the insertion point without apply pressure.	
18	Withdraw the needle, immediately press the needle into the sheath using a one-handed technique. Perform a one-handed technique by gently pressing the sheath against a flat surface. *As the sheath is pressed the need is firmly engaged into the sheath.*	
19	Replace the needle with a safety transfer device and dispose of the contaminated needle into biohazard sharps container.	
20	Apply pressure to the puncture site.	

21	Fill tube(s) to their stated volume, following the proper order of draw.
22	Gently invert tubes that contain an additive 5-10 times.

C. Winged Collection Set (Butterfly) Method:

Step	Action	
1	If a syringe is coupled to the set, unseat the plunger from the barrel by pulling back on it to break the seal, and the return the plunger fully forward, expelling all air from the barrel.	
2	Remove the sheath from the needle.	
3	Grasp the wings of the set so that the bevel faces up, and squeeze them together with the thumb and index finger. **Note:** The plunger must remain accessible so it can be withdrawn without hindrance, and the barrel of the syringe in view throughout the collection.	
4	Rest the backs of the fingers firmly on the patient's forearm so that the needle rests level with the plane of the arm and lies just off the skin at the intended puncture site.	
5	Inform the patient of the imminent puncture. **Note:** Do not assume that the patient is prepared for the puncture. A verbal warning should be given, even if the patient appears unconscious or sedated.	
6	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.	
7	Guide the needle into the skin and vein with a steady, forward motion at an agle of 30 degrees or less. Note: A flash of blood may appear in the hub of the needle. However, absence of a flash of blood should not be misinterpreted as an indication that the vein has not bee accessed.	
8.	Loosen the tourniquet with the free hand once blood begins to flow.	
	If	**Then**
	• Blood is not obtained	• 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	Pull the plunger back to withdraw the blood, keeping the needle in place during the draw.	
10	Allow the syringe to fill.	
11	Instruct the patient to unclench his/her fist.	

12	Release the tourniquet, if still applied.	
13	Lay a gauze pad lightly on the insertion point without applying pressure.	
14	Withdraw the needle, immediately press the needle into the sheath using a one-handed technique. Perform a one-handed technique by gently pressing the sheath against a flat surface. *As the sheath is pressed the need is firmly engaged into the sheath.*	
15	Apply pressure to the puncture site.	
16	Replace the needle with a safety transfer device	
17	Fill tube(s) to their stated volume, following the proper order of draw.	
18	Gently invert tubes that contain an additive 5-10 times	
18.a	**If**	**Then**
	• Drawing through a tube holder	• Push the tube into the attached holder; **Note:** Never use a winged collection (butterfly) set directly fill evacuated tubes without a tube holder. • Allow the tube to fill to its stated capacity; • Remove the filled tube from the tube holder; • Gently invert additive tubes 5-10 time.
	If	**Then**
	• More tubes are required	• Apply, fill, remove and mix tubes, following the proper order of draw
	• A sodium citrate is the first or only tube drawn using a winged collection (butterfly) set	• A discard tube is recommended to prevent the air in the tubing from causing the tube to be underfilled.
19	Instruct the patient to unclench his/her fist.	
20	Release the tourniquet, if still applied.	
21	Lay a gauze pad lightly on the insertion point without applying pressure.	

22	Withdraw the needle, immediately activating the device's safety feature.
23	Apply pressure to the puncture site.
24	Discard the activated device in a biohazard sharps container without disassembling from the tube holder.

XV. Post Puncture Care:

Step	**Action**	
1	Apply firm pressure to the puncture site using a clean gauze pad until bleeding has stopped.	
	If the patient	**Then**
	• Offers to apply pressure	• Cooperative patients may be allowed to assist.
2	Lift gauze and observe the puncture site for 5 t0 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 site. • Repeat the process until bleeding has stopped
	• A hematoma develops	• Notify the patient's nurse if not available notify charge nurse
	• Bleeding persists longer than 5 minutes	• Continue to apply pressure and notify patient's nurse if not available notify charge nurse
3	Bandage the puncture site, once bleeding has stopped.	
4	Instruct the patient to leave the bandage in place for at least 15 minutes	
	If the patient	**Then**
	• Is under 2 years of age	• Bandaging of the site is not recommended.

XVI. Labeling:

It is imperative that specimens be properly and permanently labeled at the time of collection. Under

no circumstances should specimen tubes be labeled before they are filled.

Step	Action
	Label the tubes collected at the patient's side. The label should provide the following information: • The patient's first and last name • DOB • Date of collection • Time of collection • Collector • Medical Record number (Blood Bank Tubes)

XVII. Dismissing/Leaving the Patient:

Never allow the patient to leave your sight until he/she is dismissed from your care. Patients who faint during or several moments after the procedure may sustain serious injury.

Step	Action	
1	Evaluate the patient for signs of dizziness, nausea, hyperventilation, perspiration, pallor, etc.	
	If	**Then**
	• There is any indication the patient did not tolerate the procedure well.	• Do not release the patient from your care until signs/symptoms subside.
2	For inpatients, take extra care to return the room to its previous arrangement.	
	If	**Then**
	• Bedside trays, chairs, wastebaskets, bedside rail, etc., were moved	• Return items to their original position 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	Discard tourniquet or put in designated tourniquet holder (patient room)	
6	Wash hands/hand sanitizer	
7	Transport specimens to lab as soon as possible	

RECORDS: NA

REFERENCE:

CLSI. Procdures for the Collection of Diagnostic Blood Specimen by Venipuncture, Approved Standard---H3-A6 Clinical and Laboratory Standards Institute, Wayne, PA.2007.

STANDARDS:

CAP GEN.40016; GEN.40032; GEN.40050; GEN.40100; COM.06000; 06100

REVISION/REVIEW HISTORY:

Date	Affected Section(s)	Summary of Changes ('Reviewed' or details of change)
11-01-2011 dlt	All Format	Replaced CAP External Procedure Guide, "So You're Going to Collect a Blood Specimen" Changed to MCN format
09-05-2012dlt	All	Added Single Tourniquet use
03-14-2013 lds	All	Reviewed by DThompson. Reformat into new MCN. No content changes
09-03-2014 dlt	All	Updated CAP Reference Standards-No content changes
2-13-2016 lp	Standards	Updated CAP reference standards-no procedural content changes
08/26/16 dlt	All	No content changes
09/19/17 lds	All	No content review. Removed references to Mobilab and Meditech
08/16/2018 dlt	Standards	Updated CAP Reference Standards-No content changes