VENIPUNCTURE

☒ St. Joseph Medical Center, Tacoma, WA	☒ St. Anthony Hospital Gig Harbor, WA	☐ Harrison Medical Center, Bremerton, WA
☒ St. Francis Hospital, Federal Way, WA	☒ St. Elizabeth Hospital Enumclaw, WA	☐ Harrison Medical Center, Silverdale, WA
☒ St. Clare Hospital Lakewood, WA	☒ Highline Medical Center Burien, WA	☒ PSC

PURPOSE

To provide instruction to safely and appropriately collect venous blood samples to be used for laboratory testing.

BACKGROUND

Phlebotomy is the process of bloodletting, the main purpose of which is to obtain blood for diagnostic testing. This is achieved by the laboratory through either venipuncture or skin puncture. Venipuncture is blood collection by penetrating a vein with a needle or other collection apparatus. Only a few veins are easily accessible to the laboratory and other medical personnel so it is important to preserve their condition and availability.

SPECIMEN REQUIREMENTS/PATIENT PREPARATION

The tests ordered by the physician determine the specimen type, quantity needed as well as any patient preparation. Care should be taken to review the test requirements prior to collection to obtain adequate amounts of the optimal specimen type and proper handling.

EQUIPMENT

- Tourniquet
- 70% alcohol prep pads
- 2x2 gauze squares
- Appropriate evacuated tubes for tests ordered
- Vacutainer or syringe
- Safety Vacutainer or syringe needles, or “butterfly”
- Gloves

RELATED DOCUMENTS

R-W-SPC0107	Venipuncture Above an IV Site
R-PO-SPC0106	Phlebotomy Collection Tube Order of Draw
Test Directory	Blood Culture Collection Information
R-W-SPC0111	Phlebotomy Adverse Reaction-Laboratory

STEPS

Hand hygiene must be performed before and after patient contact. Wash hands or use gel prior to gloving, and following glove removal.

1. Introduce yourself to the patient and explain that you are there to draw blood for the tests his/her doctor ordered (following the AIDET customer interaction protocol).

2. If the patient is awake, positively identify the patient by asking them to state their first and last name **and** date of birth then actively compare the information to two patient identifiers from the patient armband or requisition. When using a pre-printed laboratory test label or chart label, verify the patient name and date of birth with the patient armband.

   The patient's first and last name **and** date of birth are the preferred identifiers, however, a medical record number may be used as a third identifier.

3. If using an electronic handheld scanning device, scan the patient's armband. This will automatically display the orders pending for the patient on the handheld device.
   1. Compare the patient armband name and date of birth to the displayed name and date of birth on the handheld device.

   2. Select the patient orders and print the collection labels. This will accession the orders and assign a specimen ID to each specimen order.

4. Check the tests ordered against the need for patient preparation (i.e., fasting, diet restrictions, etc).

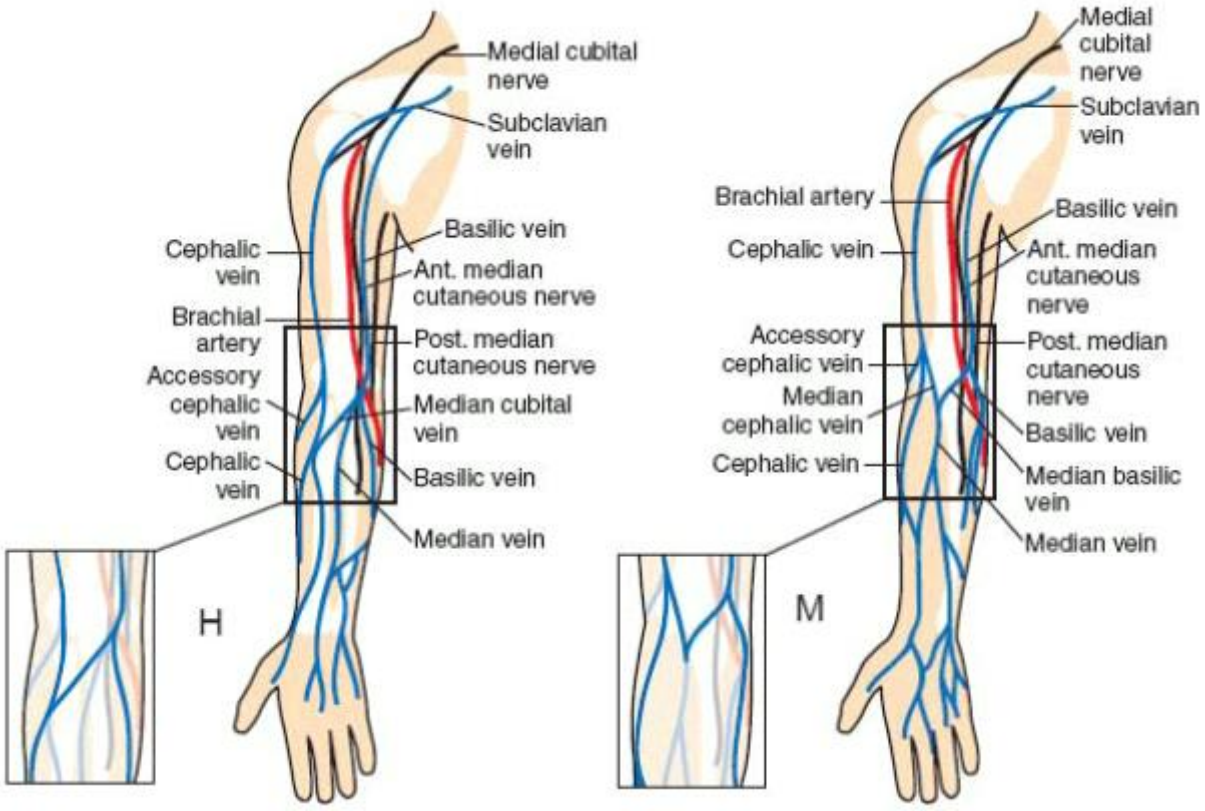
5. Explain to the patient that you need to collect a blood sample ordered by their physician. Reassure the patient or patient's family, that the venipuncture might be a little painful, but of short duration.

6. Properly position the patient in a phlebotomy chair or bed with their arm extended in a straight line from the shoulder to the wrist. Children may want to sit in their parent or guardian's lap. The phlebotomist should assess whether help will be needed to perform the venipuncture safely on the child and maximize chances of a successful blood draw.

7. Select a site for the venipuncture. Apply a tourniquet 3-4 inches above the area where you are going to feel for a vein. Do not leave the tourniquet on for longer than 1 minute. Leaving a tourniquet on for too long can cause hemoconcentration (pooling of blood) and may cause an increase in some test levels. Release the tourniquet after the site has been selected. The preferred collection sites in order of preference (best flow) are:
   - Median antecubital vein
   - Cephalic vein
   - Basilic vein

8. Antecubital vein location varies slightly from person to person; however, two basic vein distribution arrangements referred to as the "H-shaped" and "M-shaped" patterns are seen most often.
   - (The H pattern is so named because of the most prominent veins in this pattern – the cephalic, median cubital, and the basilic veins –are distributed on the arm in a way that resembles a slanted H.
   - The most prominent veins of the M pattern – the cephalic, median cephalic, and basilic veins – resemble the shape of an M.) The H-shaped pattern is seen in approximately 70% of the population.

   Refer to the figure below for a description of the superficial veins of the anterior surface of the upper extremity in both the H- and M-shaped patterns.



9. Clean the site with the alcohol prep pad using a circular motion from the center to the periphery of the venipuncture site.
   - Allow the area to air dry.
   - Do ***not*** wipe or blow on it.
   - Do ***not*** touch the area again prior to venipuncture.
10. Prepare the equipment to be used based on the site selected. Assemble the vacutainer hub and needle, needle and syringe, or butterfly. The equipment selection is determined by the quality of the vein available for use.

11. Gloves are mandatory during phlebotomy procedures. Reapply the tourniquet. Grasp the patient's arm 1-2 inches below the selected site. Pull the skin tight with your thumb to anchor the vein.
    Note: Do ***not*** ask the patient to pump his/her hand

12. Insert the needle and vacutainer assembly at approximately a 15-30 degree angle with the bevel up. Fill the tubes according to the Phlebotomy Collection Tube Order of Draw Policy.
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13. If a syringe and needle is used, pull back on the plunger gently to avoid hemolysis.

14. Release the tourniquet when you get a good flow of blood.

15. As each tube fills, invert tubes. Invert SST and serum tubes 5 times. EDTA, heparin and other additive tubes are inverted 8-10 times and sodium citrate tubes 3-4 times.

16. Once you have filled all the required tubes, place gauze over the puncture site, engage the safety mechanism and remove the needle.

17. Maintain pressure on the site (Phlebotomist or patient/parent) until the bleeding has stopped. Place a band-aid or paper tape with gauze or Coban over the site. **Remember**: A band-aid can be a choking hazard and should never be applied to children under the age of three (3). In these cases pressure is applied until bleeding has stopped.

18. Transfer the blood to the correct tubes. Use a syringe transfer device, if the sample was obtained using a syringe. Ensure all tubes were mixed.

19. Once the patient's specimens have been collected, label the tubes according to laboratory policy, at the bedside, in the presence of the patient, or before leaving the room. As a best practice you should verify the patient's identification by checking the armband or requisition to each labeled tube.

20. If using an electronic handheld device, scan each of the labeled tubes. This will record the collector identification, date of collection and time of collection.

21. Remove gloves and discard in the waste receptacle. If the gloves have been grossly contaminated with blood or other potential infectious material (OPIM), they should be disposed of in a biohazard waste container.

22. Clean the drawing area by disposing of any paper trash accumulated. (Labels with patient information are to be discarded in Confidential Shred/Recycle container). Needles must be disposed of in designated sharps containers. Any blood drops that might have occurred must be disinfected according to laboratory policy.

23. Wash/gel hands after removing gloves and prior to drawing another patient.

PROCEDURAL NOTES AND REMARKS

- Signs may be posted indicating a patient has a graft or a fistula. Do not draw blood from an arm having a graft or a fistula used for renal dialysis.
- Signs may be posted indicating a patient is scheduled for a surgical procedure involving an arm. Do not draw blood from an arm that is scheduled for a surgical procedure.
- Mastectomy – Do not collect samples from the side on which a mastectomy was performed because of the potential for complications due to lymphostasis. There may be a sign or the patient, care giver, or nurse may share this information with the phlebotomist. Consult with the physician for guidance when double mastectomies are encountered.
- Do not draw above an IV site with the IV flowing. If the IV has been turned off for 3 minutes, blood may be obtained from an arm with an IV with appropriate documentation in the Lab Information System.
- Ankle and foot veins may only be used unless there is a physician order.
- Patient's have the right to refuse. Patient refusal to be drawn will be met with gentle persuasion, but do not argue or get upset with the patient. A patient's refusal to be drawn should be reported to the physician via the patient's nurse or caregiver.
- Patients categorized as detained, do not have the legal right to refuse care and collections will be performed as ordered with assistance from clinical staff when needed to preserve staff safety.
- Children should only be held down during the venipuncture with the parent's approval.
- Difficult venipunctures: Only two attempts can be made to obtain a specimen before asking for assistance from another phlebotomist in the lab.

- See Blood Culture collection information in the Test Directory for additional skin cleansing procedures and products to be used prior to collection.
- Legal and medical alcohol collections must be performed with a non-alcohol based cleanser.
- Specimens requiring a redraw by lab personnel will be redrawn ASAP with consideration given to the priority status of the original order.
- Any adverse event related to phlebotomy must be reported by completing a Quality Form or IRIS.

PRE-ANALYTIC GUIDELINES FOR BLOOD SAMPLE COLLECTIONS FOR LAB TESTING

You should always:

1. Be vigilant over the sample volume, especially for sodium citrate tubes (light blue top). Refer to the fill line on the blue top tube which is critically dependent on sufficient blood to anticoagulant ratio.
2. Collect the sample with as little trauma as possible. Samples collected with trauma may cause false results, especially potassium. Tourniquets should be snug, but not too tight. Do not leave on for more than a minute.
3. Draw tubes in the proper order to assure tube additives do not cross contaminate samples.
4. Let your tubes sit upright for at least 30 minutes to allow for complete clotting for non-anticoagulated tubes.
5. You **should** allow adequate centrifugation time, 7 minutes, so that the plasma/serum is clear and cell free.
6. Be sure that the selected phlebotomy site is thoroughly dried before needle insertion to avoid hemolysis and/ or discomfort to the patient.

You should not:

1. Do **not** have the patient pump their hand prior to or during blood collection as this interferes with adequate sample volume into the tubes and may cause hemoconcentration (pooling of blood) and falsely elevate results.
2. If you must use a “butterfly” collection set, you must prime the line to remove air, by drawing a red top waste tube.
3. Do **not** pour blood from one tube to another – this could cause cross contamination.
4. Do **not** re-spin SST or PST tubes. Take the time to follow all centrifuge guidelines so the first spin is effective. Pour off to re-spin if needed. **Exception:** Samples can be re-spun on the automated line.

REFERENCES

CLSI H3-A4 – Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard – Sixth Edition, October 2007.