

Sanford Policy ENTERPRISE Laboratory Phlebotomy/Processing:	Venipuncture - Enterprise
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SCOPE:

Enterprise – All employees, All entities

PURPOSE

To define procedure for collection of blood specimens by venipuncture. The vast majority of laboratory testing procedures are performed on the patient's blood, as the blood levels of various substances is the best estimation of the tissue and cell content. Since the accuracy of lab testing procedures is crucial to diagnosis and treatment of the patient, the blood sample used must be drawn properly, from the correct patient, and transported to the lab in a way so as not to compromise the specimen.

MATERIALS:

The following supplies are stored according to manufacturer instructions and available when venipunctures are performed.

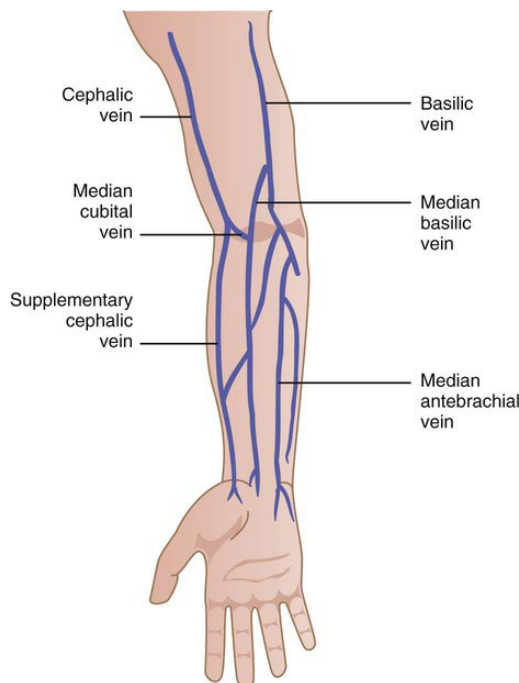
1. Tourniquet (latex-free)
2. 70% alcohol prep pads
3. 10% Povidone or Betadine, if needed for allergies or blood alcohol level
4. Gauze
5. Adhesive bandage, Coban, or paper tape
6. Single use Vacutainer holder or syringe
7. Safety Needles 21g or 22g multi-draw; or 21g, 23g or 25g syringe needle, or winged blood collection needle for difficult draws.
8. Syringe transfer device.
9. Gloves (latex-free)
10. Appropriate evacuated blood collection tubes
11. Biohazard transport bags
12. Computer label or requisition
13. Puncture resistant sharps container

PROCEDURE

NOTE: See separate/site specific policies for coagulation, blood culture and legal alcohol collection procedures.

1. Introduce yourself to patient.

2. Perform hand hygiene per policy [Hand Hygiene- Enterprise](#) and [Standard and Transmission Based Precautions \(Isolation\)- Enterprise](#) for direct patient care and potential exposure to body fluids.
3. Identify patient using 2 unique identifiers. See [Patient Identification and Wrist Band Identification- Enterprise](#) policy.
 - A. Verify patient information on bar-coded labels, requisition forms and patient ID band, if applicable.
 - B. Ask the patient or the patient's representative to state their first and last name and date of birth.
4. Verify patient's diet restrictions or required preparation, as appropriate for requested testing.
5. Explain the procedure to the patient.
 - A. Inpatients: check for the green latex allergy band, the red allergy band and any limb alert bands, if applicable.
 - B. Outpatients: Review allergies and any "FYI Flags" in outpatient settings in medical record. These flags are patient specific and may provide valuable information to the collector regarding collection of lab samples.
6. Select the vein site.



A. Factors to consider in Site Selection:

- 1) Extensive scarring: Avoid healed burned areas.
- 2) Mastectomy: Because of lymphostasis, specimens taken from side on which a mastectomy was performed may not be truly representative specimens. There is also an increased potential for infection in the mastectomy arm. In case of a double mastectomy, it is best to use the arm with oldest surgery. If both surgeries are recent, consult the provider.
- 3) Hematoma: Specimens collected from a hematoma may cause erroneous test results. If another vein site is not available, collect the specimen below the hematoma.
- 4) Infection or rash on or near puncture site. Specimens collected from an infected site may cause bacteria to be introduced into the blood stream.

- 5) Blood Transfusion: Best practice is to not obtain blood specimen during a blood transfusion. Before drawing a Timed, ASAP or STAT draw during a transfusion, check with nursing to verify the priority of the order and if it can wait until after the transfusion is complete. If ordering provider specifically requests a blood sample is to be collected during a transfusion, collect specimen from arm not being infused. See 7) below.
- 6) Shunt, Cannula, Fistula or Vascular Graft: do not use arm unless shunt is no longer functioning and after obtaining permission from provider. If patient is to have a shunt, cannula or fistula inserted, do **NOT** use antecubital vein for venipuncture. Use other arm.
- 7) Intravenous Therapy (IV)/ and other vascular access devices (VAD- PICC, Port, etc.):
 - a. Collecting blood from an arm that is being infused with IV fluid or blood products carries a potential risk for contamination.
 - b. Collect specimens from the arm without the IV/VAD. If this is not possible, draw the sample from a vein below the IV site using the following steps.
 - i. An IV must be shut off for a minimum of 2 minutes and a VAD for a minimum of 5 minutes. Have the nurse complete this step.
 - ii. A location that is below the IV/ VAD is the best option to reduce the risk of contamination. The tourniquet needs to be applied between the IV/ VAD and intended puncture site.
 - iii. If a site below is not available, a site above the IV/ VAD may be chosen. A site above the IV/VAD site is not recommended and should only be attempted when other alternatives have been exhausted.
 - iv. Once the draw is complete, inform the nurse that the IV may be turned back on.
 - c. If the IV/VAD cannot be shut off, do a capillary stick or get provider permission to collect specimens from an alternative site (see below) or have qualified person collect from alternative site.
- B. Consider IV therapy, hematoma, scarring, mastectomy, shunt/fistula/cannula as well as any other restrictions posted in the patient's room.
- C. To locate a vein, palpate and trace the path of the vein with the index finger.
 - 1) Position patients by having the arm extended to form a straight line from the shoulder to the wrist with palm facing up. You may ask patient to form fist, if possible.
 - 2) Apply tourniquet around the arm 3 to 4 inches above the venipuncture site. Tourniquet application must not exceed one minute before accessing the vein in order to prevent hemoconcentration. If a tourniquet has been in place for longer than one minute, it should be released and reapplied after two minutes, before the venipuncture is performed. Check both arms before considering an alternative.
- D. Veins on the back of the hand are also acceptable (butterfly collection or syringe only).
- E. Due to close proximity to arteries and nerves, the palm side of the wrist is not recommended for venipuncture.
- F. Alternate sites must not be used without the permission of the provider or nurse because of the potential for significant medical complications (e.g. phlebitis, thrombosis, tissue necrosis). Alternate sites include: lower extremities, using an arm with history of mastectomy, etc.
 - 1) Inpatients: If a specimen cannot be collected from either arm and a provider instructs that an alternate site can be used, a nursing communication order must be placed into OneChart with this indication. This order is applicable to the current admission.

- 2) Outpatients: If a specimen cannot be collected from either arm and a provider instructs that an alternate site can be used, they must complete [MR32687 Provider's Consent to Collect Blood from Alternative Collection Site](#). See [Provider's Consent to Collect Blood from Alternative Collection Site, Laboratory- Enterprise](#).
7. Assemble necessary supplies. Check all tubes and equipment (if applicable) for expiration.
 - A. Needles, syringes, and holders must be assembled immediately prior to specimen collection to maintain sterility. Devices assembled but not used in the collection are discarded after the collection and not used with other patients.
 - B. All needles are disposable single use devices. Once a needle has punctured and been removed from the venipuncture site it must be discarded as it is no longer sterile. Additional venipuncture attempts must be made with new needles.
8. Perform hand hygiene and don gloves.
9. Cleanse the site.
 - A. Cleanse the venipuncture site with friction using a 70% isopropyl alcohol prep pad.
 - B. Allow the site to dry completely.
 - C. Use iodine to cleanse if the patient is allergic to alcohol, or if indicated by test requirements.
10. Perform venipuncture.
 - A. Reapply tourniquet 3 to 4 inches above the venipuncture site.
 - B. Anchor vein by holding the patient's arm and drawing the skin taut below the intended puncture site.
 - C. Puncture the vein with the bevel of the needle up and at an angle of 15-30 degrees.
 - D. Using a Vacutainer system:
 - 1) Keeping the needle as stable as possible, advance tube into hub until blood begins to flow.
 - 2) Allow the tube to fill until the vacuum is exhausted and blood ceases to fill the tube.
 - 3) Release the tourniquet, as soon as blood flow is established to minimize hemoconcentration, unless it is felt that doing so would cause vein collapse.
 - 4) Remove the tube from the holder, invert tube according to chart below and insert the next tube if additional specimens are required. Follow [Laboratory Order of Draw - Enterprise](#).
 - 5) If the patient hasn't already released their fist, ask them to do so and withdraw needle from the patient's arm.
 - 6) Immediately activate the safety feature of the blood collection needle.
 - 7) Place the gauze pad over the puncture site, maintaining mild direct pressure.
 - 8) Dispose of needles and blood collection devices in sharps container.
 - E. Using a winged device or syringe and needle:

Note: If a winged blood collection set is used to draw directly into the collection tube, and a coagulation tube is the first tube needed, you must first draw a discard tube, preferably another blue top. The discard tube is drawn to prime the tubing of the collection set.

 - 1) If using a syringe, break the seal of the syringe plunger by pulling back on it and advance it completely forward prior to inserting the needle.
 - 2) Keeping the needle stable, withdraw the required amount of blood. The plunger should be pulled back gently so as not to alter the position of the needle or hemolyze the blood.
 - 3) Release the tourniquet, as soon as blood flow is established to minimize hemoconcentration, unless it is felt that doing so would cause vein collapse.

- 4) Activate the safety feature of the winged device while in the patient's arm. If using a hypodermic safety needle withdraw the needle and activate the needle shield.
NOTE: Under no circumstances should a needle be recapped, bent on purpose, broken, have the safety device removed or manipulated in any way that is not in line with the manufacturer's guidelines.
- 5) Place the gauze pad over the puncture site, maintaining mild direct pressure.
- 6) When transferring blood from syringe to blood collection tubes, remove the needle from the syringe and attach a safety transfer device. Transfer blood to vacutainer collection tubes following order of draw.
- 7) Ensure tubes are well mixed according to the chart below.
- 8) Dispose of needles, blood collection devices, transfer devices and syringes in sharps container.

Order of Draw – [Laboratory Order of Draw - Enterprise](#)

Blood Cultures	Aerobic, Anaerobic, or Pediatric bottles	Mix 8-10 times
Light blue top	Sodium Citrate	Mix 3-4 times
Serum tube – red top, gold or tiger top	No additive Gel separator	Mix 5-6 times
Dark or Light green top	Lithium or Sodium Heparin – no gel Lithium Heparin – with gel	Mix 8-10 times
Purple, lavender, or pink top	EDTA	Mix 8-10 times
Gray top	Sodium Fluoride	Mix 8-10 times
Other colors – special tubes	See specific test collection instructions	

- F. **Label tubes in the presence of the patient.** [Specimen Labeling, Laboratory- Enterprise](#)
Record time and date of collection and collector ID on tube label and requisition form, if applicable.
- G. If the patient is appropriately able to respond, show them the labeled tube/container and have them confirm their name and date of birth. If the patient is unable to confirm the name and date of birth, verify the labeled tubes a second time against the patient's armband or by other means to ensure identity following Enterprise Identification Policy.
- H. Bandage the arm, checking to ensure that bleeding has ceased. If bleeding persists longer than normal or the patient is taking an anticoagulant, the arm may need to be wrapped with gauze or self-adherent wrap and the patient is instructed to leave this on for up to one hour. Use caution to ensure that wrap is not too tight and blood flow is maintained.
- I. Handle specimens according to protocol.
- J. Remove gloves and perform hand hygiene upon leaving the room or patient.
- K. Send specimens to designated laboratories for testing. If sending via the pneumatic tube system, refer to facility policies for packing instructions.

Procedural Notes:

1. The patient or guardian has a right to refuse the collection of a blood sample. Bring the incident to the attention of the caregiver.

2. If collection is unsuccessful after two attempts, another staff member must attempt the blood collection, if possible.
3. Notify the provider, care team or nursing unit if unable to obtain blood sample.
4. Reference Test Catalog for testing requirements.
5. Any employee injury/needle stick must be reported as soon as possible. See site specific policies.
6. If a patient has questions about their lab orders, refer them to their provider.
7. Ensure if an exam bed is raised, rail is moved down or a blood pressure cuff is removed for the blood draw, to return all equipment and supplies to the state it was before entering the room.
8. For patients photographing their blood draw, please see [Photography & Video Imaging, Patient, Visitor, Workforce Member- Enterprise](#) Section: Photography By Patient/Family/Friends

Tips for Obtaining Blood When Unsuccessful:

1. Change the position of the needle, by advancing slightly or pulling back.
2. Ensure the vacutainer tube is fully advanced into the hub.
3. Try another vacutainer tube to ensure that the tube selected is not defective.
4. Loosen the tourniquet. The tourniquet may be too tight, therefore stopping the blood flow. Reapply the tourniquet loosely.

Pediatric Collections:

1. When drawing pediatric patients, it is preferable to withdraw the acceptable minimum volume for each tube.
2. The nursing unit and the attending providers will monitor total blood volumes taken on hospitalized pediatric and critically ill patients. Phlebotomists will contact the nursing units regarding blood volumes and will report the volume of blood taken when requested by the nursing units.
3. Phlebotomists will use the corresponding charts linked below in the collection of blood from pediatric patients under the age of 14 unless they have alternate instructions from the provider.
 - A. [Recommendation for Maximum Allowable Total Blood Draws in Pediatric Patients](#)
4. Secure the arm to prevent injury caused by unexpected movement when the needle enters the skin.

It may be necessary to use a 22 - 25-gauge winged blood collection set to reduce the stress exerted on the vein to prevent collapsing.

Adverse Reactions:

1. Hematoma/Excessive Bleeding
 - A. Release tourniquet and withdraw needle from patient's arm.
 - B. Apply firm pressure until bleeding has stopped, then apply bandage.
 - C. If bleeding persists for more than 5 minutes, notify caregiver.
2. Accidental arterial puncture (rapid filling of tube or rapidly forming hematoma)
 - A. Remove needle, apply direct forceful pressure for a minimum of 5 minutes or until bleeding has stopped.
 - B. Notify caregiver of possible arterial puncture.
3. Nerve injury (shooting pain, tingling, or numbness near venipuncture site)
 - A. Remove tourniquet and needle from the patient's arm.
 - B. Apply ice to the area, if needed.

- C. The sensation should be relieved shortly after removing the needle. Notify caregiver or supervisor of possible nerve injury if discomfort continues for an extended period of time.
4. Emergency Situations – Outpatients and Inpatients call for assistance per site specific procedures. At the first sign of a reaction, remove the tourniquet and withdraw needle from patient's arm. Call out loudly for assistance, if needed. DO NOT leave patient alone.
- A. Dizziness, sweating, pallor, and/or fainting
- 1) Place the patient in a position that allows the head to be at or below the heart level. Do not allow the patient to fall.
 - 2) Apply cold compresses to the forehead and back of neck.
 - 3) Wheelchair patient: support the patient's head and call for help.
 - 4) Continue to observe patient and do not allow them to leave the area until they no longer feel dizzy or faint.
 - 5) If the measures listed above do not lead to rapid recovery it may be necessary to call for additional assistance.
- B. Nausea and Vomiting
- 1) Make patient as comfortable as possible.
 - 2) Provide emesis container.
 - 3) Instruct patient to breathe deeply and slowly and apply cold compress to forehead.
 - 4) Provide patient with tissues and give them water to rinse out their mouth.
- C. Convulsions
- 1) Call for assistance.
 - 2) Lay the patient flat on their back on the floor. (If the patient is falling forward, help them to the floor. DO NOT try to lift the patient)
 - 3) Prevent the patient from injuring themselves. DO NOT restrain the movements of the patient's extremities completely but try to prevent injury.
 - 4) Patient should be evaluated by a provider or nurse prior to leaving.
- D. Fall or Accidental Injury
- 1) Notify nursing team/provider for instructions.
 - 2) Complete a SAFE event fall report.
5. If an adverse reaction occurs during the course of a venipuncture, a SAFE Event report must be completed.
- A. Adverse reactions include fainting, vomiting, convulsions, hematoma, and/or patient complaints of pain after completing of procedure.
- B. If questioning whether a SAFE event needs to be placed follow up with your supervisor.
6. If the patient frequently has adverse reactions allow patient to lay down while performing the procedure. Note this as a FYI Lab Flag in One Chart. Consult with supervisor/manager for this process.

Reference Policies:

[Patient Identification and Wrist Band Identification- Enterprise](#)

[Hand Hygiene- Enterprise](#)

[Standard and Transmission Based Precautions \(Isolation\)- Enterprise](#)

[Specimen Labeling, Laboratory- Enterprise](#)

REFERENCES

1. CLSI "Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard CLSI GP41 ED7:2017
2. CAP Standards, 10/24/2022 GEN. 40100.

3. Phlebotomy Handbook- Blood Specimen Collection from Basic To Advanced. Diana Garza, Kathleen Becan-McBride, 10th Ed.
4. Cap Press. An Introduction to Phlebotomy 15th Edition. 2017 Frederick L. Kiechle
5. Perry, A.G. and others (Eds.). (2022). *Clinical nursing skills & techniques* (10th ed.). St. Louis: Elsevier.