



Phlebotomy

Essentials of Performing Phlebotomy, Circulatory System, Blood Tests, Tools, Techniques, Equipment, Color-Coded Taps & Terminology



OVERVIEW

- **Phlebotomy** is derived from the Greek, *phlebo-* (relating to veins), and *-tomy* (relating to cutting).
- Phlebotomy (a.k.a., venipuncture) can be summarized as the puncture of a vein for blood collection or removal.
- The main purpose of phlebotomy is to obtain blood for diagnostic testing.
- It involves highly developed and rigorously tested procedures and equipment to ensure the **safety and comfort of the patient**, to guarantee the **integrity of the sample collected**, and to **minimize infectious disease transmission**.
- Phlebotomy skills and responsibilities are performed in a variety of healthcare settings, ranging from **hospital care units to home-health settings**.
- Phlebotomy practice is widely performed by all types of healthcare professionals, including:
 - Nurses
 - Respiratory therapists
 - Emergency medical technicians (EMTs)
 - Clinical laboratory professionals
- In the hospital and other settings, the person performing the venipuncture procedure is often called a **phlebotomist**.

Note: See page 6 for a **Glossary of Phlebotomy Terminology**.

HOW PHLEBOTOMY IS PERFORMED

Note: Detailed procedural steps are outlined throughout the sections of this guide.

Routine Venipuncture Procedure

- Register patient
 - Verify:
 - Full name
 - Sex
 - Date of birth
 - Full address
 - Government photo ID card
- Receive test request
 - Verify completeness of test request and match with labels
 - Resolve discrepancies before blood collection; contact responsible party for clarifications.
 - Greet and approach patient
- Introduce yourself and explain why you are there
- Assess patient's specific health conditions
- Verify availability of venipuncture supplies and equipment:
 - Syringe container
 - Tubes
 - Gloves
 - Other
 - Tourniquet
 - Needle
 - Needle adapter
- Identify patient
 - Use extra care when there is potential for confusion among patients.
 - Question patient and verify according to their ID and ability to respond.
 - Assign a temporary ID for emergencies, if needed.
- Assess pre-collection requirements
 - Obtain informed consent from patient or guardian.
 - Assess physiological factors that can affect test results (e.g., contact, tolerance tests, and therapy monitoring).
- Clean hands
- Perform appropriate hand hygiene immediately before patient contact
- Assess patient
 - Identify and address potential complications
 - Avoid latex when there is patient hypersensitivity
 - Ensure there is nothing in patient's mouth unless medically required
- Position and prepare the patient so patient is seated or recumbent with their arm extended for both safety and comfort
- Specimen collection
 - Gather supplies
 - Devices must NOT be preassembled
- Select site
 - Apply tourniquet 3-4 inches above the puncture site for no longer than one minute; a tourniquet left on too long may cause:
 - Hemoconcentration (too many blood elements in plasma)
 - Hemolysis (disintegration of red blood cells)
 - Petechiae (red spots on the skin)
 - Patient may clench and hold their fist if their veins are difficult to identify but must not pump hand
 - The best veins are in the antecubital fossa (inside of elbow); avoid the brachial artery and nerves.
 - First choice: Median aspect (center); median and lateral cubital vein
 - Second choice: Lateral aspect (outer); cephalic vein and accessory cephalic vein
 - Third choice: Medial aspect (inner); basilic vein and medial aspect of median cubital vein
 - Veins on the back of the hand are acceptable
 - Palpate the vein

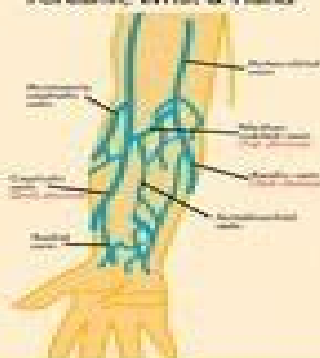
- Veins are best located by feel
- Be sure to palpate with the tourniquet on
- Veins will feel spongy, bouncy, and firm.
- Written physician permission is required for nonpreferred areas and areas on the same side as a mastectomy.
- Apply a single-use or patient-dedicated tourniquet for no longer than one minute to access vein
- If venipuncture is unsuccessful, remove the tourniquet and do not reapply for at least two minutes after tourniquet removal
- Select and assemble appropriate needle and tubes
 - If blood is to be drawn from the hand or wrist, the phlebotomist may want to consider using a winged infusion set (a.k.a. butterfly needle) with a smaller needle
 - Avoid using a traditional needle and syringe when possible
- Don gloves and keep them intact
- Cleanse venipuncture site
 - Use a clean gauze pad with 70% isopropyl alcohol and back-and-forth motion unless antiseptic blood alcohol level or there is a facility-specified disinfectant for collecting a blood culture
 - Allow skin to dry before puncturing it
- Reassess if the venipuncture site is repalpated
- Insert needle and aspirate blood
 - First examine the needle; do not use if there are defects
 - Pre-evacuate tubes if required
 - Position arm downward when possible
 - Anchor vein from below and brace the arm
 - Inform patient of needle insertion
 - Hold the needle with your dominant hand
 - Angle the needle 15-30 degrees
 - Insert the needle barrel up and advance needle for free blood flow
 - Hold the needle steady in line with the vein and stabilize the device
 - Remove the needle if there is excessive pain or withdrawal of consent
 - Allow patient to open hand unless contraindicated; do not allow hand pumping
- The tourniquet stays on no longer than one minute
 - Remove the tourniquet when blood flow has been established, usually when the first tube is being filled
- Fill and mix collection tubes
 - Fill all tubes to full volume (no vacuum)
 - Remove tube and mix recommended number of times with gentle inversion (see Color-Coded Taps for Blood Draw, p. 5, for times)
 - Add additional tubes in order of draw, as prescribed
- Remove last tube (and tourniquet if still present) before needle withdrawal

Commonly Used Abbreviations

ALP	alkaline phosphatase
ALT	alanine aminotransferase
APTT	activated partial thromboplastin time
AST	aspartate aminotransferase
BT	bleeding time
BUN	blood urea nitrogen
BUNPP	bilirubin, ureic acid, phosphorus, potassium
CBC	complete blood count
DIFF	differential
EDTA	ethylenediaminetetraacetic acid
EIA	enzyme immunoassay
ESR	erythrocyte sedimentation rate
FBS	fasting blood sugar
GTT	glucose tolerance test
HCT	hematocrit
HDL	high-density lipoprotein
Hgb	hemoglobin
INR	international normalized ratio
LDH	lactate dehydrogenase
LDL	low-density lipoprotein
MCH	mean corpuscular hemoglobin
MCHC	mean corpuscular hemoglobin concentration
MCV	mean corpuscular volume
MPV	mean platelet volume
PT	prothrombin time
PTT	partial thromboplastin time
RBC	red blood cell count
RDW	red blood cell distribution width
SPS	sodium polyanethal sulfonate
SST	serum separator tube
WBC	white blood cell/white blood count

The Phlebotomist Knows
Conditions like Raynaud's disease (constricted blood vessels) and peripheral vascular disease (PVD) can make routine venipuncture uncomfortable; check on patient conditions before beginning blood draw and learn quickly to information shared by patient.

Venipuncture Sites of Forearm, Wrist & Hand



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Elliot Spencer



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