UnityPoint Health
St. Luke's Hospital

Cedar Rapids, Iowa

Code: 7000-09
Effective date: 4/2024
Prepared by: Laboratory
Approved by: Hospital President

S T A N D A R D O P E R A T I N G P R O C E D U R E S

BLOOD COLLECTION (FOR NON-LABORATORY PERSONNEL)

PURPOSE

Various scenarios require the collection of blood samples by non-laboratory personnel. This protocol emphasizes the most critical steps in patient identification, specimen requirements, and specimen labeling. Highly sophisticated testing cannot produce a good result from a poor specimen. This is a condensed version of current laboratory policies.

POLICIES

For the safety of the phlebotomist, personal protective devices are available to guard against needle sticks and must be used when performing phlebotomy to prevent accidental injury and exposure to blood borne pathogens.

Only auto-disabling single-use finger stick devices are used for assisting monitoring of blood glucose and other point-of-care testing. These devices are designed to be used only once, after which the blade is retracted, capped or otherwise made unusable.

For more detailed information refer to the following laboratory procedures/hospital policies

- 6000-12 Patient Identification (Hospital SOP)
- S-30 Specimen Collection Procedure
- POC501_POCT Compliance Policy
- Gen103 Specimen Labeling and Rejection (found in the Lab Test Catalog on the Hub)
- CC102_Capillary Blood Collection (found in the Lab Test Catalog on the Hub)

Standard Precautions**:** "Standard blood and body fluid precautions" recommended by CDC must be adhered to for all patients and for all specimens.

PROCEDURES

1. **Patient Identification**
    a. Identify and verify patient identification using two identifiers according to SOP 6000-12 Patient Identification.
2. **Collection Technique and Tube Requirements**
    a. **Collection from Vascular Access Device (VAD)**
        i. Avoid using indwelling lines/**V**ascular **A**ccess **D**evices (**VAD**) for blood sample collections when collecting:
            a. Heparin Xa from a heparinized VAD or after heparin infusion
            b. Chemistry panel (BMP or CMP) after TPN infusion
            c. Triglyceride after lipid infusion

d. Any lab test after infusion of the specific medication/analyte that will be measured

ii. When indwelling lines/VAD are used for blood collection, use the following guidelines found in Table 1. to minimize contamination.

TABLE 1.

VAD	Flush	Shut off time	Waste diverted/discarded*
Venous – Adult*	5 mL NaCl	2 minutes	5 mL or 6 times (whichever is greater) dead space volume discarded
Arterial – Adult	Not applicable	Not applicable	• 5 mL or 6 times (whichever is greater) dead space volume discarded/diverted in closed system. • If using a VAMP system pull back full 12 ml blood into reservoir syringe. Close stopcock at top of reservoir, prior to aspirating blood
Venous – Pediatric	0.5-5 mL with solution per MD order	Not applicable	2-3 mL diverted in closed system
Arterial – Pediatric	0.5-5 mL with solution per MD order	Not applicable	2-3 mL diverted in closed system
Peripheral Arterial – Pediatric	Not applicable	Not applicable	3-5 drops discarded

*See nursing procedure *I-62 for Hickman* line specifications

b. **<u>Criteria for Collection from a peripheral IV start</u>**—See addendum for workflow

i. Scenarios
   a. Trauma (level I)
   b. Patient with compromised ABCs
   c. Pediatric Patient
   d. Difficult IV start

ii. Departments trained to draw labs from peripheral IV starts
   a. Emergency Department
   b. Outpatient Departments approved by Lab/Nursing committee
   c. Women's and Children Center
   d. IV therapy

c. A luer-lok blood transfer device is the best technique for collecting lab blood specimens.

d. If the tourniquet is on longer than 1 minute for an IV start, do not remove blood for lab until the tourniquet has been removed for at least 2 minutes.

e. The order in which samples are collected can impact test validity. See Table 2 for required tube collection order.

f. The required tube types and fill volume for the most performed laboratory tests are listed in Table 2. For tests not listed, refer to the *Lab Manual* on the HUB or call the Laboratory at extension 7311.

g. Immediately after collection, mix all blood sample tubes by gentle inversion 5-8 times. DO NOT SHAKE!

TABLE 2.

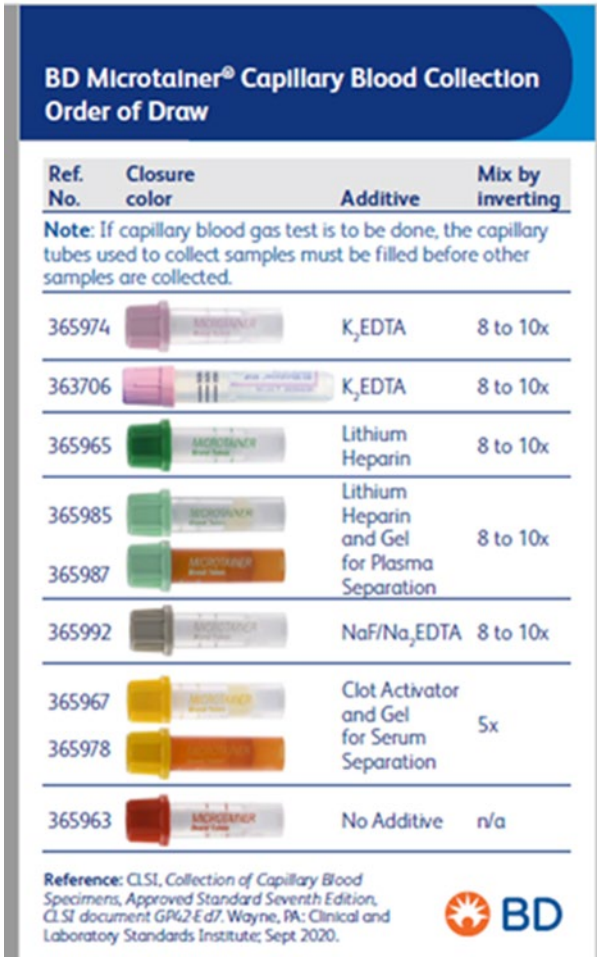
Draw order	Tube type/ additive	Test	Fill volume
1.	Blood Culture Bottles (adult)/Culture Media	Blood Culture	6-10mL
2	Blue Top/Sodium Citrate	Protime, PTT, D-Dimer, Fibrinogen, HepXa	1.8 mL*
3.	Gold Top/ Gel separator, Clot activator	ANA, Vitamin D, selected tests	3.5 mL
4.	Red Top/Clot activator	Selected tests, send outs	4.0 mL
5.	Light Green Top/Lithium Heparin Dark Green Top/Lithium Heparin (no gel)	Glucose, Electrolytes, BMP, CMP, PSA Venous Blood gas (must be run w/in 30 min)	3-4 mL
6.	Lavender Top/EDTA	CBC, Platelet, H/H	3.0 mL
7.	Pink Top/EDTA	Type and Screen, BB Hold, DAT, RHIGSS, and Fetal bleed	6.0 mL
8.	Gray Top/Sodium Fluoride	Lactic Acid	2.0 mL

*Specimen integrity/test validity may be affected if tubes are over or under filled. Blue top tubes must be filled to top of manufacturer label on the tube.

h. **Collection from Neonatal Heel sticks**

i. Follow Skills: Heel Stick (Neonatal) - CE/NCPD (elsevierperformancemanager.com) for collection technique
ii. Fill microtainer tubes in the correct order of draw. SEE **PIC 1**
TUBE COLLECTION ORDER IS DIFFERENT FOR MICROTAINERS
NOTE: If capillary gases are needed, they must be filled before the other samples are obtained.
iii. Refer to CC102 Blood Collection-Capillary in the lab test catalog for more detailed collection instructions.

PIC 1



BD Microtainer® Capillary Blood Collection Order of Draw

Ref. No.	Closure color	Additive	Mix by inverting
Note: If capillary blood gas test is to be done, the capillary tubes used to collect samples must be filled before other samples are collected.			
365974		K_2EDTA	8 to 10x
363706		K_2EDTA	8 to 10x
365965		Lithium Heparin	8 to 10x
365985 365987		Lithium Heparin and Gel for Plasma Separation	8 to 10x
365992		NaF/Na_2EDTA	8 to 10x
365967 365978		Clot Activator and Gel for Serum Separation	5x
365963		No Additive	n/a

Reference: CLSI, *Collection of Capillary Blood Specimens, Approved Standard Seventh Edition, CLSI document GP42-Ed7*. Wayne, PA: Clinical and Laboratory Standards Institute; Sept 2020.

BD

3. **Specimen Labeling**
    a. Specimens must be labeled at the time of collection. Specimens received in the laboratory unlabeled or mislabeled are unacceptable. Labels with incomplete information may delay testing.

    b. To prepare for collection of a lab specimen:
        i. Verify the specimen collection status is Unit Collect.
        ii. Place order for the lab.
        iii. Print Label and Collect Specimen. This is the action that will release the order across the interface to the LIS (Laboratory Information System) and generate the specimen label on the blaster printer, if applicable.

    c. Prior to any labeling proper identification of the patient must be established.

    d. Collect blood specimen(s) according to applicable procedure for your collection method.
    e. Draw one tube type for each computer label for which you have an order. Only when the patient is a difficult stick are tests that share the same sample type combined to one specimen.
    f. Before leaving the patient's side, label specimen(s) using the steps outlined in the table below.

LIS-Laboratory Information System (currently Sunquest)
HIS-Hospital Information System (currently EPIC)

IF . . .	**AND . . .**	**THEN . . .**
Specimen is NOT a pre-transfusion sample	LIS computer label available	• Position the short, square end of the label with the patient's name near the specimen cap • Directly over the manufacturer label, secure the patient label. • Write collect time/date and initials or employee number on the label
	HIS (Hospital Information System) computer label available	• Position the patient's name near the specimen cap • Directly over the manufacturer label, secure the patient label • Write the test(s) to be performed on the label • Write collect time/date and initials or employee number on the label
	Label not available	• Legibly hand write the patient's first and last name and MRN or B-band number (or DOB if MRN is not available). • Write the test to be performed on the label • Write collect time/date and initials or employee number on the label
Specimen IS a pre-transfusion sample (Type and Screen or BBHOLD)	Patient is wearing hospital armband	• Follow directions above for placing a computer label (LIS or HIS) on the pink (EDTA) sample. Legible handwritten samples are also acceptable. Label must have patient name and either the medical record number or account number on it. • Write collect time/date and initials or employee number on the label. • Patients drawn for OP infusion center must have a B- Band number assigned. This number must be written on the sample. See below.
	Patient is NOT wearing an armband	• Patient must have a B-band number assigned. Place a red B-band armband on the patient. This B-Band should already have a number written on it. • Legibly hand write the patient's first and last name and expiration date (T+3days) on the red B-band armband. • Follow directions above for placing a computer label (LIS/HIS or Clinic) on the pink (EDTA) sample. Legible handwritten samples are also acceptable. Label must have patient's first and last name on it. (Only exception is an unidentified trauma patient) • Write the B-band number, collect time/date, initials or employee number, and test(s) to be performed on the label.

	Patient is refusing blood products	• Patient will have on a blue arm band that states "No Blood Transfusions" – no pre-transfusion collection will be necessary. Blue armbands are available in the Blood Bank Laboratory.

g. When the specimen(s) has/have been labeled, verify proper specimen identification by comparing the labeled specimen(s) to the patient's hospital armband (or B-band if applicable) before you leave the patient side.

h. Transport specimen(s) and extra LIS labels to laboratory for specimen receipt and processing.

4. **Specimen Rejection**

An event report will be filled out to document rejected specimens. See Gen103 Specimen Labeling and Rejection in the Lab Test Catalog on the hub for more information.

REFERENCES:

1. CLSI. Collection of Diagnostic Venous Blood Specimens 7th Ed, CLSI Standard GP41 - Wayne, PA Clinical and Laboratory Standards Institute:2017
2. CLSI. Collection, Transport, and Processing of Blood Specimens for Testing-Based Coagulation Assays; Approved Guideline – 5th Ed. CLSI Standard H21-A5 Clinical and Laboratory Standards Institute; Wayne, PA 2008.
3. Lynn-McHale Wiegand,DJ & Carlson,K eds. AACN Procedure Manual for Critical Care, 5th edition. St. Louis: Elsevier Saunders, 2005.
4. CLSI Collection of Capillary Blood Specimens 7th Ed, CLSI Standard GP42- Wayne, PA Clinical and Laboratory Standards Institute:2020

Reviewed/Revised: 11/1997, 08/1998, 10/2000, 11/2001, 6/2003, 11/2005, 2/2006, 11/2007, 07/2008, 08/2012, 10/2012, 11/2013, 4/2015, 7/2018, 9/2019, 5/2023, 8/2023, 4/2024

Addendum

Lab Draws from Peripheral IV Starts

Does patient meet criteria for lab draw from IV start? (see criteria below)

Emergency Department:
- **Trauma (Level 1)**
- **Compromised ABCs**
- **Pediatric Patient**
- **Difficult IV Stick**

Other hospital departments:
- **Approved by Lab/Nursing Committee**

Yes / No

Recommendations:
22G needle or larger
Use of transfer device (not a syringe)
Selection of large vein

Contact lab for draw

EPIC Process:
Review lab orders
Print lab labels, if needed

Gather supplies:
IV catheter/start kit
Blue luer-lok blood transfer device
Lab tubes
7 inch extension tubing (primed w/saline)
10 ml saline flushes

Draw Process:
- Insert catheter using aseptic technique (refer to policy I-51)
- After guide needle removed, leave tourniquet and apply blood transfer device directly onto catheter
- Fill remaining tubes needed for labs using proper order for collection *SEE GRAPHIC
- Release tourniquet (Note *Should not be on >60 seconds; to minimize hemolysis/ hemoconcentration)
- After blood specimen obtained, remove blood transfer device. Apply primed 7 inch extension tubing and flush with 10mL NS
- Secure IV site
- Ensure date and time and initials are on all specimen tubes
- Place tubes in biohazard bag and send to lab ASAP

March 2023