UnityPoint Health
St. Luke's Hospital

Cedar Rapids, Iowa

Code: 7000-09
Effective date: 4/2025
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

To ensure the safety of collection personnel, appropriate personal protective equipment is provided and must be used during blood collection to minimize the risk of needlestick injuries and exposure to bloodborne 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. **Hand Hygiene**
2. **Patient Identification**
    a. Identify and verify patient identification by asking open ended questions and using two identifiers according to SOP 6000-12 Patient Identification.
3. **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 Blood collection from a peripheral IV start</u>**

Refer to attached workflow addendum 1 for detailed procedures

i. Applicable Clinical Scenarios (Emergency Department)**:**
Peripheral IV blood collection may be considered under the following circumstances, following a collaborative huddle between Laboratory and Emergency Department staff

a. Level 1 Trauma
a. Patient with compromised ABCs
b. Pediatric Patients
c. Difficult IV access
d. Presence of an Infusaport

ii. Departments Authorized to Perform Peripheral IV Blood Collection

a. Emergency Department
b. Outpatient Departments approved by Lab Leadership
c. Women's and Children Center
d. IV therapy

c. Attach a Luer-Lok blood transfer device to the hub of the IV catheter.

Note: Syringe draws should be avoided whenever possible due to increased risk of hemolysis

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 P**IC 1** for required tube collection order.

f. The required tube types and fill volume for the most performed laboratory tests are listed in **PIC 1** For tests not listed, refer to the *Lab Manual* St. Lukes Hospital Cedar Rapids on the HUB or call the Laboratory at extension 7311.

g. Specimen integrity/test validity may be affected if tubes are over or under filled.

h. Immediately after collection, mix all blood sample tubes by gentle inversion 8-10 times for all tubes **but blue.** DO NOT SHAKE!

PIC 1

Order of Draw Guide for Nursing Venous Collection

UnityPoint Health
Cedar Rapids

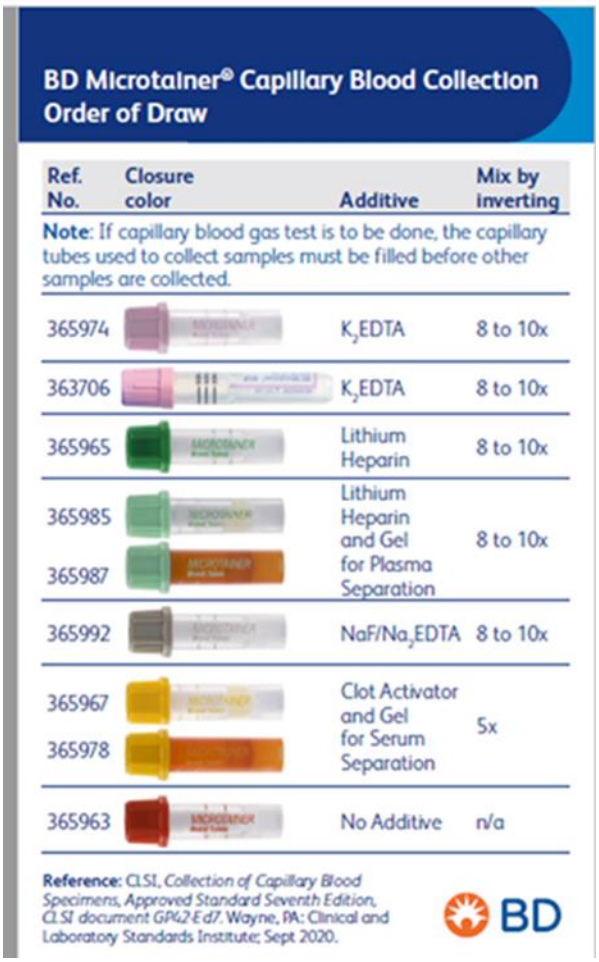
	**Blood Cultures** **(Invert 8-10x)**	**One Blue (Aerobic)+One Purple (Anaerobic) = One Set** **Adults & Peds >2yo = 8ml-10ml PER BOTTLE** **Peds <2yo = One Pink 0.5-5ml/bottle**
	**Blue** **(Sodium Citrate)** **1.8 mL** (Invert 3-4x)	**Coagulation Tests** **MUST fill to clear line)**
 OR 	**Plain Red** **(Serum)** **6.0 mL** (Invert 5x)	**Seizure Medications, other send out labs**
	Gold **(Serum Separator SST)** **5.0 mL** (Invert 5x)	**Lithium, Syphilis, Vitamin D, ANA, Allergens, selected tests**
 OR 	**Dark Green** **(Lithium Heparin/No Gel)** **4.0 mL** (Invert 8-10x)	**Venous PH, Venous Blood Gas, Whole Blood Lactic Acid** **(Specimen is only stable for 30 minutes following collection and tube MUST be full)**
	Mint Green **(Lithium Heparin/Plasma Separator)** **3.0 mL** (Invert 8-10x)	**Glucose, Electrolytes, BMP, CMP, PSA, Troponin**
 OR 	**Pink** **(K2 EDTA)** **6.0 mL** (Invert 8-10x)	**Type and Screen, Blood Bank Hold, ABO/ RH, Antibody Screen** **(B-band if no ID bracelet or patient un-known)**
	Lavender **(K2 EDTA)** **3.0 mL** (Invert 8-10x)	**A1C, CBCS, PTH Intact, ESR, Ammonia (on ice)**
	Gray **(Sodium Fluoride)** **4.0 mL** (Invert 8-10x)	**Lactic Acid**

DISCLAIMER: Test requirements are subject to change. This chart is not inclusive of all testing. Refer to the Clinical Laboratory Manual for latest collection and testing requirements.
CC101F 12.2.24

c. 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 2**
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 2



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

4. **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 the 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 with one specimen.

f. Before leaving the patients bedside, label specimens 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 to place 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.

5. **Specimen Rejection**

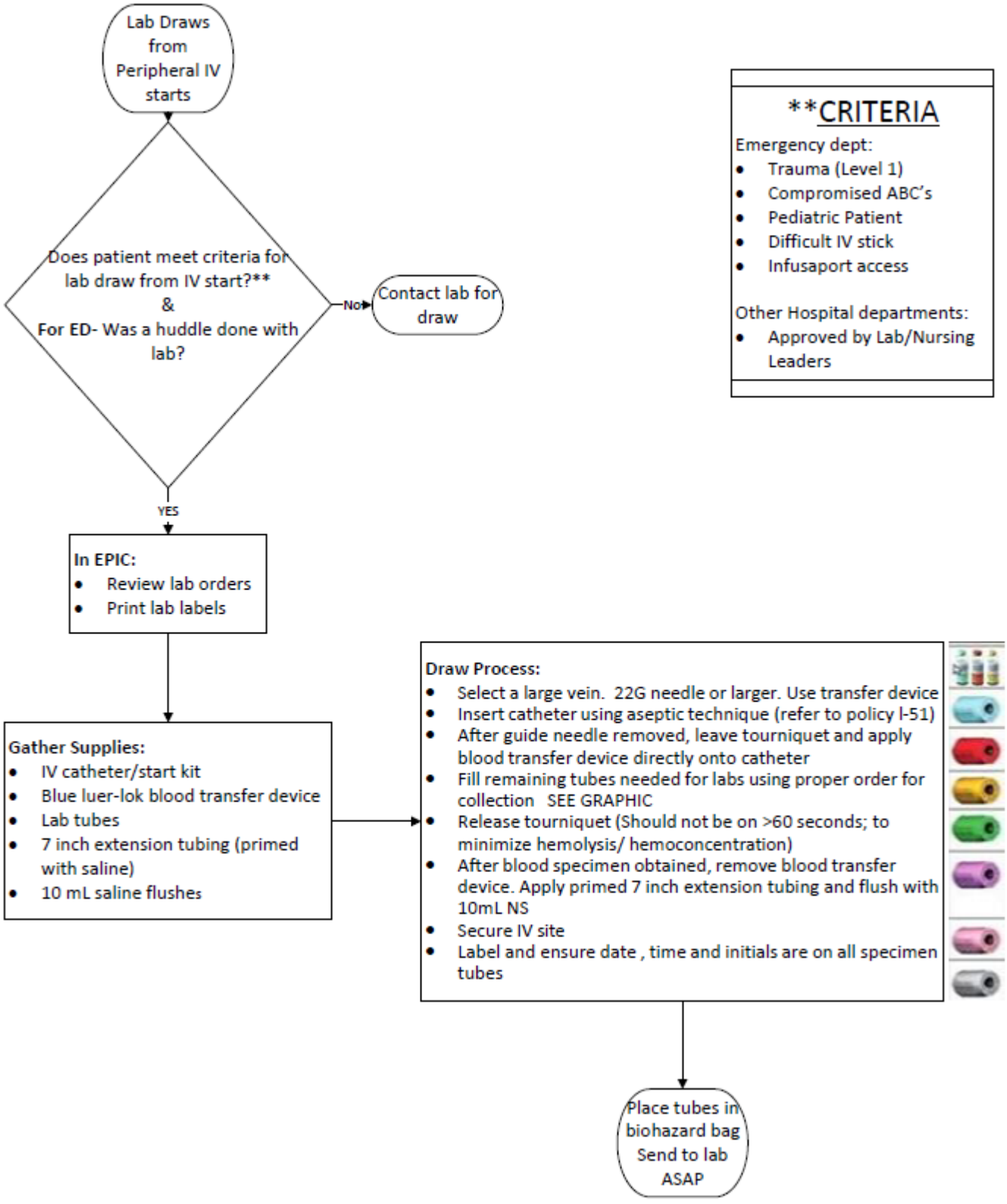
An event report will be filled out to document rejected specimens. See Gen103 Specimen Labeling and Rejection in the Lab Test Catalog on the hub for more information.

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 – 6th Ed. CLSI Standard H21 Clinical and Laboratory Standards Institute; Wayne, PA 2024.0020
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, 4/2025

Addendum 1.


Lab Draws from Peripheral IV starts
Does patient meet criteria for lab draw from IV start?** & For ED- Was a huddle done with lab?
No
Contact lab for draw
YES
In EPIC:
Review lab orders
Print lab labels
Gather Supplies:
IV catheter/start kit
Blue luer-lok blood transfer device
Lab tubes
7 inch extension tubing (primed with saline)
10 mL saline flushes
Draw Process:
Select a large vein. 22G needle or larger. Use transfer device
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 (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
Label and ensure date , time and initials are on all specimen tubes
Place tubes in biohazard bag Send to lab ASAP
**CRITERIA
Emergency dept:
Trauma (Level 1)
Compromised ABC's
Pediatric Patient
Difficult IV stick
Infusaport access
Other Hospital departments:
Approved by Lab/Nursing Leaders

Addendum 2
Units that collect blood 3.6.25

UNIT	Artlines	PICC lines	IV starts	Est. IV sites that have been in use	HeelSticks	Fingersticks Not including POC	Venipuncture	Who performs the training for your staff	How do you ensure your team is competent in blood collection
ICU/MICU	Yes	Yes	No	No	No	No	No	IV therapy/ preceptors	At orientation
NICU/Peds	Yes	Yes	Yes	No	Yes	**Yes**	Yes	Tenured Nurse preceptors	At orientation
Vascula/IR	No	No	Yes	No	No	No	No	Nurses	At orientation
Infusion Center	No	Yes	Yes	Yes	No	No	No	RN's	At orientation
Heart Center	Yes	No	Yes	Yes	No	No	No	RN's on the unit	At orientation
Birth Care Center	No	Yes	Yes	No	Yes	Yes	Yes	Nurses	At orientation
Resource Team (Float)	Yes	Yes	Yes	No	N/A	No	No	Preceptor	At orientation
4West	No	Yes	No	No	No	No	No	Preceptors	At orientation
Marion ED	No	Yes	Yes	No	Yes	No	Yes	Jillian Schatzle	At orientation
SL ED	Yes	No	Yes	No	No	No	No	Preceptors	Preceptor
PSU	No	Yes	No	No	N/A	No	No	RN	At orientation
5C	No	Yes	No	No	No	No	No	RN preceptors	At orientation
Respiratory Care	No	No	No	No	No	No	No	It is covered during orientation	At orientation
Rehab	No	Yes	No	No	No	No	No	Precepting Nurses	At orientation
Surgicare/PACU	Yes	No	Yes	No	No	No	Yes	Internal	At orientation
Operating Room	Yes	No	No	No	No	No	Yes	Anesthesia Team	At orientation
WW/Occ Health	No	No	No	No	No	Yes	Yes	Lab technicians/nurses	At orientation