









CPL Blood Specimen Collection Guidelines

Proper specimen collection is important in providing timely and accurate patient care. Improper collection and/or recollection of specimens may delay important procedures or medication changes. In addition, suboptimal specimens may provide erroneous results. CPL suggests the following:

1. Specimen Collection

Blood specimens should be collected in order per the chart below to prevent potential contamination from one tube to the next.

Closure Color	Order of Draw	Additive	Number of Inversions	Centrifugation Speed in rcf	Centrifugation Time in Minutes
	Blood Culture	SPS	8 to 10 times	Not Applicable	Not Applicable
	Light Blue	Sodium Citrate	3 to 4 times	1500 rcf	15 minutes
	Serum Separator Plain Red	Clot activator or no additive	5 times	1100-1300 rcf	10 minutes
	Green	Lithium or Sodium Heparin	8 to 10 times	<1300 rcf	10 minutes
	Lavender	EDTA	8 to 10 times	Not Applicable	Not Applicable
	Grey	Sodium Fluoride	8 to 10 times	<1300 rcf	10 minutes

Specimen rejections may occur due to interfering substances if a lavender top tube is collected before a serum tube. EDTA from the lavender top could contaminate the serum specimen, causing an erroneously elevated potassium level and decreased calcium level.

Inverting the tubes the number of times indicated on the chart will distribute the anticoagulant or other additive throughout the specimen and prevent clotting for whole blood or promote clotting in serum tubes.

If there is an error in collection, do not pour from one tube to another. For example, if a lavender tube is not collected, you cannot pour blood collected in a red top into a lavender top, regardless of the time of collection. This would cause clotting to occur in the lavender top.

2. Labeling

- **First name, last name and date of birth.** In the presence of the patient, label each specimen with the patient's first name, last name and date of birth.
- **Time and date of collection.** Adding time and date of collection helps to evaluate each specimen for stability and acceptability.
- **Barcode.** If a barcode label is added to the tube, make sure it does not obscure patient information.



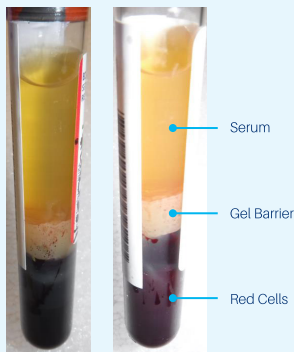
3. Processing

- Let all serum separator tubes (ST) clot upright, perhaps in a tube rack, for at least 30 minutes.
- Let plain red top (RT) tubes clot upright for at least 60 minutes. This prevents the blood clot from sticking to the top of the tube while clotting.
- ST and RT tubes should be centrifuged within 2 hours of collection to preserve analyte stability.
- The gel barrier in a ST tube must be well formed to ensure red cells do not come in contact with the serum, as prolonged contact between the serum and red cells can falsely increase potassium and decrease glucose. If there are red cells in the serum, the serum should be pipetted into a transfer tube, centrifuged again and separated into another transport tube.
- Refer to the chart under 1. Specimen Collection for centrifugation times.

Properly Centrifuged SSTs

Properly Centrifuged SSTs will show a clear separation of:

- Serum
- Gel Barrier
- Red Cells



SSTs with Improper Centrifugation

SSTs with Improper Centrifugation will not allow for complete separation resulting in:

- Contaminated Serum Layer
- Broken Gel Barrier
- Poorly Contained Red Cells



- At times, serum or plasma may need to be separated from cellular material. If that is the case, use a plastic pipette to gently remove the serum or plasma without touching the red cell layer. Express plasma or serum into a plastic transport tube. Be sure to label the tube with the specimen type, e.g., serum from a plain red.
- If you have a test or specimen that requires freezing, do not freeze the specimen in the original collection tube.
- Process the specimen as required, transfer the correct specimen to a transport tube, label with the patient identifiers, time and date of collection, specimen type, and freeze upright.
- Place a copy of the test request in the transport bag with the frozen specimen, let CPL know that it is a “split requisition” and cross off the non-frozen test. For example, if the test requisition has an order for a CBC and a Vitamin B1, cross off the CBC on the copy of the requisition sent with the Vitamin B1.

For specimen requirements and processing information, please refer to the Test Directory on the CPL website at www.cpllabs.com/test-directory