

Specimen Collection and Preparation

Requests

Laboratory test results are dependent on the quality of the specimen submitted. It is important that all specimens and request slips be properly labeled with the name of the patient, collection date, and the origin (source) of the specimen, when applicable.

The most common interfering substances are listed on the specimen requirement column of the test listing. A more comprehensive listing is available in Young DS: Effects of Drugs on Clinical Laboratory Tests. Fourth edition. Washington DC, AACC Press, 1995.

If there is any doubt or question regarding the type of specimen that should be collected, it is imperative that Conway Regional Clinical Laboratory Services (CRCLS) be called at 501-513-5752 to clarify the order and specimen requirements.

Blood Collection

Most laboratory tests are performed on anticoagulated whole blood, plasma, or serum. In general, specimens should be refrigerated until placed in the courier box for transport to the laboratory. Please see our individual test directory section for specific requirements.

- **Plasma:** Draw a sufficient amount of blood with indicated anticoagulant to yield necessary plasma volume. Gently mix blood collection tube by inverting 6 to 10 times immediately after draw. If required, separate plasma from cells by centrifugation within 20 to 30 minutes.
- **Serum:** Draw a sufficient amount of blood to yield necessary serum volume. Allow blood to clot at ambient temperature, and then, separate serum from clot by centrifugation within 20 to 30 minutes. Caution: avoid hemolysis.
- **Whole Blood:** Draw a sufficient amount of blood with indicated anticoagulant. Gently mix blood collection tube by inverting 6 to 10 times immediately after draw.

Specimen Collection Tubes Available

The following is a list of tubes referred to in CRCLS' specimen requirements:

- **Green-Top (Lithium Heparin) Tube:** This tube contains lithium heparin—used for collection of heparinized plasma or whole blood for special tests.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- **Green-Top (Sodium Heparin) Tube:** This tube contains sodium heparin—used for collection of heparinized plasma or whole blood for special tests.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- **Grey-Top (Potassium Oxalate/Sodium Fluoride) Tube:** This tube contains potassium oxalate as an anticoagulant and sodium fluoride as a preservative—used to preserve glucose in whole blood and for some special chemistry tests.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- **Lavender-Top (EDTA) Tube:** This tube contains EDTA as an anticoagulant—used for most hematological procedures.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- **Light Blue-Top (Sodium Citrate) Tube:** This tube contains sodium citrate as an anticoagulant—used for drawing blood for coagulation studies.

Note: It is imperative that tube be completely filled.

The ratio of blood to anticoagulant is critical for valid prothrombin time results. Immediately after draw, invert tube 6 to 10 times in order to activate anticoagulant.

- **Plasma Gel Tube:** This tube contains a clot activator and a plasma gel separator—used for various laboratory tests.

Note: Invert tube to activate clotting; let stand for 20 to 30 minutes before centrifuging for 10 minutes.

- **Red-Top Tube:** This tube is a plain VACUTAINER® containing no anticoagulant—used for collection of serum for selected chemistry tests as well as clotted blood for immunohematology.

- **Royal Blue-Top Tube:** There are 2 types of royal blue-top Monoject® tubes—1 with the anticoagulant EDTA and the other plain. These are used in the collection of whole blood or serum for trace element analysis. Refer to individual metals in individual test listings to determine tube type necessary.

- **Serum Gel Tube:** This tube contains a clot activator and a serum gel separator—used for various laboratory tests.

Note: Invert tube to activate clotting; let stand for 20 to 30 minutes before centrifuging for 10 minutes.

- Special Collection Tubes: Some tests require specific tubes for proper analysis. Please contact CRCLS prior to patient draw to obtain correct tubes for metal analysis or other tests as identified in individual test listings.
- Yellow-Top (ACD) Tube: This tube contains ACD—used for drawing whole blood for special tests.

Urine Collection

24-Hour Urine Collections: CRCLS provides 24-hour urine collection containers. For some tests, acid must be added to the container prior to the collection process. The acid acts as a preservative. **If test(s) ordered require acid, please send the patient to CRCLS.** Our staff will add acid to the container, properly label the container, and offer instructions to your patient.

Use the following procedure for correct specimen collection and preparation.

- Instruct patient to discard **first-morning** specimen and to record time of voiding.
- Patient should collect all subsequent voided urine for remainder of the day and night.
- Collect **first-morning** specimen on day 2 at same time as noted on day 1.
- Please mix well before aliquoting and provide total volume of 24-hour urine collection on test requisition.

See “Urine Preservatives” in “Special Instructions” for multiple collections for specimens being sent to Mayo Medical Laboratories through CRCLS.

Random Collections: For routine analysis and microscopic evaluation, have patient void into a clean container. Specimen should be securely capped, labeled, and refrigerated until courier pick up time. A “clean-catch” or midstream specimen is preferred. Patient should first void a small amount of urine which is discarded. Some of the urine should then be collected in a clean container before voiding is completed.