

# Specimen Collection and Preparation

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

If there is any doubt or question regarding the type of specimen that should be collected, consult the on-line test catalog or contact St. Joseph Hospital Laboratory at 603-579-5679 or internal extension 6-7171 or 6-7172 to clarify the order and specimen requirements.

To ensure accurate patient identification, St. Joseph Hospital Laboratory requires the full name, medical record number or date of birth, date and time of collection, and phlebotomist's initials on appropriate tubes.

## Blood Collection

Most laboratory tests are performed on anticoagulated plasma, serum, or whole blood. Most specimens should be refrigerated until placed in the courier box for transport to the laboratory. However, consult the alphabetical on-line test catalog 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 8 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. Invert tube 5 to 10 times to activate clotting. Allow blood to clot at ambient temperature for 30 minutes. Separate serum from clot by centrifugation within 10 minutes. Caution: avoid hemolysis.
- **Whole Blood:** Draw a sufficient amount of blood with indicated anticoagulant. Gently mix blood collection tube by inverting 8 to 10 times immediately after collection.

## Centrifugation

Centrifugation should be performed at 3,200 to 4,000 rpm for 10 minutes. Tubes of blood, serum, and plasma are to be kept closed at all times. This prevents possible exogenous contamination, evaporation, concentration changes, or possible spillage and aerosols.

## Fasting Specimens

A fasting specimen is required for accurate results on certain tests, such as lipid profiles and glucose. The fasting period may be 8 hours to as much as 12 hours prior to specimen collection. The evening before the specimen is drawn, the meal should contain no unusually fatty foods or alcohol, and the meal should be completed before 1800 hours. Water may be consumed during the fasting period.

## Metals Collection

Avoid all iodine-containing disinfectants and always cleanse arm with an alcohol swab. Use only trace element blood collection tubes (navy blue or tan top tubes) as follows:

- For specimens that require serum- no additive
- For specimens that require plasma- EDTA additive only

When multiple blood specimens are to be drawn from a patient, the trace metal specimens should be drawn first. Once the needle has punctured another stopper, it is contaminated and should not be used for trace metal specimen collection.

- **Metal-free tubes:** Special metal-free tubes are available for tests that indicate their use. They are typically navy blue or tan top tubes.

## Specimen Collection Tubes Available

The following is a list of tubes referred to in the Laboratory On-Line Catalog specimen requirements:

- **Gold-Top Serum Gel Tube:** This tube contains a clot activator and serum gel separator—used for various laboratory tests.  
**Note:** Invert tube 5 times to activate clotting; let stand for 20 to 30 minutes before centrifuging for 10 minutes. If frozen serum is required, pour off serum into plastic vial and freeze.
- **Green-Top (Sodium or Lithium Heparin) Tube:** This tube contains sodium or lithium heparin—used for drawing heparinized plasma or whole blood for special tests.  
**Note:** After tube has been filled with blood, immediately invert tube 8 to 10 times 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 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 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 the 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 to activate anticoagulant.
- **Light Green-Top (Lithium Heparin Gel) Tube:** This tube contains lithium heparin and plasma gel separator—used for various laboratory tests.  
**Note:** After tube has been filled with blood, immediately invert tube several times to prevent coagulation.
- **Red-Top Tube:** This tube is a plain tube containing no anticoagulant—used for collection of serum for selected chemistry tests as well as clotted blood for immunohematology. When a test is designated to be drawn in a red-top tube, a serum gel tube should not be substituted. The gel barrier may interfere with analysis.
- **Royal Blue-Top Tube:** There are 2 types of royal blue-top tubes—with the anticoagulant EDTA and the other plain. These are used in drawing whole blood or serum for trace element analysis. Refer to the individual metals in the alphabetical test listings to determine the tube type necessary.
- **Special Collection Tubes:** Some tests require specific tubes for proper analysis. Please contact St. Joseph Hospital Laboratory at 603-579-5679 or internal extension 6-7171 or 6-7172 prior to patient draw to obtain correct tubes for metal analysis or other tests as identified in the alphabetical test listings.

## Stool Specimen Collection

Proper collection of stool (feces) depends on the organism(s) to be detected. Several types of containers are used. Please refer to the Stool Specimen Collection Guide in this catalog or to the individual tests requested.