Missouri Baptist Medical Center: Specimen Collection and Preparation

Patient Preparation

Many tests require that the patient be prepared in some way to ensure quality results. If you have any questions about patient preparation for any test, please consult the Alphabetical Test Listings section with the MBMC electronic test catalog or call Missouri Baptist Medical Center Laboratory Customer Support at 314- 996-4522. Most blood specimens can be obtained using routine phlebotomy techniques (see Collection by Venipuncture in Collection of Blood Specimens). See Alphabetical Test Listings for further information on exceptions.

Patient Identification and Specimen Labeling Policy and Procedure

Positive patient identification and proper labeling of specimens are critical to quality testing and resulting in the laboratory.

Patient Identification

Verification is made by asking the patient to spell his/her name and state his/her date of birth. This information should be compared to the computer-generated requisition, physician script, and/or paper requisition

Inpatient Specimens for Blood Bank

To ensure positive patient identification on inpatient specimens drawn for Blood Bank testing, specimens must be drawn specifically for Blood Bank, not a shared sample. Specimens must be one of the following:

1. Labeled with labels generated by a positive patient identification devices (PPID), after scanning the patient's armband. or

2. Hand labeled at the bedside, with identifying information taken directly from the patient's armband and hand-written onto the label.

Specimen Labeling

Each specimen submitted to the laboratory, including compatibility testing, should be labeled with the following:

1. Patient's name
2. Patient medical record number or date of birth
3. Date and time of collection
4. Identification of person collecting the specimen
5. Specimen source/type (specimens other than blood)
6. All labels must be legible
7. Labels must be affixed to the specimen container.
8. Labels cannot be affixed to specimen container lid, biohazard bag, or parafilm.

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 the individual test listing 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.

• Serum: Draw a sufficient amount of blood to yield necessary serum volume. Allow blood to clot at ambient temperature for 20 to 30 minutes. Then, separate serum from clot by centrifugation within 20 to 30 minutes.

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• Whole Blood: Draw enough blood with indicated anticoagulant. Gently mix blood collection tube by inverting 6 to 10 times immediately after draw.

Specimen Collection Tubes

Tubes are to be used within their expiration date and stored according to manufacturer's instructions. The following is a list of tubes referred to in specimen requirements in Order-of- Draw:

• *Fungal Culture – Yellow Isolator tube*: Evacuated tube containing lysing and anticoagulating agents, specifically designed for collection and isolation of microorganisms from blood.

• *Blood Culture Bottle:* These bottles are collected 2 at a time: An aerobic bottle (green) and an anaerobic bottle (maroon). Pediatric specimens should be collected in a single, yellow pediatric blood culture bottle.

• *Light Blue-Top (Sodium Citrate) Tube*: This tube contains sodium citrate 3.2% (0.5 mL-0.109 M) as an anticoagulant-used for collection of blood for coagulation studies.

Note: It is imperative that the tube be completely filled. The ratio of blood to anticoagulant is critical for valid coagulation results. There is a frosted minimal fill line on the tubes. Immediately after draw, mix by inversion 8 times.

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

Note: Immediately after draw, mix by inversion 8 times.

• *Plain, Red-Top (Plastic) Tube*: This tube contains Increased Silica Act Clot Activator that may interfere with some test results.

Note: Immediately after draw, mix by inversion 8 times. Please refer to each individual test to verify acceptable tube type.

• *Orange-Top, Serum Gel Tube*: This tube contains Thrombin-based clot activator with gel for serum separation.

Note: Immediately after draw, mix by inversion 8 times.

• *Mint Green-Top (Lithium Heparin) Tube*: This tube contains lithium heparin (76 U.S.P. Units) - used for the collection of heparinized plasma or whole blood for special tests.

Note: Immediately after draw, mix by inversion 8 times.

• *Dark Green-Top (Sodium Heparin) Tube*: This tube contains sodium heparin (86 U.S.P. Units)- used for the collection of heparinized plasma or whole blood for special testing.

Note: Immediately after draw, mix by inversion 8 times.

• *Pearl-Top (K2 EDTA Gel) Tube*: This tube contains K2 EDTA as an anticoagulant with a polymer gel separator.

Note: Immediately after draw, mix by inversion 8 times.

• *Lavender-Top (EDTA) Tube*: This tube contains EDTA (K2 EDTA 7.2 mg) as an anticoagulant-used for most hematology tests (CBC, etc.) procedures and Blood Bank test requests.

Note: Immediately after draw, mix by inversion 8 times.

• *Grey-Top (Potassium Oxalate/Sodium Fluoride) Tube*: This tube contains potassium oxalate (4 mg) and sodium fluoride (5 mg) as a preservative-used to preserve glucose in whole blood, lactic acid, and other tests.

Note: Immediately after draw, mix by inversion 8 times.

• *Royal Blue-Top Tube*: There are 2 types of royal blue-top Monoject tubes-1 with the

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anticoagulant EDTA and the other plain. These are used for collection of whole blood or serum for trace element analysis. Refer to individual metals in individual test listings to determine tube type necessary.
Note: Immediately after draw, mix by inversion 8 times.
• *Yellow-Top (ACD) Tube*: This tube contains ACD (solution B) trisodium citrate; citric acid; dextroseused for the collection of whole blood for special tests.
Note: Immediately after draw, mix by inversion 8 times.
• *Special Collection Tubes*: Some tests require specific tubes for proper analysis. Please call Missouri Baptist Medical Center Laboratory Customer Support at 314-996-4522 prior to patient draw to obtain correct tubes for metal analysis or other tests as identified in individual test listings.
• *Blood Gas Syringe*: This syringe contains lithium heparin and is for the collection of arterial and cord blood gases.

Specimen Volume

The Specimen Required section of each test includes the preferred specimen container to be submitted for testing. When the container is a tube of blood, it is implied that a completely filled tube is preferred. The preferred specimen requirements have been established to optimize testing and allow the laboratory to quickly process specimen containers, present containers to instruments, perform test, and repeat test, if necessary. Many of our testing processes are fully automated; and as a result, this volume allows hands-free testing and our quickest turnaround time (TAT). Since patient values are frequently abnormal, repeat testing, dilutions, or other specimen manipulations often are required to obtain a reliable, reportable result. Our preferred specimen requirements allow expeditious testing and reporting. Smaller volumes may be necessary when a venipuncture is technically difficult, or the patient is at risk of complications from blood loss (eg, pediatric or intensive care patients). When patient conditions do not mandate reduced collection volumes, we ask that our clients submit preferred volume to facilitate rapid, cost effective, reliable test results. Submitting less than preferred volume may negatively impact quality of care by slowing TAT, increasing the hands-on personnel time required to perform test.

Missouri Baptist Medical Center Laboratory makes every possible effort to successfully test the patient's specimen. If you have concerns about submitting a specimen for testing, please call Missouri Baptist Medical Center Laboratory at 314-996- 4522. Our staff will discuss the test and specimen you have available. While in some cases specimens are obviously inadequate for desired test, in other cases, testing can be performed using alternative techniques.