CaroMont Health Laboratory

Laboratory Specimen Collection and Preparation

Specimen Labeling

All specimens submitted to the laboratory must be appropriately labeled. The Joint Commission on Accreditation of Healthcare Organization (JCAHO) Patient Safety Goals, requires specimen labeling to occur at the bedside or in the presence of the patient and the specimen label must include two patient identifiers. This requirement has been established to maintain positive identity throughout the pre-analytical, analytical, and post-analytical processes.

A properly labeled specimen should contain the patient's full first name, last name and at least one unique identifier such as date of birth, social security number, or GMH Medical Record number. The specimen label should also include the date and time of collection and source if applicable. Collector, unit, or client will be notified of inappropriately labeled samples which will be discarded and recollection will be required. Specimens may not be relabeled.

Specimen Collection and Preparation

The accuracy of test results depends greatly on the quality of the specimen. Therefore, proper specimen collection, preparation and handling is essential for samples submitted to the laboratory for testing.

Specimen or test specific instructions are available within the test directory. Information is formatted to provide the color and type of tube required, specimen container, requested volume, storage temperature and special handling instructions.

All vacuum tubes containing an anticoagulant or preservative must be allowed to fill completely to ensure the proper ratio of blood to additive. Blood must be mixed with anticoagulant or preservative immediately at time of collection by gently inversion. ***Do not delay mixing.***

Blood Specimens: Serum, Plasma, Whole Blood

Serum- Separated liquid portion of blood once clotting is complete. Allow blood to clot at least 30 minutes before centrifugation.

Plasma - Separated liquid portion of blood that has been anticoagulated by tube additive.

Whole Blood - Both cellular and liquid portion of blood anticoagulated by tube additive.

Centrifugation - Separation of serum or plasma from cells in blood specimens using centrifugal force (centrifuge).

Microbiology General Instructions: (See test directory for specific specimen requirements)

Collect the specimen from the actual site of infection, avoiding contamination from adjacent tissues or secretions. Collect a sufficient quantity of material and use appropriate collection devices: sterile, leak-proof containers. Use appropriate transport media: anaerobe transport vials, viral media, etc. Minimize transport time and maintain an appropriate environment between collections of specimens and delivery to the laboratory. Whenever possible, collect specimens prior to administration of antimicrobials. Properly label the specimen and indicate source.

Common Errors in Specimen Collection and Handling:

1. QNS (Quantity Not Sufficient)- Insufficient specimen volume for testing is one of the most common collection errors. As a general rule, always draw whole blood in an amount 2 ½ times the required volume of serum required for a particular test to ensure adequate specimen volume when possible. For example, if 1 mL of serum is required, draw at least 2.5 mLs of whole blood.

The volume of blood drawn for a collection tube in which the blood to anticoagulant ratio must be maintained is critical for accurate testing and must be recollected if volume of blood is not adequate. There will not be a charge for tests that are cancelled because the minimum volume requirements are not met.

2. Hemolysis- Hemolysis occurs when the red cells are damaged during sample collection. Red cells rupture, hemoglobin and other intracellular components leak into the serum or plasma. Hemolyzed serum or plasma is pale pink to red in color rather than the normal clear straw or pale yellow color. Hemolysis interferes with certain laboratory tests and may require recollection of sample. There will not be a charge for tests that are cancelled due to hemolysis interference.

Possible causes for hemolysis include:
- Use of 23 gauge or higher needle.
- Air leakage around the needle or loss of vacuum in the tube.
- Using a syringe and pulling the plunger too forcefully.
- Difficult venipuncture.
- Not allowing the specimen to clot completely before centrifugation.
- Centrifuging the specimen for an extended period of time.

3. Clotted Specimens - Tubes with anticoagulant such as lavender and blue top tubes must be mixed immediately at time of collection to prevent clotting. There will not be a charge for tests that are cancelled because the specimen is clotted.

4. Expired Tubes - Tubes used for collection beyond expiration date are not recommended due to possible loss of vacuum and decreased function of anticoagulant or preservative.

5. Failure to Allow Serum Tubes to Clot - Serum tubes should be allowed to clot for a minimum of 30 minutes to prevent formation of fibrin clots.

6. Underfilling Blue Top Tube for Coagulation Testing - Decreases the ratio of blood to anticoagulant. Affects the accuracy of prothrombin (PT) and partial thromboplastin time (PTT) and other coagulation tests.