Specimens

The precautions that must be taken while dealing with them include the following:

a. Consider all samples as infected.

b. Use disposable gloves if you are likely to come in contact with a sample.

c. Seal the Specimen container with a stopper, not your fingertip.

d. Never handle blood directly.

Healthy subjects may be carriers of infection or diseases that might endanger your life, sometimes fatal, most seriously H1NI virus, H5 NI virus, AIDS, and infectious hepatitis type BHC. This makes it very important to take great care when pipetting blood. Disposal of lancets, swabs, needles, etc. wash pipettes, and other glassware and your hands immediately after you complete a procedure.

➢ Specimen; Type, Collection, Preparation and Identification.

Laboratory Specimen

In medicine laboratory specimen, is a biological specimen taken by sampling that is gathered matter of a medical patient's tissue, fluid or other material derived from the patient used for laboratory analysis to assist in differential diagnosis or staging of a disease process.

Types of specimen:

1. Blood
2. Urine
3. Sputum
4. Faces
5. Throat swaps.
6. Tissue biopsy
7. Surgical drain fluid
8. Other body fluids for example CSF

❖ Specimen Collection and Preparation

The accuracy of test results depends greatly on the quality of the specimen; Therefore, proper specimen collection, preparation and handling are 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 for the specimen container, requested volume, storage temperature and special handling instructions.

❖ Specimen Labeling, and Storage

1. Specimens must be collected in an appropriate specimen container to maintain their integrity of the specimen.
2. Test Information Sheets specify the type of container or collection kit that should be used to collect the sample.
3. After collection, label the specimen container with the patient's full name or code (for anonymous testing), date of collection and one other unique identifier such as the patient's date of birth or Health Card Number. Failure to provide this information may result in rejection or testing delay.
4. Place the specimen in the biohazard bag and seal the bag.
5. Most specimens should be stored between 2-8°C.

❖ Packaging and Transportation

All specimens must be packaged caref[ully to avoid breakage or leakage of the specimen.

- **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 anti-coagulated by tube additive.

Whole Blood: Both cellular and liquid portions of blood are anticoagulated by tube additives.

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

❖ 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. For example, if 1 mL of serum is required draw at least 2.5 mL of whole blood.
2. Hemolysis
   Hemolysis occurs when the red cells are damaged during sample collection. Red cells rupture, and haemoglobin and other intracellular components leak into the serum or plasma. Hemolyzed serum or plasma is pale pink to red colour rather than the normal clear straw or pale-yellow colour. Hemolysis interferes with certain laboratory tests and may require the recollection of the sample.
3. Clotted Specimens
   Tubes with anticoagulant-such as lavender and blue top tubes must be mixed immediately at the 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 the 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 the formation of fibrin clots.

Types of test tubes

1-Blue-Top tube, Sodium citrate (Na citrate): this tube is primarily used for coagulant studies (PT and PTT) complete filling tube is essential to obtain accurately

2- Lavender-Top tube EDTA: Ethylenediaminetetraacetic acid (EDTA) is the anticoagulant used for most haematology procedures. it is primarily used is for the CBC and individual components of the CBC. the larger (6 ml) tube used for blood bank procedures.

3. Serum separator tube (SST): This tube contains a clot activator and serum gel separator. it has no anti-coagulant and is used for many chemistry tests. it cannot be used for certain drug levels or many blood bank procedures.

4. Green-top tube - Sodium heparin or lithium heparin.

5. Gray Top -tube- potassium oxalate. this tube is used primarily for glucose tolerance testing.

6. Plane tube: it's a clear tube (with no anticoagulant) used in the test that needs serum.