

Specimen Collection and Processing

Laboratory test results are dependent on quality of specimen submitted. Each specimen tube or specimen container must be labeled with patient's full name, date and time of collection, initials of collector, ordering physician, and test ordered.

To ensure reliability of test results, it is vital that specimen to be tested has been properly collected and handled. It is also necessary that proper requisition be completed.

Clinical Laboratory Order Sheets are to be ordered from Indiana Hospital storeroom for physician outpatient laboratory orders. Order number is #620 and telephone number is (724) 357-7065.

Delivered specimens that are taken to laboratory or picked up by laboratory courier from physician offices should use a blue Clinical Laboratory Order Sheet for general laboratory, Blood Bank, reference laboratory testing, and microbiology specimens. Purple Cytology/Pathology Order Sheets are used for surgical pathology, gynecological cytology, non-gynecological cytology, and genital cultures.

Specimen Collection

Prior to collection of specimens, please refer to alphabetical test listing in this manual for test description, container, comments, and availability.

Venipuncture Needle-Pro® Needle protection device should be used for performing venipuncture.

All blood collection tubes should be mixed by gentle inversion around 6 times to promote clotting or thorough mixing with anticoagulant. All tubes should be kept in an upright position after centrifugation.

Correct order of draw for phlebotomy:

- Blood culture bottles
- Non-additive or serum tubes (plain red-top)
- Citrate tubes (light blue-top)
- Gel separator tubes, clot activator tubes (specked-top or red-top), and gold-top.
- Lithium heparin tubes (green-top) and plasma gel tubes
- Sodium heparin tubes (dark green-top) used for cell count on body fluid and chromosomal analysis
- EDTA tubes (lavender-top)
- Other additives (color depends on manufacturer)

The following are guidelines for blood and/or urine specimens:

- **Serum:** Draw in a serum gel tube or a plain, red-top tube, if required. Allow to clot (about 20 minutes), and then centrifuge for 10 minutes at 3,000 rpm (if centrifuge is available). If testing is not done within 8 hours, pour off into separate tube, cap, and refrigerate.
- **Plasma:** Draw in a blood collection tube with proper anticoagulant. Green-top (lithium heparin) tube should be centrifuged immediately and refrigerated. Light blue-top (3.2% sodium citrate) tube should be centrifuged, transferred to a plastic tube, and frozen.
- **Whole Blood:** Draw blood in a collection tube with proper anticoagulant. **Do not centrifuge.**
- **Urine:** For routine urinalysis, a random urine specimen should be collected. **First-morning** collection is preferred, whenever possible. It is essential that specimen be refrigerated to help preserve urine composition.

For specific requirements, refer to alphabetical test listing. It is essential that all tubes be allowed to fill completely. Place specimens in a refrigerator until courier pick-up or delivery to laboratory, unless otherwise noted.

Specimen Labeling

Each specimen tube or specimen container must be labeled with patient's full name, date of birth, and date and time of collection.

Specimen Rejection

Specimen **cannot** be processed if specimen has been improperly collected or handled, or if volume is insufficient. If specimen is rejected for any reason, ordering physician or nursing home, etc, will be notified to submit another specimen

Note: Universal precautions should be followed at all times. Specimens arriving in an unsanitary condition will not be accepted.

Syringes with needles attached **should not** be transported to laboratory. Needles should be disposed of in a sharps container prior to transport.

General specimen collection and preparation errors that may cause rejection are:

- Failure to label a specimen correctly and to provide essential patient information
- Insufficient quantity of specimen to run test

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- Inaccurate or incomplete patient instructions prior to collection
 - Generally 2 hours is recommended
 - Hemolysis (red blood cells broken down in serum)
 - Lipemia (cloudy serum sometimes due to patient's diet or not fasting prior to test)
 - Clotted specimen (failure to mix tubes with additives immediately after collection)
 - Incomplete filling of tubes with additives
 - Failure to tighten specimen container lids resulting in leakage of specimen
 - Failure to provide patients with adequate instructions for 24-hour urine collection