

Specimen Collection and Preparation

Laboratory test results are dependent on the quality of the specimen submitted. It is important that all specimens and request slips be properly labeled with the name of the patient, date of birth, collection date, and the origin (source) of the specimen, when applicable. The most common interfering substances are listed on the specimen requirement column of the test listing. A more comprehensive listing is available in *Young DS: Effects of Drugs on Clinical Laboratory Tests*, Fifth edition. Washington DC, AACC Press, 2000.

If there is any doubt or question regarding the type of specimen that should be collected, it is imperative that OhioHealth Laboratory Client Services be called to clarify the order and specimen requirements.

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 our individual test directory section for specific requirements. It is always helpful to label aliquot tubes “plasma” or “serum.”

- **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. 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. Allow blood to clot at ambient temperature, and then, separate serum from clot by centrifugation within 20 to 30 minutes. Caution: avoid hemolysis.

- **Whole Blood:** Draw a sufficient amount of blood with indicated anticoagulant. Gently mix blood collection tube by inverting 6 to 10 times immediately after draw.

Microbiology Specimen Collection

Refer to individual test listing

Specimen Collection Tubes Available

The following is a list of tubes referred to in specimen requirements. Please draw tubes in the order that they are listed:

- **Tan-Top (EDTA) Tube:** This tube contains EDTA as an anticoagulant—used for lead blood analysis.

Note: After tube has been filled with blood, immediately invert tube 6 to 8 times in order 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 tube be completely filled. Ratio of blood to anticoagulant is critical for valid prothrombin time results. Immediately after draw, invert tube 3 to 4 times in order to activate anticoagulant.

- **Gold-Top or Speckled-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, pipet off serum into plastic vial and freeze. Do not freeze VACUTAINER(S)®.

- **Red-Top Tube:** This plastic tube contains no anticoagulant but does contain a clot activator—used for drawing serum for selected chemistry tests as well as clotted blood for immunohematology.

Note: Invert tube 5 times after draw.

- **Mint Green-Top (Lithium Heparin) Plasma Gel Tube:** This tube contains heparin and plasma gel separator—used for various laboratory tests.

Note: Invert tube 5 times to activate; let stand for 20 to 30 minutes before centrifuging for 10 minutes. If frozen plasma is required, pipet off plasma into plastic vial and freeze. Do not freeze VACUTAINER(S)®.

2 types of Dark Green-Top tubes:

- **Short Dark Green-top (Lithium Heparin) No Gel.**

Note: After tube has been filled with blood immediately, invert tube 8 to 10 times in order to prevent coagulation.

- **Tall Dark Green-Top (Sodium Heparin) Tube: No Gel** This tube contains sodium 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 in order to prevent coagulation.

- **Lavender-Top (EDTA) Tube:** This tube contains K3 EDTA as an anticoagulant—used for most hematological procedures.

Note: After tube has been filled with blood, immediately invert tube 8 to 10 times in order to prevent coagulation.

- **Pink-Top (K2 EDTA) Tube:** This tube contains K2 EDTA as an anticoagulant—used for most Blood Bank procedures.

Note: After tube has been filled with blood, immediately invert tube 8 to 10 times in order 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 8 to 10 times in order to prevent coagulation.

- **Royal Blue-Top Tube:** **There are 2 types of royal bluetop tubes**—1 with the **anticoagulant EDTA** and the **other with no additive**. These are used in drawing whole blood or serum for trace element analysis. Refer to individual metals in individual test listings to determine tube type necessary. Do not draw plain tubes for tests that require whole blood.

- **Special Collection Tubes:** Some tests require specific tubes for proper analysis. Please contact OhioHealth Laboratory Client Services prior to patient draw to obtain the correct tubes for metal analysis or other tests as identified in the individual test listings.

- **Yellow-Top (ACD) Tube:** This tube contains ACD—used for drawing whole blood for special tests.

Request Forms

OhioHealth Laboratory Services request forms are designed for convenience by providing patient demographics and billing information as well as test orders. Type or clearly print all information, always including the patient's name, date of birth, gender, diagnosis, collection date and time, and test(s) requested. For diagnostic purposes, additional clinical information may be required.

If your practice management system provides test orders and computerized billing information, your OhioHealth Laboratory Services sales representative will work with you to avoid redundant paperwork. Whenever possible OhioHealth Laboratory Services will accept your internal patient demographics and billing information.

Specimen Labeling

In compliance with and adherence to the college of American Pathologists and the Joint commission's 2018 Patient Safety Goals, OhioHealth Laboratory Services policy states that all specimens received for testing must be correctly and adequately labeled to assure positive identification. Specimens must have 2 person specific identifiers on the patient label. Person-specific identifiers may include: accession number, patient's first and last name, unique identifying number (e.g., medical record number), or date of birth. Specimens are considered mislabeled when there is a mismatch between the person-specific identifiers on the specimen and the information accompanying the specimen.

Urine Collection

Urine Collection

24-Hour Urine Collections

OhioHealth Laboratory Services provides 24-hour urine collection containers with appropriate preservative, if required. The correct preservative must be put into the container and the container must be labeled with the appropriate caution stickers before it is given to the patient. Use the following procedure for the correct specimen collection and preparation.

- Warn patient of the presence of potentially hazardous preservatives in collection container.
- Instruct patient to void and discard **first-morning** specimen, and to record time of voiding.
- Patient should collect all subsequent voided urine for remainder of the day and night.

NOTE:

1. Advise patient to void in a separate container and then pour specimen into larger 24-hour urine container as some containers may contain preservatives which could burn the skin if in direct contact.

- Collect **first-morning** specimen on day 2 at same time as noted on day 1.
- Please mix well before aliquoting. (An entire 24-hour urine collection is also acceptable.)
- Starting and ending times of 24-hour urine collection are required on request form for processing.

2. If multiply tests have been ordered it may be necessary to contact the laboratory to determine the best temperature conditions or preservative to maximize the number of tests that can be performed on a single 24 hour collection.

Random Collections

For routine analysis and microscopic evaluation, have patient void into a clean container. Specimen should be capped, labeled, and refrigerated until courier pickup time. A clean-catch or midstream specimen is preferred. Patient should first void a small amount of urine which is discarded. Some of the urine should then be collected in a clean container before voiding is completed.