

CHEMISTRY

A. BLOOD CHEMISTRY

1. Specimen Collection:
 - a. Collect chemistry specimens in tiger top (silicon gel) or red top tubes. Collection requirements are listed in CHCS and in the Master Test List in this manual.
 - b. Specimens to be shipped to reference laboratories sometimes require special handling. If you are unable to locate the test in the CHCS or the Master Test List, contact the shipping section (533-2740) before drawing the sample to ensure a proper specimen.
2. Panels: The following panels are available:
 - a. Hepatic Function Panel/Chem 3 (albumin, bilirubin, alk phos, ALT, AST)
 - b. Basic Metabolic Panel/Chem2 (glucose, urea nitrogen, creatinine, sodium, potassium, chloride, CO₂)
 - c. Electrolyte Panel/Chem 6 (sodium, potassium, chloride, CO₂)
 - d. Comprehensive Metabolic Panel/Chem 1 (glucose, urea nitrogen, creatinine, sodium, potassium, chloride, CO₂, albumin, protein, alk phos, AST, bilirubin, calcium)
 - e. Lipid Profile (cholesterol, triglycerides, HDL, LDL)
 - f. Chem 4 Panel (glucose, chol, trig)
3. Toxicology:
 - a. Urine Drug Screen: for medical use only and not for “Legal” purposes.
 - b. Legal Blood Alcohol Test is the only legal procedure performed by this lab and requires a chain of custody form. See appendix B for instructions and form. Results are given to the Patient Administration Department (PAD) for distribution (533-0459/5037).
 - c. All other Toxicology testing is sent to a reference laboratory.

4. Therapeutic Drugs:
 - a. Therapeutic drug testing is no longer performed in house. Specimens are taken to Sierra Vista Regional Medical Center and results available from them on the same day the specimen was collected. Results are available on CHCS the next duty day. Draw all therapeutic drug specimens in a **plain red top tube** (No serum separator tubes).

5. Blood Alcohol Analysis:
 - a. Medical blood alcohol levels (ethanol) for medical diagnosis and treatment are to be drawn in a small gray or red top tube. A non-alcoholic disinfectant such as aqueous methiolate or providone iodine should be used to cleanse the venipuncture site. Do not use ethyl alcohol, isopropyl alcohol, acetone or ether.
 - b. Legal blood alcohols must be collected and handled according to the Legal Blood Alcohol SOP. See appendix B for instructions and form.

6. Glucose Tolerance Test:
 - a. Oral Glucose Tolerance Testing (3-hour) is performed Mondays and Thursdays and must be prescheduled with the laboratory receptionist (533-2918). The patient will also be given instructions for a successful test at this time.
 - b. Patients should arrive to the laboratory no later 0730 to begin testing. This will ensure the testing process is completed by 1100.
 - c. Patients should be advised to refrain from eating 12 hours (i.e. fasting state) prior to initiation of the test. **Patients should be instructed that they can and should drink water.**

B. URINE CHEMISTRY

1. Collection Instructions:

- a. **Urine Drug Screen:** Routine drug screens should be requested as "Drugs of Abuse" and collected on a random urine sample. Requests for specific drugs, or groups of drugs, must state suspected drugs ingested.
- b. **24-Hour Urine Collections:** accurate collection is critical for all quantitative analysis performed on 24-hour urine collections. The excretion patterns for most substances vary to such an extent that the failure to include one hour's urine, or the inclusion of one extra hour's urine in the 24 hour volume, may mean the difference between a normal and an abnormal result. The patient should void and discard the initial urine, noting and recording the exact time on the request form. All the urine voided for the next 24 hours, including the last excretion at the same hour the collection was started the prior day, should be collected in the container provided by the laboratory and kept in a refrigerator during the collection.
- c. **Interfering Substances:** all medications, including vitamins, should be discontinued at least 48 hours prior to the urine collection. Where the results of such medications are to be evaluated by analysis of urine, the names of all the drugs given must be listed on the request form. This minimizes the possibility of cross interference in the analysis.
- d. **Creatinine clearance:** The clearance of endogenous creatinine by the kidneys is a valid measure of glomerular filtration, since there is neither tubular excretion nor tubular reabsorption of this substance. Coffee, tea, diet pills and diuretics should be excluded 24 hours prior to collection of the sample. Indicate on the request slip the collection period in hours. The urine specimen requires no pretreatment and should be refrigerated throughout the collection period. The laboratory will draw a blood specimen at the time the patient delivers the 24-hour urine sample.