# DIRECTORY OF SERVICES

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REVISED: July 2011
PREFACE

Memorial Hospital is happy to service you and your patient’s laboratory needs. We appreciate feedback of any kind, so if we fall short of your expectations, please let us know.

This manual includes laboratory policies, services, specimen collection information and billing information to assist you. Pricing and billing information as well as current test methods and performance specifications is available by contacting the laboratory office at 849-5373.

COURIER SERVICE

Memorial Hospital maintains a courier service for the transportation of specimens to its laboratory for analysis. If you wish to schedule regular pick-ups or require a courier on an as needed basis, please contact the laboratory at 849-5373.

Routine courier service is not offered on weekends or holidays. If you have a special need for courier service on these days, please contact the laboratory to make arrangements.

CUSTOMER SUPPLIES

In order to provide uniformity in test processing, Memorial Hospital provides specimen collection and transport supplies for testing that is to be performed at our clinical laboratory.

The U.S. Department of Health and Human Services Office of Inspector General (OIG) and the Centers for Medicare and Medicaid Services (CMS) have stated that laboratories may only give their customers supplies that may be used solely for the collection, processing, storage, or transport of specimens sent to the laboratory that provided such supplies. If a customer is able to use a supply for other purposes, the laboratory may not provide the supply.

In addition, laboratories may only give customers quantities of permitted supplies that are reasonably related to the number of specimens the physician office sends to the laboratory for testing. Based on the OIG’s guidance, any arrangement whereby Memorial Hospital furnishes free supplies in excess of a physician’s need to collect and process specimens for testing by Memorial Hospital may be deemed as a violation of the anti-kickback statute.

Memorial hospital has a commitment to comply with all laws and regulations that affect our business.

Supplies can be ordered by:
- **Telephone:** Call the laboratory at 849-5373.
- **Courier:** Complete a Supply Order Form and return it via the courier.
- **Fax:** Complete a Supply Order Form and fax it directly to the laboratory at 849-5382.
Clinical Laboratory
Supply Order Form

Office _____________________________ Date _________________
Address ___________________________ Phone # ______________

Send by: ________ courier ________ will pick up ________ place in mailbox

<table>
<thead>
<tr>
<th>Histology/Cytology</th>
<th>Req Amt</th>
<th>Fill Amt</th>
<th>Fill By</th>
<th>General Lab</th>
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<tbody>
<tr>
<td>Pathology/Cytology Forms</td>
<td>Tubes</td>
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<td>Thin Prep vials</td>
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<td>Thin Prep Cyto Brushes</td>
<td>Red</td>
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<td>Thin Prep Cyto Spatulas</td>
<td>SST</td>
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<td>Glass Micro Slides</td>
<td>Blue</td>
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<td>Slide Folders</td>
<td>Green PST</td>
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<tr>
<td>Pre-Filled Biopsy cont.</td>
<td>Green</td>
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<tr>
<td>Specimen Labels</td>
<td>Gray</td>
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<td>Dark Blue</td>
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<td>Imuno FOB Kit</td>
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<td>Towelettes (CMS)</td>
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<td>Microbiology</td>
<td>Red Stool cont.</td>
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<td>Sputum kits</td>
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<td>Port-a-cul tube (Anaerobic)</td>
<td>Urine Cultures kits</td>
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<td>Fungal Slant (SAB)</td>
<td>24hr Urine containers</td>
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<tr>
<td>Ova &amp; Parasite set</td>
<td>Urine Collection Hat</td>
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<td>Stool culture vial</td>
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<tr>
<td>Viral culture transport media (chlamydia &amp; herpes)</td>
<td>Lab Office</td>
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<tr>
<td>Blood culture media</td>
<td>Lg. Specimen bags</td>
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<td>Mycoplasma media</td>
<td>Sm. Specimen bags</td>
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<td>MRSA swabs</td>
<td>Pre-Printed Physician</td>
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<td>Probetec STD Swab - Male</td>
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<td>Probetec STD Swab - Female</td>
<td>General Lab Request Forms</td>
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<td>Probetec STD Tube - Urine</td>
<td>Supply Order Forms</td>
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<td>Flu Swab</td>
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<tr>
<td>Affirm™ Collection Kit</td>
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</tbody>
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For your convenience, you may fax your order to (717)849-5382

Supplies necessary to submit specimens for analysis by Memorial Hospital are provided to our clients. Per federal regulations the quantity of items must correlate to the number of specimens submitted.

925065
05/2011
ORDERS

The Laboratory will only perform tests at the written request of an authorized person. Complete the Outpatient Request Form and provide the following information: Patient’s Name, address, date of birth, social security number, sex, physician’s name and all diagnosis codes related to the laboratory procedures ordered.

Verbal requests are permitted with subsequent written authorization for testing within 30 days. Contact the Patient Registration Department at 849-5360 with any verbal orders.

Standing orders will be accepted for extended course of treatments. They must have a fixed term of validity which cannot exceed a six month period.

MEDICAL NECESSITY OF LABORATORY TESTS

Memorial Hospital relies upon the physician’s clinical judgment with respect to the medical necessity of all testing services ordered, regardless of the payor.

Tests submitted for Medicare and Medical Assistance reimbursement must meet the individual program requirements or the claim may be denied. The U.S. Department of Health and Human Services, Office of the Inspector General takes the position that a physician who orders medically unnecessary tests may be subject to civil penalties. Medicare will only pay for tests that meet the Medicare coverage criteria and are reasonable and necessary to treat or diagnose an individual patient.

- Organ or disease related panels should only be ordered if all components of the panel are medically necessary. Any component of a panel may be ordered individually.
- Medical Necessity must be established for the entire course of a standing order.
- If tests are ordered for screening purposes or for diagnoses not covered by Medicare’s National Coverage Determinations policies, patients must be informed of their responsibility to pay. Please send the white and pink copies of a completed “Advance Beneficiary Notice” along with the requisition.
- If you or your office staff have any questions regarding the medical necessity requirements, please call the laboratory at 849-5371.

STAT TESTING

Selected tests listed in this manual are available on a STAT basis. STAT reports are telephoned as soon as test results are available. A written report will follow.

CRITICAL VALUES

A critical value is a laboratory test value at such a variance with normal as to represent a pathophysiologic state which is life threatening or requires immediate intervention. When a critical value of a lab test is encountered, the result will be called regardless of the order priority. All results will be called to the ordering physician or their office staff. Nursing home patient results will be called to the nursing supervisor. In the event, the physician office is closed, an attempt will be made to reach the physician at home or through their answering service.

The person to whom the result is given will be asked to repeat back the patient name, the name of the analyte and the critical result.

The critical call values for various analytes is included in the Specimen Requirement section of this manual.
REPEAT ANALYSIS

If the physician determines that a result is incompatible with a patient’s clinical condition, Memorial Hospital’s Laboratory will repeat the test at no additional charge if notification is received within 6 days and if analyte stability and specimen volume permit.

Test results marked “Verified” have already been repeated on the original specimen.

Follow-up or confirmatory testing is not considered a repeat analysis. These specimens will be processed and billed as new requests.

TEST ADDITIONS/ SPECIMEN RETENTION

Except for unstable specimens (e.g., cultures, CBC’s, Prothrombin Times, Urinalysis), the Laboratory retains most specimens for 6 days. If a test is to be added to a specimen that is already in-house, please contact the laboratory at 849-5373 as soon as possible. Test additions will require a faxed order or subsequent written authorization including any additional diagnosis codes supporting the medical necessity.

BILLING

Unless other arrangements have been made, all outpatient testing will be billed directly to the patient or the patient’s insurance carrier. Medicare requires that the laboratory performing the test, bill Medicare directly and receive payment under the Medicare fee schedule.

Complete the Outpatient Request Form and provide the following information: Patient’s Name, address, date of birth, social security number, sex, physician’s name and all diagnosis codes related to the laboratory procedures ordered. Also include the responsible party name and relationship to the patient, the insurance company’s billing address and policy number. It is acceptable to attach a photocopy of the patient’s insurance card to the Outpatient Request Form.

A listing of the Medicare National Limitation Amounts for all panels and individual tests is available upon request by contacting us at 849-5371.

CPT CODING

This manual provides the CPT codes that Memorial Hospital will use to bill our Medicare Carrier. CPT codes may change due to methodology changes or regulatory requirements. For further reference, please consult the CPT Coding Manual published by the American Medical Association, and if you have any questions regarding the use of a code, contact your Medicare carrier.
CERTIFICATIONS

Memorial Hospital Department of Pathology Laboratory holds the following accreditations, licenses and approvals:

1. Accredited by College of American Pathologists, Certification number 13034-01.

2. Licensed by the Bureau of Laboratories, Department of Health, Commonwealth of Pennsylvania, PA-000140.

3. Licensed by the U.S. Department of Health and Human Services, CLIA# 39D0187764.

4. Approved by the Food and Drug Administration
REFERENCE LABORATORIES

Procedures that are not performed by Memorial Hospital’s Clinical Laboratory will be referred to approved reference laboratories. Following is a list of reference laboratories utilized. If a request is made to forward a specimen to a reference lab not on this list for tests that are provided by one of these laboratories, there will be an additional handling fee.

<table>
<thead>
<tr>
<th>Reference Laboratory</th>
<th>Address</th>
<th>CLIA Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Red Cross Blood Services</td>
<td>4700 Mount Hope Drive, Baltimore, Maryland</td>
<td>21D0649813</td>
</tr>
<tr>
<td>Athena</td>
<td>377 Plantation Street, Worcester, Massachusetts</td>
<td>22D0069725</td>
</tr>
<tr>
<td>Genzyme Genetics</td>
<td>3400 Computer Drive, Westborough, MA 01581</td>
<td>22D0650245</td>
</tr>
<tr>
<td>Johns Hopkins Hospital</td>
<td>600 N. Wolfe Street, Baltimore, Maryland</td>
<td>21D0709511</td>
</tr>
<tr>
<td>Louis Herring &amp; Company</td>
<td>1111 South Orange Ave., P.O. Box 2191, Orlando, Florida</td>
<td>10D0275094</td>
</tr>
<tr>
<td>Mayo Medical Laboratories</td>
<td>200 First Street Southwest, Rochester, MN</td>
<td>24D0404292</td>
</tr>
<tr>
<td>National Medical Services</td>
<td>3701 Welsh Road, Willow Grove, PA 19090</td>
<td>39D0197898</td>
</tr>
<tr>
<td>Oxford Diagnostic Laboratories</td>
<td>2 Mount Royal Ave, Suite 100, Marlborough, MA</td>
<td>22D1099017</td>
</tr>
<tr>
<td>PerkinElmer Genetics, Inc (formerly Pediatrix Screening)</td>
<td>110 Roessler Road, Pittsburgh, PA</td>
<td>39D0673919</td>
</tr>
<tr>
<td>Penn State Hershey Medical Center</td>
<td>500 University Drive, Hershey, PA</td>
<td>39D0657304</td>
</tr>
<tr>
<td>Pennsylvania Department of Health Bureau of Laboratories</td>
<td>Pickering Way &amp; Welsh Pool Rd, Lionville, PA 19353</td>
<td>39D0709453</td>
</tr>
<tr>
<td>Pinnacle Health System</td>
<td>101 South Front Street, Harrisburg, PA</td>
<td>39D0682765</td>
</tr>
<tr>
<td>Prometheus Laboratories</td>
<td>5739 Pacific Center Boulevard, San Diego, CA</td>
<td>05D0917432</td>
</tr>
<tr>
<td>Quest Diagnostics</td>
<td>900 Business Center Drive, Horsham, PA</td>
<td>39D0204404</td>
</tr>
<tr>
<td>Quest Diagnostics, Nichols Institute East</td>
<td>14225 Newbrook Drive, Chantilly, VA</td>
<td>49D0221801</td>
</tr>
<tr>
<td>US Labs.</td>
<td>21 Summit View Drive, Brentwood, TN</td>
<td>44D0668408</td>
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<tr>
<td>US Labs.</td>
<td>2601 Campus Drive, Irvine, CA</td>
<td>05D0923321</td>
</tr>
<tr>
<td>York Hospital</td>
<td>1001 South George Street, York, PA</td>
<td>39D0657374</td>
</tr>
</tbody>
</table>
STAT TESTS

STAT results are used to directly and immediately effect the management or therapy provided for the patient.

Following is a listing of testing that will be performed STAT upon request.

<table>
<thead>
<tr>
<th>Blood</th>
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<th>Microbiology</th>
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</thead>
<tbody>
<tr>
<td>Acetone</td>
<td></td>
<td>Gram Stains on the following specimen types:</td>
</tr>
<tr>
<td>Acetaminophen</td>
<td></td>
<td>• Specimen collected in operating or deliver</td>
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<tr>
<td>Alcohol</td>
<td></td>
<td>room</td>
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<tr>
<td>Ammonia</td>
<td></td>
<td>• Amniocentesis Fluid</td>
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<tr>
<td>Amylase</td>
<td></td>
<td>• Cerebrospinal Fluid</td>
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<tr>
<td>Arterial Blood Gases</td>
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<td>• Pleural/Thoracentesis Fluid</td>
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<tr>
<td>BNP</td>
<td></td>
<td>• Peritoneal Fluid</td>
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<tr>
<td>BUN</td>
<td></td>
<td>• Synovial Fluid</td>
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<tr>
<td>Calcium</td>
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<tr>
<td>Calcium, Ionized</td>
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<tr>
<td>Carboxyhemoglobin</td>
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<tr>
<td>CBC and any component</td>
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<tr>
<td>Chloride</td>
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<tr>
<td>CO2</td>
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<tr>
<td>CPK</td>
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<tr>
<td>CK-MB subunit</td>
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<tr>
<td>Creatinine</td>
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<tr>
<td>D-Dimer++</td>
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<tr>
<td>Digoxin</td>
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<tr>
<td>Dilantin (Phenytoin)</td>
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<tr>
<td>Fetal Fibronectin++</td>
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<td>Fibrin Split Products</td>
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<tr>
<td>Fibrinogen</td>
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<tr>
<td>Gentamicin</td>
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<td>Glucose</td>
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<td>HCG, Qualitative &amp; Quantitative</td>
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<tr>
<td>Lactic Acid</td>
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<td>Lithium</td>
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<tr>
<td>Magnesium</td>
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<tr>
<td>Neonatal Bilirubin</td>
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<td>Osmolality</td>
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<td>Phenobarbital</td>
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<td>Potassium</td>
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++ Due to methodology, these tests have slightly longer analysis time.
OUTPATIENT LABORATORY

I. Patients who require outpatient blood work should register at the Patient Registration desk or by registering in advance over the telephone. The pre-registration call center is open weekdays from 8 am to 8 pm and on Saturdays from 8 am to noon. The telephone number is 815-2351.

A phlebotomist is on duty in the outpatient laboratory for the collection of outpatient blood specimens as follows:

- **Monday - Friday:** 6:00 AM - 6:30 PM
- **Saturday:** 6:00 AM - 12:00 Noon

Greenbriar Diagnostic Center Hours:

- **Monday – Friday:** 7:00 AM - 5:00 PM
- **Saturday:** 7:00 AM - 10:30 AM

Both centers are closed Sundays and major holidays.

II. When the Outpatient Laboratory is closed, patients will be encouraged to return during regular outpatient hours if the work to be collected is not of an emergent nature.

REPORTING OF OUTPATIENT RESULTS

I. Outpatient reports will be distributed in one of the following ways:
   A. Autofaxed to the physician’s secure fax line.
   B. Placed in the Physician's hospital mailbox.
   C. Mailed to the Physician’s office if the Physician does not have a hospital mailbox.
   D. STAT results and critical call values will be called to the Physician's office or to the Physician if he/she is within the hospital.
   E. Delivered to the Physician’s office via courier.

All outpatient results may also be accessed using the hospital’s Web Portal internet based application. For more information regarding this product, contact the Information Technology department at 849-5573.

II. Abbreviations/ Wording used on reports:
   A. Ver - verified, indicates that repeat analysis has been performed on the same specimen to confirm an unexpected value or a markedly abnormal value.
   B. QNS - the quantity of specimen is not sufficient for performing the lab analysis requested. No report will be forthcoming and the charge has been canceled.
C. Icteric - the serum or plasma was obviously colored with bilirubin or another bilirubin-like pigment. The serum or plasma has a greenish-yellow color.

D. Lipemic - the serum or plasma has a milky appearance due to fats or lipids. Large amounts of lipemia may interfere with some lab tests and require some to be sent to a reference lab. The sample was used unless otherwise noted.

E. Hemolysis - the serum or plasma is pinkish to red in color. The RBC’s have been broken down, releasing hemoglobin into the plasma or serum. Hemolysis may interfere with some tests and give erroneous results. The laboratory will not do tests that are adversely affected by hemolysis. In emergency situations, the Physician may request that the test(s) be done on the hemolyzed specimen. The laboratory will indicate the degree of hemolysis and the Physician must interpret the value of the results.
BLOOD COLLECTION GUIDELINES

I. To draw representative blood specimens for the laboratory:

A. Never leave the tourniquet on for longer than 1 minute. Localized stasis may result in hemoconcentration and the formation of a partial filtrate of blood.

B. After cleansing the venipuncture site with an appropriate antiseptic, allow the area to dry before performing the venipuncture to prevent hemolysis of the specimen.

C. Drawing with vacutainers:

1. Fill the tube until the vacuum is exhausted and blood flow ceases. This will insure the correct ratio of anticoagulant to blood.

2. Mix immediately after drawing each tube that contains an additive by gently inverting the tube 5-10 times. Vigorous mixing may result in hemolysis.

3. The following "order of draw" is recommended when drawing several specimens during a single venipuncture.
   a. Blood Culture
   b. Non-Additive Tube (plain red glass)
   c. Citrate Tube (Light Blue)
      i. A blue stoppered tube intended for coagulation tests should never be drawn first, because the thromboplastin from the venipuncture site can invalidate the results. If the blue stoppered coagulation tube is the only tube to be drawn, a 5 mL discard tube should be drawn first.
      ii. If a blood collection set (butterfly) is used to draw blood another tube must be used to prime the line of the blood collection set to ensure proper volume is collected.
   d. Gel Separator Tube (SST)
   e. Serum Tube (plain red plastic)
   f. Heparin Tube (green)
   g. EDTA Tube (Lavender, Dark Blue, Pink or White)
   h. Fluoride Tube (Gray)

4. Tubes containing anticoagulant should be filled with correct volume of blood, the volume will be correct if the vacuum is exhausted before the tube is removed. Removing the tube from the vacutainer holder while there is significant vacuum remaining may result in hemolysis.

D. Drawing with a needle and syringe:

1. Select the appropriate needle size.
2. Avoid drawing the plunger back too forcefully, this may cause hemolysis and frothing.

3. The stoppers should be removed from the specimen tubes, the needle should be removed from the syringe, and the blood should be gently expelled, allowing it to flow down the side of the tube. Puncturing the stopper and allowing the tube to
draw the blood from the syringe may result in hemolyzed specimens and puncture wounds to the phlebotomist.

4. Tubes containing anticoagulant should be filled with the correct amount of blood and gently mixed.

E. It is recommended that venipuncture on children be performed using a 20-23 gauge winged infusion set with attached tubing (butterfly). Many laboratory tests can be performed on capillary blood.

II. Labeling:

A. The properly collected blood specimen must be properly labeled with the patient's name, a second patient identifier (date of birth is recommended) and the date/time of specimen collection.

B. Improperly labeled or unlabeled specimens will not be used for laboratory analysis.

C. Specimens may not be labeled after receipt in the laboratory nor may the label be changed once the specimen is labeled.

D. If the specimen is unlabeled or mislabeled, it must be recollected. (Exceptions may be made for irreplaceable specimens which may only be labeled by the person collecting the specimen.)

E. Labeling of the specimen is the responsibility of the person collecting the specimen and should be done by that person only.

III. Transport of Specimens from Satellite locations, physician offices, or Home Health Agencies

A. All specimens should be transported in a puncture proof container with the biohazard symbol affixed.

B. Specimens requiring refrigeration should be placed in a cooler with a cold pack. Frozen specimens may also be placed in the cooler if frozen solid and transport will be immediate.

C. If there will be a delay in transport from freezer to the laboratory, frozen specimens must be placed on dry ice.

D. Room temperature specimens should not be placed in the cooler with refrigerated specimens.

NOTE: Unless otherwise indicated in the specimen requirement table, all specimens should be refrigerated.
COLLECTION OF SPECIMENS REQUIRING SPECIAL HANDLING

I. Alcohols for Legal/Medical Purposes

A. Legal alcohols must be collected by trained personnel, using a NMS (National Medical Services) collection kit and accompanied by a completed, preprinted NMS form. All Legal alcohols are sent to NMS for testing Monday – Friday. Results will go directly to the requesting police department.

B. Medical alcohols may be done on either serum or plasma and should be drawn in either a gray stopper tube or a SST tube. A SST tube or a gray stoppered tube and a NMS collection kit will need to be drawn when requesting both a Medical and Legal alcohol.

C. When collecting blood for an alcohol test, use a non-alcohol antiseptic to cleanse the skin. Betadine is recommended. The specimen tube should be completely filled and must be kept stoppered until the test is run. Deliver the specimen to the lab immediately.

II. Glucose Tolerance Testing

A. Patient Preparation
1. The patient should be taking at least 150 gram of carbohydrate daily prior to the test, be free from fever, acute illness or trauma for at least two weeks, be ambulatory, not taking drugs such as birth control pills, salicylates, steroids or diuretics during the three day dietary preparation period.

2. Hypoglycemic medication should be omitted on the day of the test.

3. The test should be started between 7 AM and 9 AM.

4. The patient should be fasting 8-10 hours prior to starting the test.

5. The patient should avoid any physical exertion, emotional stress and stimulants (tobacco, alcohol, coffee, tea) during the time of the test.

6. If the patient becomes ill during the test and vomits, the test will have to be canceled and rescheduled.

7. The phlebotomist will draw a fasting glucose and then give the patient the glucose solution. The patient must finish the glucose solution in 5 minutes or less.

Doses:
- Prenatal: 50 Grams
- 2 Hour: 75 Grams
- Gestational 3 Hour: 100 Grams

8. Specimens will then be collected at the following intervals after the ingestion of the glucose solution.

- Prenatal: 1 Hour
- 2 Hour: 2 Hours
- Gestation 3 Hour: 1 hour, 2 hours and 3 hours
III. Arterial Blood Gas

A. Arterial blood gases are collected by the Physical Medicine Department.

IV. Blood Culture Collection

The number and timing of blood cultures is usually determined by the patient’s overall condition which is dependent upon the transient or continuous nature of the infection. One factor in common, however, is the direct relationship between the volume of blood collected and the likelihood of recovering a pathogen of clinical importance. In many cases, especially if a patient is quite ill, it is more important to collect enough blood for two separate blood cultures from the same venipuncture instead of timing each collection separately.

The medium into which blood is drawn for culture is enriched meaning it will enhance and encourage the growth of a single bacteria cell. Therefore, the phlebotomist must pay strict attention to aseptic technique so as not to introduce any bacterial normally found on the human skin. Even a single cell can proliferate in the enriched nutritional medium which can turn a negative blood culture into a false positive. These contaminants can generate unnecessary expense and labor for the lab, misdiagnosis, inappropriate antibiotic usage, and prolonged and unnecessary length of stay for the patient. The rate of blood culture contamination should be lower than 3% of cultures collected. Drawing blood through catheters or other prosthetic devices is discouraged because of the difficulty in adequately decontaminating them.

Blood for culture should not be drawn through a indwelling intravenous or intraarterial catheter unless it cannot be obtained by venipuncture.

A. Collection:

1. Site Selection
   a. Select a different body site for each culture to be drawn.
   b. Avoid drawing blood through indwelling intravascular catheters unless blood cannot be obtained by venipuncture.

2. Site Preparation

   ● Normal adult collection
     Chloraprep® One-Step Frepp® Applicators - Remove FREPP (chlorhexidine gluconate 2% and isopropyl alcohol 70%) from kit. Pinch handle once to break ampule. Do not continue to squeeze handle. Depress sponge against selected site to saturate. Scrub vigorously for 60 seconds and allow to dry.

   ● Pediatric collection (2 months or less)
     Medi-Flex® Blood Culture Prep Kit

     1.) Remove FREPP (70% isopropyl alcohol and 10% acetone solution) from kit. Pinch handle once to break ampule. Do not continue to squeeze handle. Depress sponge against selected site to saturate. Scrub vigorously for 60 seconds and allow to dry.

     2.) Remove SEPP (10% povidone-iodine solution) from kit. Pinch center to break ampule. Apply to site starting at the center and moving out in concentric circles. Allow 10% povidone-iodine solution to dry (1 - 2 minutes depending on the amount applied to the site) prior to venipuncture.
3. Disinfecting Blood Culture Vials
   a. Remove flip-off caps from vials.
   b. Wipe the tops of the blood culture vials with 70% isopropyl alcohol pad and leave the pad on top of the bottle until the blood is ready to be injected.
   c. **Do not use iodine to disinfect tops of vials.**

4. Venipuncture
   b. Avoid touching the site of venipuncture. If it is necessary to touch the site after it has been cleansed, wipe your fingers with iodine.
   c. When using the Blood Collection Set ("butterfly") the phlebotomist **MUST** carefully monitor the volume collected by means of the 5 mL graduation marks on the vial label. If the volume is not monitored, the stated maximum amount collected may be exceeded. This condition may adversely create a “false” positive result, due to high blood background. To facilitate the filling use a sharpie to mark the acceptable fill line on the bottle (2 measured lines above the liquid level in the bottle).
   NOTE: (Always fill the AEROBIC/F* bottle first) - **Blue band**
   d. If using a needle and syringe, typically a 20 mL syringe is used for adults. Draw 16-20 mL of blood for one blood culture set (aerobic and anaerobic). Aseptically inject 8-10 mL of specimen into each vial.
   e. For pediatric patients, a 3 mL syringe is frequently used. Draw 1-3 mL of blood and transfer the entire amount into BACTEC® PEDS PLUS/F vial. The maximum fill for these bottles is 5mL.
   f. Gently invert bottles to minimize coagulation.
   g. After venipuncture, use a sterile alcohol pad to remove the povidone-iodine solution.
   h. The inoculated BACTEC® vials should be transported as quickly as possible to the laboratory.

B. Volume

The volume of blood cultured is critical because the concentration of organisms in most cases of bacteremia is low, especially if the patient is on antimicrobial therapy. In infants and children, the concentration of organisms during bacteremia is higher than adults, so less blood is required for culture.

1. Children: 1-5 mL of blood per -venipuncture. Transfer the entire amount to a BACTEC PE DS PLUS/F vial.

2. Adult: 16-20 mL of blood per venipuncture. If it is impossible to draw the required amount, aliquot as follows:

<table>
<thead>
<tr>
<th>Amount per Venipuncture</th>
<th>Amount in BACTEC Plus Aerobic Vial (blue band)</th>
<th>Amount in BACTEC Lytic Anaerobic Vial (purple band)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20 mL</td>
<td>Split equally between aerobic and anaerobic vials</td>
<td></td>
</tr>
<tr>
<td>13-16 mL</td>
<td>8 mL</td>
<td>5 - 8mL</td>
</tr>
<tr>
<td>10-12 mL</td>
<td>5 - 7 mL</td>
<td>5 mL</td>
</tr>
<tr>
<td>5-9 mL</td>
<td>entire blood amount</td>
<td>0 mL</td>
</tr>
</tbody>
</table>

15
NOTE: Optimum recovery of isolates will be achieved by adding 8 - 10 mL of blood (BACTEC PEDS PLUS/F: 1 - 5 mL). The use of lower or higher volumes may adversely affect recovery and/or detection times.

C. Specimen Labeling

The bar-code on each bottle is used by the lab to scan the bottles into the machine therefore, collection labels should be placed horizontally around the bottom of the bottle below the thick black line so as not to cover the bar-code.

IV. Bone Marrow Taps

A. Assistance with Bone Marrow taps must be scheduled with the Hematology Department at 849-5390.

B. The Technologist assisting will provide equipment needed for the tap. Nursing assistance may be required for any preparation of the patient or special requests of the physician.
URINE AND FECAL COLLECTION PROCEDURES

I. 24 Hour Urine Collection

A. If the test requested indicates a special preservative, obtain a 24 hour urine container from the laboratory.

B. If no preservative is needed, you may obtain a container from central supply or the laboratory. Refer to the Specimen Requirements section to determine if a preservative is indicated.

C. Some preservatives are hazardous. Containers with these preservatives will be clearly marked. If the container is given to a patient, the hazards should be explained to the patient.

D. In order to provide the lab with an accurate collection of urine voided in a 24 hour period, have the patient void and discard the first specimen obtained at the start of the test.

E. All urines voided in the next 24 hours (day or night) must be added to the 24 hour container.

F. At the end of the 24 hours, the patient should void and the specimen obtained will be added to the 24 hour container.

G. If there is no preservative, the urine container should be kept in the refrigerator or on ice for the 24 hour collection period. Keep refrigerated until delivery to the lab.

II. 2 Hour Urine Amylase

A. Patient should empty bladder and discard the urine.

B. Patient should drink an 8 oz. glass of water.

C. If the patient needs to void prior to the 2 hour collection time, save the urine in a urinalysis container.

D. Exactly 2 hours later, the patient should void all urine into a urinalysis container. If the patient should be unable to void at the end of the two hours, attempt collections at hourly intervals noting the time of collection.

III. Creatinine Clearance

A. Obtain a 24 hour urine collection with no preservative.

B. A blood specimen for creatinine must be collected during the 24 period of urine collection.

IV. Routine Urinalysis

A. Routine urinalysis should be clean catch midstream urine specimen. The patient should be instructed to cleanse the genital area, allow the first few drops of urine voided to go into the toilet and then collect the urine in the container, removing the container before they are finished urinating.

B. Urine specimens should be kept refrigerated until delivery to the lab.
V. Clean Catch Urine Collection

A. Wash hands thoroughly with soap and water.

B. Open the sterile specimen container and place the cap on a flat surface with the straw pointing up. Do not touch the straw or allow it to touch any surface.

C. Open the packet of towelettes and cleanse as follows:
   a. Females: Using thumb and forefinger on one hand, separate the outer vaginal lips. Use the other hand to cleanse the vaginal area with a towelette proceeding from front to back. Discard the towelette. Use the second towelette and wipe down through the center of the labial folds. Keep vaginal lips separated and start to urinate in the toilet.
   b. Males: Wipe head of penis in a single motion with one towelette. Repeat with the remaining towelette. If not circumcised, hold foreskin back before cleansing. Urinate a small amount in the toilet.

D. Pick up the sterile urine cup and place the container in the urine stream to collect specimen.

E. Finish voiding into the toilet.

F. Place the cap back onto the container and secure tightly.

VI. Feces

A. Random fecal specimens should be collected without contamination of urine or toilet tissue.

B. The specimen should be placed in a stool container and delivered to the lab as soon as possible. Stool specimens need never to be collected in a sterile container.

C. See Microbiology section for collection procedures for Ova and Parasites.

D. Occult Blood specimen collection is the same as random fecal collection. A representative sample of the stool should be placed in the occult blood vial.
BODY FLUIDS

I. Collection and Storage.
   A. All body fluids should be collected in and delivered to the lab in sterile containers.
   B. Body fluids are considered irreplaceable specimens and should not be left in the specimen accessioning area. Specimens should be handed to a technologist.
   C. Fluids should never be stored at room temperature and should be delivered to the lab immediately.
   D. All body fluids will be processed by Microbiology first, then Hematology, Chemistry and the remainder of the fluid will go to Histology unless otherwise specified.

II. Cerebrospinal Fluid
   A. CSF is collected in numbered sterile tubes with the numbers indicating the order in which the tubes were collected.
   B. Microbiology will use tube #3 or #4. Hematology will use tube #2 or #3. Chemistry will use tube #1 or #2.
   C. The routine cerebrospinal fluid panel (mneumonic is CSFP) includes:
      - Appearance
      - Color
      - RBC
      - WBC (differential if WBC > 10)
      - Glucose
      - Protein
   D. All other testing must be ordered separately.

III. Synovial Fluid
   A. A portion of the fluid (at least 1 mL) should be placed into a sterile green top tube containing sodium heparin to anticoagulate the specimen. The remaining fluid should be placed into a sterile container for Microbiology processing or any additional testing.
   B. The routine synovial fluid panel (mneumonic is SYNO) includes:
      - WBC (differential if WBC > 10)
      - Glucose
      - Crystal Analysis

IV. Pleural Fluid
   A. A portion of the fluid (at least 1 mL) should be placed into a sterile lavender top tube containing sodium EDTA to anticoagulate the specimen. The remaining fluid should be placed into a sterile container for Microbiology processing or any additional testing.
V. Other Fluids

Tests must be ordered individually using the following mnemonics. Place a comment in the computer indicating the type of fluid.

<table>
<thead>
<tr>
<th>MNEUMONIC</th>
<th>TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLWBC</td>
<td>WBC</td>
</tr>
<tr>
<td>FLDIF</td>
<td>WBC with differential</td>
</tr>
<tr>
<td>FLRBC</td>
<td>RBC</td>
</tr>
<tr>
<td>BFAMY</td>
<td>Amylase</td>
</tr>
<tr>
<td>BFBIL</td>
<td>Total Bilirubin</td>
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<tr>
<td>BFGLU</td>
<td>Glucose</td>
</tr>
<tr>
<td>BFLDH</td>
<td>LDH</td>
</tr>
<tr>
<td>BFTP</td>
<td>Total Protein</td>
</tr>
<tr>
<td>BFUA</td>
<td>Uric Acid</td>
</tr>
<tr>
<td>CFLD</td>
<td>Culture with gram stain</td>
</tr>
<tr>
<td>BFPH</td>
<td>pH</td>
</tr>
<tr>
<td>CRYST</td>
<td>Crystals</td>
</tr>
<tr>
<td>SG</td>
<td>Specific Gravity</td>
</tr>
</tbody>
</table>

V. Any testing for Histology or Cytology should be placed on a manual requisition. See Histology section for specific information.
BLOOD COLLECTION TUBES

Generally, 40% of whole blood is retrieved as either serum or plasma. Therefore, from the average patient, a completely filled 10 ml tube will give about 4 ml of serum or plasma. When multiple types of tests and tubes are required to be collected from the same patient, the following order of draw is recommended:

**Red**- This tube contains no anticoagulant. After collection, allow the blood to clot for 30 minutes at room temperature. Centrifuge at 3600 rpm's for 10 minutes. Transfer serum to plastic vial. DO NOT CENTRIFUGE ANY SPECIMENS FOR BLOOD BANK STUDIES.

**Blue**- This tube contains a 3.2% solution of Sodium Citrate as the anticoagulant. After the tube is filled, gently invert 3-4 times to prevent clot formation. It is essential that the tube is allowed to fill to its capacity. The vacuum in the tube is calibrated to draw 4.5 ml of blood. An improper blood/ anticoagulant ratio will invalidate coagulation test results.

**Gold** (Serum Separator Tube)- This tube contains no anticoagulant except a frosted coating designed to activate the clotting process, and 1 ml of gel which when centrifuged, will separate the blood clot from the serum. After collection, gently invert 5 times and allow the blood to clot for 30 minutes at room temperature. Centrifuge at 3600 rpm's for 10 minutes. Refrigerate or transfer serum to plastic vial if testing indicates freezing.

**Green**- This tube contains Sodium Heparin as an anticoagulant. After the tube is filled, gently invert 8-10 times to prevent clot formation.

**Brown**- This tube contains Sodium Heparin as an anticoagulant. After the tube is filled, gently invert 3-5 times to prevent clot formation. This tube is used for Lead determinations.

**Royal Blue**- This tube contains Sodium Heparin as an anticoagulant. After the tube is filled gently invert 3-5 times to prevent clot formation. This tube is used for trace metal determinations.

**Lavender**- This tube contains powdered EDTA (Ethylenediamine tetra-acetic acid) as an anticoagulant. After the tube is filled, gently invert 8-10 times to prevent clot formation. Do not centrifuge this tube if analysis is for hematologic studies.

**Light Green**- This tube contains Lithium Heparin as an anticoagulant and 1 ml of gel which when centrifuged, will separate the blood clot from the plasma. After the tube is filled, gently invert 8-10 times to prevent clot formation.

**White**- This tube contains K3 EDTA as an anticoagulant and 1 ml of gel which when centrifuged, will separate the blood clot from the plasma. After the tube is filled gently invert 8-10 times to prevent clot formation.

**Yellow**- This tube contains ACD as an anticoagulant. After the tube is filled, gently invert 3-5 times to prevent clot formation. Keep specimen at room temperature.

**Dark Blue**- This tube contains no anticoagulant. It is specially treated for use in determination of trace elements, such as zinc, selenium, etc.

**Gray**- This tube contains oxalate as an anticoagulant and fluoride as a preservative. After the tube is filled, gently invert 8-10 times to prevent clot formation. Refrigerate. No centrifugation is necessary.

**Pink**- This tube contains K2 EDTA as an anticoagulant. After the tube is filled, gently invert 8-10 times to prevent clot formation. Do not centrifuge. This tube is used for Blood Bank studies.
## CHEMISTRY PANELS

<table>
<thead>
<tr>
<th>Electrolytes</th>
<th>Basic Metabolic</th>
<th>Comprehensive Metabolic</th>
<th>Lipid Panel</th>
<th>Liver Function</th>
<th>Renal Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mnemonic</td>
<td>E</td>
<td>BASIC</td>
<td>METAB</td>
<td>LP</td>
<td>LF</td>
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<tr>
<td>CPT Code</td>
<td>80051</td>
<td>80048</td>
<td>80053</td>
<td>80061</td>
<td>80076</td>
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<tr>
<td>Sodium</td>
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<tr>
<td>Potassium</td>
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<tr>
<td>Chloride</td>
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<tr>
<td>CO2</td>
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<tr>
<td>Glucose</td>
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<tr>
<td>BUN</td>
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<td>X</td>
<td></td>
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</tr>
<tr>
<td>Creatinine</td>
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<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Calcium</td>
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<tr>
<td>Albumin</td>
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<tr>
<td>Alk. Phos.</td>
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<tr>
<td>ALT</td>
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<tr>
<td>D. Bili</td>
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<tr>
<td>T. Bili</td>
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<tr>
<td>T. Protein</td>
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<tr>
<td>Phosphorus</td>
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<tr>
<td>Cholesterol</td>
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<tr>
<td>Triglyceride</td>
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<tr>
<td>HDL Cholesterol</td>
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<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Any component of the above Chemistry Panels may be ordered individually.
SPECIMEN REQUIREMENTS

Following are the specimen requirements for the most frequently ordered/common laboratory tests.

Please refer to the special sections for more detailed information regarding:

- Body Fluids: Pages 19-20
- Blood Bank: Pages 83-86
- Microbiology: Pages 87-101
- Pathology/Cytology: Pages 102-106

If you have any questions regarding proper collection of any specimen or the test is not contained in this manual, please contact the Laboratory at 849-5373.
<table>
<thead>
<tr>
<th><strong>ACETAMINOPHEN</strong></th>
<th><strong>ACTIVATED PARTIAL THROMBOPLASTIN TIME (PTT)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Required: 2 ml. serum (Red)</td>
<td>Specimen Required: 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube. Specimens may be kept refrigerated or at room temperature for up to 4 hours. If there will be a longer delay, specimen must be centrifuged, separate plasma from the cells and FREEZE</td>
</tr>
</tbody>
</table>
| **Therapeutic Range:** 10 - 25 ug/mL | **Expected Values:**
| **Critical Values:** > 150 ug/mL | aPTT: 21.9-34.8 seconds
| **Days Test Set Up:** Done all shifts. | Therapeutic Heparin Range: 51.7-88.0 seconds
| **CPT code:** 82003 | **Critical Values:** > 100 seconds |

<table>
<thead>
<tr>
<th><strong>ACETONE</strong></th>
<th><strong>ADENOCORTICTROPIC HORMONE (ACTH)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Required: 1 ml serum (SST).</td>
<td>Specimen Required: 2 ml plasma (LAVENDER). Collect specimen between 7AM and 10AM. If drawn at any other time, the Reference Ranges do not apply.</td>
</tr>
<tr>
<td><strong>Expected Values:</strong> Negative</td>
<td><strong>Instructions:</strong> Centrifuge immediately after collection and FREEZE plasma</td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82009</td>
<td><strong>CPT code:</strong> 83519</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ACETYLCHOLINE RECEPTOR ANTIBODIES</strong></th>
<th><strong>ADENOVIRUS ANTIBODY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Required: 2 ml serum (SST).</td>
<td>Specimen Required: 1 ml serum (SST).</td>
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<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
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<td><strong>CPT code:</strong> 83519</td>
<td><strong>CPT code:</strong> 86603</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ACID PHOSPHATASE (Prostatic) (PAP)</strong></th>
<th><strong>ACID PHOSPHATASE (Prostatic) (PAP)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Required: 1.0 mL serum (Red)</td>
<td><strong>Instructions:</strong> Specimen must be frozen if received by the laboratory more than 24 hrs after collection.</td>
</tr>
<tr>
<td><strong>Instructions:</strong></td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td><strong>CPT code:</strong> 82024</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 84066</td>
<td><strong>CPT code:</strong> 86603</td>
</tr>
<tr>
<td>Test Description</td>
<td>Code</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>ALBUMIN</td>
<td>ALB</td>
</tr>
<tr>
<td>Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: 3.4 - 4.6 gm/dL</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Done all shifts.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82040</td>
<td></td>
</tr>
<tr>
<td><strong>ALCOHOL BLOOD (Legal)</strong></td>
<td>NMS</td>
</tr>
<tr>
<td>Specimen Required: 10 ml (Gray) whole blood collected using a NMS kit</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by National Medical Services (NMS).</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82055</td>
<td></td>
</tr>
<tr>
<td><strong>ALCOHOL BLOOD (Medical)</strong></td>
<td>ALC</td>
</tr>
<tr>
<td>Specimen Required: 5 ml serum or plasma (SST/Gray)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: none detected</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Done all shifts.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82055</td>
<td></td>
</tr>
<tr>
<td><strong>ALDOLASE</strong></td>
<td>ALDOL</td>
</tr>
<tr>
<td>Specimen Required: 2 ml serum (SST). Separate from cells and FREEZE.</td>
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</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
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</tr>
<tr>
<td>CPT code: 82085</td>
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</tr>
<tr>
<td><strong>ALDOSTERONE</strong></td>
<td>ALDOS</td>
</tr>
<tr>
<td>Specimen Required: 1.0 mL serum (Red)</td>
<td></td>
</tr>
<tr>
<td>Instructions: Must be centrifuged within 30min.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
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</tr>
<tr>
<td>CPT code: 82088</td>
<td></td>
</tr>
<tr>
<td><strong>ALKALINE PHOSPHATASE</strong></td>
<td>ALK</td>
</tr>
<tr>
<td>Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: 30 - 110 U/L</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Done all shifts.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 84075</td>
<td></td>
</tr>
<tr>
<td><strong>ALKALINE PHOSPHATASE ISOENZYMES</strong></td>
<td>ALKIS</td>
</tr>
<tr>
<td>Specimen Required: 2 ml serum (SST).</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 84075, 84080</td>
<td></td>
</tr>
<tr>
<td><strong>ALPHA-1-ANTITYPESIN</strong></td>
<td>ATRYP</td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (SST).</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82103</td>
<td></td>
</tr>
<tr>
<td><strong>ALPHA-FETOPROTEIN-MATERNAL</strong></td>
<td>AFP</td>
</tr>
<tr>
<td>The following information must be provided: Weeks gestation as of what date, method of determining estimated date of conception (LMP or ultrasound), maternal weight, race, diabetic status, multiple gestation, history of neural tube defect and if this is a repeat analysis</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (SST).</td>
<td></td>
</tr>
<tr>
<td>Instructions: Specimen must be drawn between 15.0 and 22.9 weeks gestation.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82105</td>
<td></td>
</tr>
</tbody>
</table>
**ALPHA-FETOPROTEIN - oncology**

**Specimen Required:** 1ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82105

**ALPHA-FETOPROTEIN - triple screen**

(includes AFP, Estriol, Quant. HCG)

The following information must be provided:
- Weeks gestation as of what date, method of determining estimated date of conception (LMP or ultrasound), estimated date of delivery, maternal weight, race, diabetic status, multiple gestation, history of neural tube defect and if this is a repeat analysis.

**Specimen Required:** 3 ml serum (SST).

**Instructions:** Specimen must be drawn between 15.0 and 22.9 weeks gestation.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82105, 84702, 82677

**ALPHA-FETOPROTEIN - quad screen**

(includes AFP, Estriol, Quant. HCG and Inhibin A)

The following information must be provided:
- Weeks gestation as of what date, method of determining estimated date of conception (LMP or ultrasound), estimated date of delivery, maternal weight, race, diabetic status, multiple gestation, history of neural tube defect and if this is a repeat analysis.

**Specimen Required:** 3 mL serum (SST).

**Instructions:** Specimen must be drawn between 15.0 and 22.9 weeks gestation.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82105, 84702, 82677, 86336

**ALT (SGPT) - ALT**

**Specimen Required:** 2 ml serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 10 - 60 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84460

**AMIKACIN, PEAK - AMIKP**

**Specimen Required:** 1ml serum (Red).

**Instructions:**
- Draw peak level at end of 60 min IV infusion or 30 min after end of a 30 min IV infusion, or 60 min after an IM dose.

**Therapeutic Range:**
- Peak: 20 - 35 mg/L.

**Critical Values:** > 45 mg/L

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80150

**AMIKACIN, TROUGH - AMIKT**

**Specimen Required:** 1ml serum (Red)

**Instructions:**
- Draw peak level 30 to 60 min. post infusion or injection. Draw trough level within 30 min. prior to next dose.

**Therapeutic Range:**
- Trough: 4 - 8 mg/L.

**Critical Values:** > 45 mg/L

**Days Test Set Up:** Testing performed by Quest Diagnostics.
AMINO ACID SCREEN PLASMA QUANTITATIVE  AMINP

Specimen Required: 2.0 ml. plasma (Green).

Instructions: Separate plasma from cells within 30 minutes and FREEZE.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82128

AMIODARONE AMIO
(Includes Desmethylamiodaron)

Specimen Required: 3 mL serum (Red).

Instructions: Centrifuge within 1 hr of collection, and immediately separate plasma from cells and FREEZE

Therapeutic Range:
Amiodarone: 1.5 – 2.5 µg/mL
Desmethylamiodaron: 1.5 – 2.5 µg/mL

Critical Value: > 2.5 µg/mL

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82140

AMITRYPTILINE AMITR

Specimen Required: 3 ml. serum (Red)

Therapeutic Range:
Amitryptiline plus Nortryptiline: 80 - 220 ng/mL

Critical Values:
Amitryptiline plus Nortryptiline: > 500 ng/mL

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80152

AMMONIA NH3

Specimen Required: 3ml. EDTA plasma (Lavender).

Instructions: Must be drawn at hospital location. Transport on ice.

Expected Values: 11 - 35 umol/L

Critical Values: > 50 umol/L

Days Test Set Up: Done all shifts.

CPT code: 82128

AMYLASE AMY

Specimen Required: 1ml. serum (SST)

Expected Values: 24 - 120 U/L

Days Test Set Up: Done all shifts.

CPT code: 82150

AMYLASE 24 HR URINE 24UAM

Specimen Required: 24 hr urine collection. No preservative.

Expected Values: 24 – 408 U/24 hr

Days Test Set Up: Testing performed daily.

CPT code: 82150, 81050

AMYLASE, 2 HR. URINE 2 UAMY

Specimen Required: 2 hr. urine collection

Expected Values: 2 - 34 U/ 2hr.

Days Test Set Up: Testing performed daily.

CPT code: 82150, 81050
**AMYLASE, RANDOM URINE**

**Specimen Required:** 4ml. random urine

**Expected Values:** No expected range for random urine.

**Days Test Set Up:** Testing performed daily.

**AMYLASE ISOENZYMES**

**Specimen Required:** 1ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 82150, 84999

**ANA**

**Specimen Required:** 1mL serum (SST). Avoid hemolysis.

**Expected Values:** Negative

**Days Test Set Up:** Testing done on Tues. & Thur.

**CPT code:** 86038

A titer and pattern will be performed on all positive ANA screens. The ANA screen will not be billed and the following CPT will be charged.

**CPT code:** 86039

**ANAPLASMA PHAGOCYTOPHILUM ANTIBODIES (IGG, IGM)**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86666 (x2)

**ANCA SCREEN WITH MPO3 & PR3**

**Reflex C & P titers if screen positive**

**Specimen Required:** 3 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86021 (x4)

**ANDROSTENEDIONE**

**Specimen Required:** 1ml. serum (Red)

**Instructions:** Separate serum from cells after clotting. Do not submit in glass tubes. Early morning specimens preferred.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82157

**ANGIOTENSIN-1- CONVERTING ENZYME**

**Specimen Required:** 1ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82164

**ANTI CARDIOLIPIN ANTIBODIES (IGG,IGA,AND IGM)**

**Screen performed with quantitative performed if positive.**

**Specimen Required:** 1ml. serum (Red top)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86147 (x3)

**ANCA**

**Reflex C & P titers if screen positive**

See **ANTI-NEUTROPHIL CYTOPLASMIC ANTIBODY**
ANTI DIURETIC HORMONE (ADH)  
(arginine vasopressin)

**Specimen Required:** 4 ml plasma (LAVENDER).

**Instructions:** Draw in a pre-chilled lavender top tube. Transport on ice, centrifuge immediately. Separate and freeze plasma immediately. DO NOT THAW.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84588

ANTI-HISTONE ANTIBODIES (AHIST)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83516

ANTI- La (SJOR)

See SJORGRENS ANTIBODY

ANTI-MICROSOMAL ANTIBODY (AMICR)  
(Thyroid Peroxidase Antibodies)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86376

ANTI-MITOCHONDRIAL ANTIBODIES (AMITO)  
(With reflex to titer)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86255

ANTI-NEUTROPHIL CYTOPLASMIC ANTIBODY (SANCA)

Reflex C & P titers if screen positive

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86021 (x2)

ANTI-PARIETAL CELL (APARI)  
(With reflex to titer)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86255

ANTI-Ro/La (SJOR)

See SJORGRENS ANTIBODY

ANTI-SMOOTH MUSCLE (ASMOO)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86255

ANTI-STREPTOCOCCAL DNAase B (ADNAB)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86215

ANTI-STREPTOLYSIN O TITER (ASO)

**Specimen Required:** 1 ml serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86060
**ANTIBODY SCREEN**

**Specimen Required:** 3ml. whole blood (Pink)

**Expected Values:** Negative. Positive screens will automatically reflex to an antibody identification.

**Days Test Set Up:** Done all shifts.

**CPT code:** 86850

Antibody Identification: CPT 86870

---

**AST (SGOT)**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 11-35 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84450

---

**BABESIA ANTIBODY PANEL**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86753 (x2)

---

**BARTONELLA ANTIBODY PANEL**

**Specimen Required:** 4 ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86611 (x4)

---

**BASIC METABOLIC PANEL**

Includes Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80048

---

**BETA-2-GLYCOPROTEIN IGA**

**Specimen Required:** 1 ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86146

---

**APOLIPOPROTEIN B**

**Specimen Required:** 1ml. serum (SST)

**Instructions:** Patient should be fasting for at least 12 hours.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82172

---

**APOLIPOPROTEIN B**

**Specimen Required:** 1ml. serum (SST)

**Instructions:** Patient should be fasting for at least 12 hours.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82172

---

**AST (SGOT)**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 11-35 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84450

---

**BABESIA ANTIBODY PANEL**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86753 (x2)

---

**BARTONELLA ANTIBODY PANEL**

**Specimen Required:** 4 ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86611 (x4)

---

**BASIC METABOLIC PANEL**

Includes Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80048

---

**BETA-2-GLYCOPROTEIN IGA**

**Specimen Required:** 1 ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86146

---

**ANTITRHROMBIN III**

**Specimen Required:** 3ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Centrifuge plasma again and transfer platelet poor plasma to a new vial. FREEZE immediately.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 85300

---

**APOLIPOPROTEIN B**

**Specimen Required:** 1ml. serum (SST)

**Instructions:** Patient should be fasting for at least 12 hours.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82172

---

**APOLIPOPROTEIN B**

**Specimen Required:** 1ml. serum (SST)

**Instructions:** Patient should be fasting for at least 12 hours.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82172

---

**ASPERGILLUS ANTIBODIES**

(A. flavus, A. fumigatus, and A. niger)

**Specimen Required:** 1ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86606 (x3)

---

**AST (SGOT)**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 11-35 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84450

---

**BABESIA ANTIBODY PANEL**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86753 (x2)

---

**BARTONELLA ANTIBODY PANEL**

**Specimen Required:** 4 ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86611 (x4)

---

**BASIC METABOLIC PANEL**

Includes Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80048

---

**BETA-2-GLYCOPROTEIN IGA**

**Specimen Required:** 1 ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86146

---

**BASIC METABOLIC PANEL**

Includes Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80048

---

**BETA-2-GLYCOPROTEIN IGA**

**Specimen Required:** 1 ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86146

---

**BASIC METABOLIC PANEL**

Includes Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80048

---

**BETA-2-GLYCOPROTEIN IGA**

**Specimen Required:** 1 ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86146
BETA-2-GLYCOPROTEIN IGG  B2GLG
Specimen Required: 1 ml. citrated plasma (Blue).
Instructions: Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.
Days Test Set Up: Testing performed by Quest Diagnostics.
CPT code: 86146

BETA-2-GLYCOPROTEIN IGM  B2GLM
Specimen Required: 1 ml. citrated plasma (Blue).
Instructions: Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.
Days Test Set Up: Testing performed by Quest Diagnostics.
CPT code: 86146

BETA-2-GLYCOPROTEIN PANEL - IgG/IgM/IgA  B2GLP
Specimen Required: 3 ml. citrated plasma (Blue).
Instructions: Centrifuge and separate plasma from cells. Transfer plasma to plastic vial.
Days Test Set Up: Testing performed by Quest Diagnostics.
CPT code: 86146 9 (x3)

BETA-2-MICROGLOBULINS  BETA2
Specimen Required: 1 ml. serum (SST)
Days Test Set Up: Testing performed by Quest Diagnostics.
CPT code: 82232

BETA- HCG (ONCOLOGY)  HCGQR
Specimen Required: 1 ml. serum (SST)
Days Test Set Up: Testing performed by Quest Diagnostics.
CPT code: 84702

BETA-HYDROXYBUTYRATE  BETHR
Specimen Required: 1 ml. serum (SST)
Days Test Set Up: Testing performed by Quest Diagnostics.
CPT code: 82010

BETA-STREP-GROUP A SCREEN  STPSC
Refer to Microbiology section, page 86 for specimen collection requirements and additional information.

BICARBONATE  C02
Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)
Expected Values: 22 - 34 mmol/L
Critical Values: < 10 mmol/L or > 45 mmol/L
Days Test Set Up: Done all shifts.
CPT code: 82374

BILIRUBIN, DIRECT  DBILI
Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)
Instructions: Protect from light.
Expected Values: 0.0 - 0.2 mg/dL
Days Test Set Up: Done all shifts.
CPT code: 82248
<table>
<thead>
<tr>
<th>Test</th>
<th>Specimen Required</th>
<th>Instructions</th>
<th>Expected Values</th>
<th>Critical Values</th>
<th>Days Test Set Up</th>
<th>CPT code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bilirubin, Neonatal (NBILI)</strong></td>
<td>SST microtainer filled completely. Test only done on neonates less than 10 days of age.</td>
<td>Protect from light.</td>
<td>0 - 12 mg/dL</td>
<td>&gt; 18 mg/dL</td>
<td>Done all shifts.</td>
<td>82247</td>
</tr>
<tr>
<td><strong>Bilirubin, Total (TBILI)</strong></td>
<td>2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td>Protect from light.</td>
<td>0.0 - 1.1 mg/dL</td>
<td></td>
<td>Done all shifts.</td>
<td>82247</td>
</tr>
<tr>
<td><strong>Bleeding Time (BLEED)</strong></td>
<td>Testing must be performed by Laboratory Personnel.</td>
<td></td>
<td>2.5 - 9.5 minutes</td>
<td>&gt; 10 minutes</td>
<td>Done 7 AM - 6PM</td>
<td>85002</td>
</tr>
<tr>
<td><strong>Blood Gas, Arterial (ABG)</strong></td>
<td>3ml heparinized whole blood drawn in syringe. NO air bubbles. Drawn by the Respiratory Dept. Transport to lab on ice.</td>
<td></td>
<td>See page 80 for expected ranges</td>
<td>PH: &lt;7.25 or &gt; 7.60, PCO2: &gt; 80 mm Hg, PO2: &lt;55 mm Hg</td>
<td>Done all shifts.</td>
<td>82803</td>
</tr>
<tr>
<td><strong>Blood Gases, Arterial With Cooximetry (ABGW)</strong></td>
<td>3ml heparinized whole blood drawn in syringe. NO air bubbles. Drawn by the Respiratory Dept. Transport to lab on ice.</td>
<td></td>
<td>See page 80 for expected ranges</td>
<td>PH: &lt;7.25 or &gt; 7.60, PCO2: &gt; 80 mm Hg, PO2: &lt;55 mm Hg, Carboxyhaemoglobin: &gt;12%</td>
<td>Done all shifts.</td>
<td>82805, 82375, 83050</td>
</tr>
<tr>
<td><strong>Blood Gas, Venous (VBG)</strong></td>
<td>5ml whole blood (Green) Transport to lab on ice.</td>
<td></td>
<td>No Established Normal Range</td>
<td>PH: &lt;7.25 or &gt; 7.60, PCO2: No Established Normal Range, PO2: No Established Normal Range, O2 Sat.: No Established Normal Range, HCO3: No Established Normal Range</td>
<td>Done all shifts.</td>
<td>82803</td>
</tr>
</tbody>
</table>
### BLOOD UREA NITROGEN  
**BUN**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 6 - 22 mg/dL

**Days Test Set Up:** Done all shifts.

**CPT code:** 84520

### BRAIN NATRIURETIC PROTEIN  
**BNP**

**Specimen Required:** 1 mL PPT-Potassium EDTA plasma (White)

**Expected Values:** <100.0 pg/mL

**Days Test Set Up:** Done all shifts.

**CPT code:** 83880

### C- PEPTIDE  
**CPEP**

*(C-terminal Insulin)*

**Specimen Required:** 2 ml. serum (SST). FREEZE. Fasting specimen preferred.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84681

### C- REACTIVE PROTEIN  
**CRP**

**Specimen Required:** 1 ml. serum (SST)

**Expected Values:** <0.5 mg/dL

**Days Test Set Up:** Testing performed daily.

**CPT code:** 86140

### CARDIO CRP  
**HSCRP**

*Highly Sensitive C- Reactive Protein*

**Specimen Required:** 1 ml. serum (SST)

**Expected Values:** <0.75 mg/dL

**Days Test Set Up:** Testing performed daily

**CPT code:** 86141
CADMIUM, URINE 24 HR  UCAD

Specimen Required: 24 hr urine collected directly in an acid-washed container

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82300

CALCIUM, BLOOD  CA

Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)

Expected Values: 8.7 - 10.7 mg/dL

Critical Values: < 7.0 mg/dL or > 12.0 mg/dL

Days Test Set Up: Done all shifts.

CPT code: 82310

CALCIUM, URINE 24 HOUR  24UCA

Specimen Required: 24 hr urine collection with 6N HCL added as a preservative

Expected Values: 100 - 300 mg/24 hr.

Days Test Set Up: Testing performed daily.

CPT code: 82340

CALCIUM, URINE RANDOM  UCAR

Specimen Required: 4 mL random urine

Expected Values: No expected ranges established.

Days Test Set Up: Testing performed daily.

CPT code: 82310

CALCIUM, IONIZED  IOCA

Specimen Required: 2 mL serum (SST)

Instructions: Tube must be completely filled, DO NOT uncap SST tube. 2 tubes must be submitted if other testing is ordered.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82330

CARBAMAZEPINE (TEGRETOL)  CARB

Specimen Required: 3ml. serum (Red)

Therapeutic Range: 4 - 10 ug/mL

Critical Values: >15 ug/mL

Days Test Set Up: Done all shifts.

CPT code: 80156

CARBOXYHEMOGLOBIN  CO (Carbon Monoxide)

Specimen Required: 5ml whole blood (Green) Transport to lab on ice. May also be performed on a heparinized blood gas syringe.

Expected Values: 0 - 10%

Critical Values: > 12%

Days Test Set Up: Done all shifts.

CPT code: 82375

CAROTENE  CAROT

Specimen Required: 2 ml. serum (SST).

Instructions: Protect from light.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82380
**CATECHOLAMINES, FRACTIONATED CATF**
(includes Total Catecholamine)

**Specimen Required:** 10 mL aliquot from a 24hr. urine collection preserved with 6N HCL. Unpreserved specimens - FREEZE aliquot.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82384, 82382

---

**CBC WITH DIFFERENTIAL CBC**
A manual differential will be performed if instrument flags indicate abnormalities that may not be detected by automated methods.

**Specimen Required:** 3 ml. whole blood (Lavender)

**Expected Values:** See page 82 for expected ranges.

**Days Test Set Up:** Done all shifts.

**CPT code:** 85025

---

**CBC WITHOUT DIFFERENTIAL CBCWO**

**Specimen Required:** 3ml. whole blood (Lavender).

**Expected Values:** See page 82 for expected ranges.

**Days Test Set Up:** Done all shifts.

**CPT code:** 85027

---

**CD4/CD8 CD4/8**

**Specimen Required:** 5ml. whole blood (Lavender).

**Instructions:** Must arrive in the lab Monday-Friday before 5 pm., maintain at room temp. If CBC is required an additional lavender tube must be submitted.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86360

---

**CEA CEAC**

**Specimen Required:** 1ml. serum (SST)

**Expected Values:** 0 - 5 ng/mL

**Days Test Set Up:** Testing performed Mon. - Fri.

**CPT code:** 82378

---

**CELIAC DISEASE PANEL CELDP**
Includes Tissue Transglutaminase IgA, IgA, Gliadin Antibody IgA.

**Specimen Required:** 2 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82784, 83516 (x2)

---

**CERULOPLASMIN CERUL**

**Specimen Required:** 1ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82390

---

**CHEMISTRY PANEL- BASIC METABOLIC BASIC**
Includes Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80048
### CHEMISTRY PANEL- COMPREHENSIVE METABOLIC (METAB)
Includes Albumin, Total Bilirubin, Calcium, Chloride, CO2, Creatinine, Glucose, Alkaline Phosphatase, Potassium, Sodium, ALT, AST, BUN and Total Protein.

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80053

### CHEMISTRY PANEL- RENAL PANEL (RENA
Includes Albumin, Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN and Phosphorus.

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80069

### CHLAMYDIA - DNA SDA (CTDNA)
**Specimen Required:** Endocervical or male urethral swab in BDProbetec collection kit.

Urine - 15-60 mL of random urine (1st part of stream, not midstream) in BD Urine Probetec; patient must not urinate 1 hour prior to collection.

**Expected Values:** Negative

**Test Set Up:** Testing performed Monday, Wednesday and Friday

**CPT code:** 87491

### CHLAMYDIA/GC - DNA, SDA (CNDNA)
**Specimen Required:** Endocervical or male urethral swab in BDProbetec collection kit.

Urine - 15-60 mL of random urine (1st part of stream, not midstream) in BD Urine Probetec; patient must not urinate 1 hour prior to collection.

**Expected Values:** Negative

**Test Set Up:** Testing performed Monday, Wednesday and Friday

**CPT code:** 87491, 87591

### CHLAMYDIA/GC - DNA, SDA, PAP VIAL (CPAP)
**Specimen Required:** 3 ml. fluid from a ThinPrep® or SurePath® vial

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 87491, 87591

### CHLAMYDIA ANTIBODY - IgG (CHLAB)
**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86631

### CHLORAMPHENICOL (CHLOR)
**Specimen Required:** 1 ml. serum (Red)

**Instructions:**
- Peak: draw 1 hour after dose.
- Trough: draw immediately prior to next dose

**Therapeutic Range:**
- Peak: 10 – 20 µg/mL
- Trough: 5 – 20 µg/mL

**Critical Value:** > 25 µg/mL

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82415
<table>
<thead>
<tr>
<th>Test</th>
<th>Report</th>
<th>Description</th>
<th>Specimen Required</th>
<th>Expected Values</th>
<th>Days Test Set Up</th>
<th>CPT Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>CHOL</td>
<td></td>
<td>2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td>24 - 240 U/L</td>
<td>Done all shifts</td>
<td>82465</td>
</tr>
<tr>
<td>Chromium</td>
<td>CHRM</td>
<td></td>
<td>24 hr urine collected directly in an acid-washed container</td>
<td></td>
<td>Testing performed by Quest Diagnostics.</td>
<td>82495</td>
</tr>
<tr>
<td>Citric Acid</td>
<td>CITU</td>
<td></td>
<td>24 hr urine collection with 10 grams of boric acid as preservative.</td>
<td>2 - 240 U/L</td>
<td>Testing performed by Quest Diagnostics.</td>
<td>82507</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>CHOL</td>
<td></td>
<td>2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td></td>
<td>Done all shifts</td>
<td>82465</td>
</tr>
<tr>
<td>Chromium</td>
<td>CHRM</td>
<td></td>
<td>24 hr urine collected directly in an acid-washed container</td>
<td></td>
<td>Testing performed by Quest Diagnostics.</td>
<td>82495</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>CHOL</td>
<td></td>
<td>4ml. random urine</td>
<td>No expected range for random urines.</td>
<td>Testing performed daily</td>
<td>82436</td>
</tr>
<tr>
<td>Chromium</td>
<td>CHRM</td>
<td></td>
<td>2 ml. whole blood (Royal Blue with EDTA)</td>
<td></td>
<td></td>
<td>82495</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>CHOL</td>
<td></td>
<td>2 mL serum (SST)</td>
<td></td>
<td></td>
<td>82495</td>
</tr>
<tr>
<td>Chromium</td>
<td>CHRM</td>
<td></td>
<td>2 mL serum (SST)</td>
<td></td>
<td></td>
<td>82495</td>
</tr>
<tr>
<td>CK isoenzymes</td>
<td>CKISP</td>
<td></td>
<td>3 ml. serum (SST)</td>
<td></td>
<td></td>
<td>82552</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>CHOL</td>
<td></td>
<td>2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td></td>
<td></td>
<td>82495</td>
</tr>
<tr>
<td>Chromium</td>
<td>CHRM</td>
<td></td>
<td>2 ml. whole blood (Royal Blue with EDTA)</td>
<td></td>
<td></td>
<td>82495</td>
</tr>
<tr>
<td>CK MB subunit</td>
<td>CKMB</td>
<td></td>
<td>2 mL serum (SST)</td>
<td>0 - 5 ng/mL</td>
<td></td>
<td>82553</td>
</tr>
</tbody>
</table>
CLONAZEPAM  CLONA

Specimen Required: 4 ml. serum (Red).

Instructions: Separate from cells and FREEZE. Optimum collection time: 4 hours post oral dose.

Therapeutic Range: 30 – 60 ng/mL

Critical Values: > 70 ng/mL

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80154

CLOSTRIDIUM DIFFICILE TOXIN CTOX

Specimen Required: 1gram Feces.

Instructions: Refrigerate

Expected Values: None detected.

Days Test Set Up: Done daily

CPT code: 87324

COLD AGGLUTININS COLD

Specimen Required: 3ml. serum (Red)

Instructions: Must be collected at Hospital Outpatient lab facility. Allow specimen to clot at 37º C

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86157

COMPLEMENT C4 C4

Specimen Required: 1ml. serum (SST)

Instructions: Separate from cells and FREEZE. No hemolysis.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86160

COMPLEMENT, TOTAL CH50 CH50

Specimen Required: 1ml. serum (SST)

Instructions: Separate from cells and FREEZE. No hemolysis.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86162

COMPREHENSIVE METABOLIC PANEL METAB

Includes Albumin, Total Bilirubin, Calcium, Chloride, CO2,Creatinine, Glucose, Alkaline Phosphatase, Potassium, Sodium, ALT, AST, BUN and Total Protein.

Specimen Required: 4 ml. serum or sodium heparin plasma (SST or Light Green)

Expected Values: See individual components for expected ranges.

Days Test Set Up: Done all shifts

CPT code: 80053

COPPER CU

Specimen Required: 2 ml. serum (No Additive Royal Blue)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82525
CORTISOL, AM  
Specimen Required: 1 mL serum (SST).

Instructions: Specimen should be drawn between 8 AM and 9 AM.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82533

CORTISOL, PM  
Specimen Required: 1 mL serum (SST).

Instructions: Specimen should be drawn between 3 PM and 4 PM.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82533

CORTISOL, RANDOM  
Specimen Required: 1 mL Serum (SST).

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82533

CORTISOL, FREE URINARY  
Specimen Required: 24 Hr. urine collection with 10 grams of boric acid as a preservative.
Unpreserved specimens - FREEZE aliquot.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82530

COXSACKIE VIRUS, GROUP A  
Specimen Required: 2 mL serum (SST)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86658 (x6)

COXSACKIE VIRUS, GROUP B  
Specimen Required: 1 mL serum(Red)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86658 (6)

CREATININE  
(EGFR calculation performed on all outpatients.)
Specimen Required: 2 mL serum or sodium heparin plasma (SST or Light Green)

Expected Values: 0.6 - 1.3 mg/dL

Critical Values: > 14.0 g/dL

Days Test Set Up: Done all shifts.

CPT code: 82565

CREATININE CLEARANCE  
Specimen Required: 1 mL serum and 24 Hour urine collection.

Instructions: Patient height and weight must be provided.

Expected Values: 70 - 157 mL/Min.

Days Test Set Up: Testing performed daily.

CPT code: 82575

CREATININE, JPEG DRAINAGE  
Specimen Required: 4ml. fluid

Expected Values: No expected ranges for Jpeg drainage.

Days Test Set Up: Testing performed daily.

CPT code: 82570
**CREATININE, URINE, RANDOM**  
Specimen Required: 4ml. random urine  
Expected Values: No expected ranges for random urine.  
Days Test Set Up: Testing performed daily.  
CPT code: 82570

**CREATININE, URINE 24 HR**  
Specimen Required: 24 Hour Urine Collection with no preservative.  
Expected Values: 0.8 - 2.0 gm/ 24 Hr.  
Days Test Set Up: Testing performed daily.  
CPT code: 82570

**CROSSMATCH**  
Refer to Blood Bank section of this manual for ordering guidelines.  
Specimen Required: 6 ml whole blood (Pink)  
Expected Values: Appears Compatible  
Days Test Set Up: Done all shifts.  
CPT code: 86922

**CRYOGLOBULIN**  
Specimen Required: 3 ml. serum (Red).  
Instructions: Specimen must be collected at the hospital’s main outpatient lab. Maintain at room temperature.  
Days Test Set Up: Testing performed by Quest Diagnostics.  
CPT code: 82595

**CRYPTOCCUS ANTIBODIES**  
Specimen Required: 1ml. serum (SST)  
Days Test Set Up: Testing performed by Quest Diagnostics.  
CPT code: 86641

**CRYPTOCCUS ANTIGEN**  
Specimen Required: 2 ml. serum (SST) or 1 ml CSF  
Days Test Set Up: Testing performed by Quest Diagnostics.  
CPT code: 86403

**CYCLIC CITRULLINATED PEPTIDE ANTIBODY**  
Specimen Required: 1ml. serum (SST)  
Days Test Set Up: Testing performed by Quest Diagnostics.  
CPT code: 82595

**CYCLOSPORINE**  
Specimen Required: 2 ml. whole blood (Lavender)  
Days Test Set Up: Testing performed by Quest Diagnostics.  
CPT code: 80158

**CYSTIC FIBROSIS SCREEN**  
Specimen Required: 5 ml. whole blood EDTA (Lavender)  
Instructions: Please indicate the ethnicity of the patient. Store and ship whole blood at room temperature. DO NOT FREEZE.  
Days Test Set Up: Testing performed by Quest Diagnostics.  
CPT code: 83891, 83900, 83901 (x13), 83909, 83912, 83914 (x32)
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYTOMEGALOVIRUS - IgG</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (SST).</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 86644</td>
<td></td>
</tr>
<tr>
<td>CYTOMEGALOVIRUS - IgM</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (SST).</td>
<td>No Hemolysis</td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 86645</td>
<td></td>
</tr>
<tr>
<td>CYTOMEGALOVIRUS, DNA by PCR</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. whole blood (Lavender)</td>
<td></td>
</tr>
<tr>
<td>Instructions: Do not open tube. 2 tubes must be submitted if other testing is ordered.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 87497</td>
<td></td>
</tr>
<tr>
<td>D-DIMER</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube.</td>
<td></td>
</tr>
<tr>
<td>Instructions: Stable 4 hours at room temperature.</td>
<td></td>
</tr>
<tr>
<td>Expected Values: 0.43-2.39 mg/L (FEU)</td>
<td></td>
</tr>
<tr>
<td>The cutoff value of 1.00 mg/L (FEU) has a 100 % negative predictive value in the diagnosis of DVT, VTE and PE.</td>
<td></td>
</tr>
<tr>
<td>Test Set Up: Done all shifts.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 85379</td>
<td></td>
</tr>
<tr>
<td>DEPAKENE (VALPROIC ACID)</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (Red)</td>
<td></td>
</tr>
<tr>
<td>Therapeutic Range: 50 - 100 ug/mL</td>
<td></td>
</tr>
<tr>
<td>Critical Values: &gt; 200 mg/mL</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Done all shifts.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 80164</td>
<td></td>
</tr>
<tr>
<td>DESIPRAMINE</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 3ml. serum (Red)</td>
<td></td>
</tr>
<tr>
<td>Instructions: Draw trough specimen at least 12 hours after dose.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 80160</td>
<td></td>
</tr>
<tr>
<td>DHEA- SULFATE</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (SST).</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82627</td>
<td></td>
</tr>
<tr>
<td>DIGITOXIN</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (Red)</td>
<td></td>
</tr>
<tr>
<td>Instructions: Collect as a trough specimen 6-8 hours after dosage or collect 48-96 hours after change of dosage.</td>
<td></td>
</tr>
<tr>
<td>Therapeutic Range: 10 - 30 ug/L</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 80299</td>
<td></td>
</tr>
<tr>
<td><strong>DIGOXIN</strong></td>
<td><strong>Drug</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Specimen Required:</strong> 3ml. serum (RED)</td>
<td><strong>Therapeutic Range:</strong> 0.8 - 2.0 mg/mL</td>
</tr>
<tr>
<td><strong>Critical Values:</strong> &gt; 2.5 mg/mL</td>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 80162</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DILANTIN</strong></th>
<th><strong>DIL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 3ml. serum (RED)</td>
<td><strong>Therapeutic Range:</strong> 10 - 20 ug/mL</td>
</tr>
<tr>
<td><strong>Critical Values:</strong> &gt; 30 ug/mL</td>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 80185</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DIRECT COOMBS</strong></th>
<th><strong>DATA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2ml. whole blood (LAV)</td>
<td><strong>Expected Values:</strong> Negative</td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
<td><strong>CPT code:</strong> 86880</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DISOPYRAMIDE</strong></th>
<th><strong>DISO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 1ml. serum (Red)</td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 80299</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DOUBLE STRANDED DNA ANTIBODIES (NATIVE)</strong></th>
<th><strong>DNADS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 1 ml. serum (SST)</td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86225</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>DRUG ABUSE SCREEN</strong></th>
<th><strong>DRUG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 5ml. random urine. (includes Amphetamines, Barbiturates, Benzodiazepines, Cocaine metabolite, Cannabinoids, Opiates, Phencyclidine and Tricyclic Antidepressants.)</td>
<td><strong>Therapeutic Range:</strong> 0.8 - 2.0 mg/mL</td>
</tr>
<tr>
<td><strong>Critical Values:</strong> &gt; 2.5 mg/mL</td>
<td><strong>Expected Values:</strong> None detected.</td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
<td><strong>CPT code:</strong> 80102</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ECHOVIRUS ANTIBODIES</strong></th>
<th><strong>ECHO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2 mL serum (SST)</td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86658 (x5)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>EHRLICHIA CHAFFEENSIS ANTIBODIES</strong></th>
<th><strong>HMEAB</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 1mL serum (SST)</td>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86666 (x2)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ELECTROLYTES</strong></th>
<th><strong>E</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Includes Sodium, Potassium, Chloride, and CO2</strong></td>
<td><strong>Specimen Required:</strong> 3 ml. serum or sodium heparin plasma (SST or Light Green).</td>
</tr>
<tr>
<td><strong>Expected Values:</strong> See individual components for expected ranges.</td>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
</tr>
<tr>
<td><strong>CPT code:</strong> 80051</td>
<td></td>
</tr>
<tr>
<td>Test Name</td>
<td>CPT Code</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Endomysial Antibody, Iga (ENDAB)</td>
<td>86255</td>
</tr>
<tr>
<td>Eosinophil Count (EOCNT)</td>
<td>85999</td>
</tr>
<tr>
<td>Epstein Barr Virus Titer-IGG (EBV)</td>
<td>86665</td>
</tr>
<tr>
<td>Ethosuximide (ETHO)</td>
<td>80168</td>
</tr>
<tr>
<td>Extractable Nuclear Antibody (SMRNP)</td>
<td>86235 (2)</td>
</tr>
<tr>
<td>Estradiol (ESTRD)</td>
<td>82670</td>
</tr>
<tr>
<td>Estriol (ESTOL)</td>
<td>82677</td>
</tr>
<tr>
<td>Estrogen (ESTRO)</td>
<td>82672</td>
</tr>
<tr>
<td>Erythropoietin (ERYTH)</td>
<td>82668</td>
</tr>
</tbody>
</table>
EXTENDED OPIATE PANEL               EXOPI

Specimen Required: 10 ml. random urine.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80101

FACTOR V LEIDEN MUTATION        LEIDV

Specimen Required: 5ml. EDTA whole blood (Lavender).

Instructions: Maintain specimen at Room Temperature.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 83891, 83892, 83896 (2), 83908, 83912

FAT FECAL, QUALITATIVE        FFAT

Specimen Required: 2 gram feces.

Instructions: Freeze specimen immediately

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82705

FAT FECAL, QUANTITATIVE        FFATQ

Specimen Required: 24, 48 or 72 hr stool collection.

Instructions: Send the entire sample in a 1 gallon, plastic leak-proof container. FREEZE. Record collection time (Ex: 24 hrs). Specimens received in paint can type collection container will be rejected.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82710

FECAL OCCULT BLOOD - DIAGNOSTIC         IFOB

Specimen Required: Random feces collected with Immuno collection kit. Cannot be contaminated with urine.

Expected Values: Negative

Days Test Set Up: Testing performed daily.

CPT code: 8274QW

FECAL OCCULT BLOOD - SCREENING         IFOBS

Specimen Required: Random feces collected with Immuno collection kit. Cannot be contaminated with urine.

Expected Values: Negative

Days Test Set Up: Testing performed daily.

CPT code: G0328QW

FECAL REDUCING SUBSTANCE       FRED

Specimen Required: 1 gram, liquid feces.

Expected Values: Negative

Days Test Set Up: Testing performed daily.

CPT code: 81005

FECAL SMEAR FOR WBC           FWBC

Specimen Required: 1 gram fresh random feces

Expected Values: None seen.

Days Test Set Up: Testing performed daily.

CPT code: 89055
**FERRITIN**

Specimen Required: 1ml. serum (SST)

Expected Values:
- Male: 22 - 322 ng/mL
- Female: 10 - 291 ng/mL

Days Test Set Up: Testing performed Mon.– Fri.

CPT code: 82728

**FIBRINOGEN**

Specimen Required: 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube.

Expected Values: 177 - 419 mg/dL

Days Test Set Up: Done all shifts.

CPT code: 85384

**FETAL FIBRONECTIN**

Specimen Required: Special collection kit. Cervico-vaginal secretions collected on swab and placed in preservative.

Expected Values: Negative at 24-35 weeks gestation.

Days Test Set Up: Testing performed daily.

CPT code: 82731

**FLECAINIDE**

Specimen Required: 4 ml. serum(Red)

Therapeutic Range: 0.2 - 1.0 µg/mL

Critical Value: ≥ 1.0 µg/mL

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80299

**FETAL HEMOGLOBIN**

Specimen Required: 2 mL whole blood (Lavender)

Expected Values: See report for interpretation of number of RH Immunoglobulin vials indicated.

Days Test Set Up: Testing performed daily.

CPT code: 85460

**FLU SCREEN**

Specimen Required: Nasopharyngeal swab in 1-3 ml of viral transport media or Nasopharyngeal washing.

Expected Value: Negative

Days Test Set Up: Testing performed daily.

CPT code: 87804

**FK506**

Specimen Required: 4 ml. serum(Red)

Therapeutic Range: 0.2 - 1.0 µg/mL

Critical Value: > 1.0 µg/mL

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80299

**FLUORIDE**

Specimen Required: 1 ml. serum (Red).

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82735

**FIBRINOGEN**

Specimen Required: 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube.

Expected Values: 177 - 419 mg/dL

Days Test Set Up: Done all shifts.

CPT code: 85384

**FLUORIDE**

Specimen Required: 1 ml. serum (Red).

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82735
<table>
<thead>
<tr>
<th>Test</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOLATES-RBC</strong></td>
<td>82747</td>
<td>Specimen Required: 7ml whole blood (Lavender)</td>
</tr>
<tr>
<td><strong>Instructions</strong></td>
<td></td>
<td>Maintain specimen at room temperature.</td>
</tr>
<tr>
<td><strong>Days Test Set Up</strong></td>
<td></td>
<td>Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>FOLIC ACID (FOLATE)</strong></td>
<td>82746</td>
<td>Specimen Required: 1 ml serum (SST)</td>
</tr>
<tr>
<td><strong>Expected Values</strong></td>
<td></td>
<td>&gt; 5.4 ng/mL</td>
</tr>
<tr>
<td><strong>Days Test Set Up</strong></td>
<td></td>
<td>Testing performed Mon.– Fri.</td>
</tr>
<tr>
<td><strong>FOLLICLE STIMULATING HORMONE, BLOOD</strong></td>
<td>82748</td>
<td>Specimen Required: 1 ml. serum (SST)</td>
</tr>
<tr>
<td><strong>Expected Values</strong></td>
<td></td>
<td>Male: 1.4 – 18.1 mIU/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Women: Follicular Phase: 2.5-10.2 mIU/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Midcycle Phase: 3.4 -33.4 mIU/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Luteal Phase: 1.5-9.1 mIU/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Postmenopause: 23.0 -116.3 mIU/L</td>
</tr>
<tr>
<td><strong>Days Test Set Up</strong></td>
<td></td>
<td>Testing performed Mon.– Fri.</td>
</tr>
<tr>
<td><strong>FREE T4</strong></td>
<td>83001</td>
<td>Specimen Required: 1 ml. serum (SST)</td>
</tr>
<tr>
<td><strong>Expected Values</strong></td>
<td></td>
<td>0.89 - 1.76 ng/dL</td>
</tr>
<tr>
<td><strong>Days Test Set Up</strong></td>
<td></td>
<td>Testing performed Mon. - Sat.</td>
</tr>
<tr>
<td><strong>FRUCTOSAMINE</strong></td>
<td>82985</td>
<td>Specimen Required: 1 ml. serum (SST)</td>
</tr>
<tr>
<td><strong>GASTRIC ANALYSIS</strong></td>
<td>82926</td>
<td>Specimen Required: 7 ml. Gastric fluid</td>
</tr>
<tr>
<td><strong>GASTRIC OCCULT BLOOD</strong></td>
<td>82271</td>
<td>Specimen Required: 1 mL. gastric aspirate or vomitus. Sample must be sent to the laboratory immediately or the specimen must be applied to the Gastroccult slide test area.</td>
</tr>
<tr>
<td><strong>Expected Values</strong></td>
<td></td>
<td>Negative</td>
</tr>
<tr>
<td><strong>GASTRIN</strong></td>
<td>82271</td>
<td>Specimen Required: 1 ml. serum (Red).</td>
</tr>
<tr>
<td><strong>Instructions</strong></td>
<td></td>
<td>Fasting specimen required. Centrifuge and remove serum from cells, and FREEZE.</td>
</tr>
<tr>
<td><strong>Days Test Set Up</strong></td>
<td></td>
<td>Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td><strong>GBM ANTIBODY (IgG)</strong></td>
<td>84439</td>
<td>See GLOMERULAR BASEMENT MEMBRANE ANTIBODY (IgG)</td>
</tr>
</tbody>
</table>
**GENTAMICIN, PEAK**

**Specimen Required:** 1ml. serum(Red).

**Instructions:** Draw at end of 60 min IV infusion or 30 min after end of a 30 min IV infusion, or 60 min after an IM dose.

**Therapeutic Range:** 5.0 - 10.0 ug/mL

**Critical Values:** > 12 ug/mL

**Days Test Set Up:** Done all shifts.

**CPT code:** 80170

---

**GENTAMICIN, RANDOM**

**Specimen Required:** 1ml. serum(RED)

**Therapeutic Range:** No therapeutic range established.

**Critical Values:** > 12 ug/mL

**Days Test Set Up:** Done all shifts.

**CPT code:** 80170

---

**GENTAMICIN, TROUGH**

**Specimen Required:** 1ml. serum(RED).

**Instructions:** Draw immediately before next dose.

**Therapeutic Range:** 0.0 - 2.0 ug/mL

**Critical Values:** > 12 ug/mL

**Days Test Set Up:** Done all shifts.

**CPT code:** 80170

---

**GGT**

**Specimen Required:** 3ml. serum(SST)

**Expected Values:** 7 - 50 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 82977

---

**GIARDIA ANTIGEN**

**Specimen Required:** 5 grams of fresh stool.

**Instructions:** Transfer stool within 30 minutes to formalin vial. Fill to the line on the transport vial.

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 87329

---

**GLIADIN ANTIBODY (IgG/IgA)**

**Specimen Required:** 1ml serum (red top)

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 83516 (x2)

---

**GLOMERULAR BASEMENT MEMBRANE ANTIBODY (IgG)**

**Specimen Required:** 1 mL serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83520

---

**GLUCOSE - Random**

**Specimen Required:** 1ml. serum or plasma (SST or Grey)

**Expected Values:** 70 - 120 mg/dL

**Critical Values:** < 45 mg/dL or > 400 mg/dL

**Days Test Set Up:** Done all shifts.

**CPT code:** 82947
GLUCOSE (FASTING)  FGLU

Specimen Required: 1ml. serum or plasma(SST, Grey, or Light Green)

Expected Values: 70 - 120 mg/dL

Critical Values: < 45 mg/dL or > 400 mg/dL

Days Test Set Up: Done all shifts.

CPT code: 82947

GLUCOSE , POST PRANDIAL, 2HR  2HPP

Specimen Required: 1ml. serum or plasma(SST, Grey, or Light Green)

Instructions: Collect specimen 2 hours following a meal.

Expected Values: 70-120 mg/dL

Critical Values: < 45 mg/dL or > 400 mg/dL

Days Test Set Up: Done all shifts.

CPT code: 82947

GLUCOSE TOLERANCE TEST, 2HR.  2HGTT

Specimen Required: 1ml. serum or plasma per timed collection. See special collection section for further information.

Expected Values: See report for interpretation.

Days Test Set Up: Done from 7 AM - 1PM.

CPT code: 82951

GLUCOSE TOLERANCE TEST, 3HR.  3HGTT

Specimen Required: 1ml. serum or plasma per timed collection. See special collection section for further information.

Expected Values: See report for interpretation.

Days Test Set Up: Done from 7 AM - 1PM.

CPT code: 82951, 82952

GLUCOSE-6-PHOSPHATE DEHYDOGENASE  G6PD

Specimen Required: 1ml. whole blood(Lavender)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82955

GLYCOHEMOGLOBIN  GLYCO

Specimen Required: 3ml. whole blood (LAV)

Expected Values: 4.5 - 5.7 %   A1C

Days Test Set Up: Testing performed Mon. -Fri.

CPT code: 83036

GROUP & RH  ABODG

Specimen Required: 6ml. whole blood (Pink)

Days Test Set Up: Done all shifts.

CPT code: 86900,86901

HALOPERIDOL  HALO
(Haldol)

Specimen Required: 5 ml. serum (Red)

Instructions: Collect as a trough specimen

Therapeutic Range: 5 - 15 ng/mL

Critical Value: > 50 ng/mL

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80173

HANGING DROP  HD

Refer to Microbiology section, page 92 for specimen collection requirements and additional information.
<table>
<thead>
<tr>
<th>Test</th>
<th>Code</th>
<th>Description</th>
<th>Specimen Required</th>
<th>Days Test Set Up</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAPTOGLOBIN</td>
<td></td>
<td></td>
<td>1 ml. serum (SST)</td>
<td>Testing performed by Quest</td>
<td></td>
</tr>
<tr>
<td></td>
<td>83010</td>
<td></td>
<td></td>
<td>Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>HCG, QUALITATIVE</td>
<td>HCG</td>
<td>Serum Pregnancy</td>
<td>2 ml. serum (SST)</td>
<td>Testing performed daily.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCG, QUANTITATIVE</td>
<td>HCGQT</td>
<td></td>
<td>2 ml. serum (SST)</td>
<td>Testing performed daily.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDL CHOLESTEROL</td>
<td>HDL</td>
<td></td>
<td>3 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td>Testing performed Mon.- Sat.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEAVY METAL SCREEN, BLOOD</td>
<td>HMS</td>
<td>(Includes Arsenic, Lead and Mercury)</td>
<td>7 ml. whole blood (Royal Blue -EDTA)</td>
<td>Testing performed by Quest</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>HEAVY METAL SCREEN, URINE 24 HR</td>
<td>HMSU</td>
<td>(Includes Arsenic, Lead and Mercury)</td>
<td>24 hour urine collected in an acid washed container.</td>
<td>Testing performed by Quest</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>H. PYLORI ANTIBODY</td>
<td>HELPY</td>
<td>(Quantitative IgG)</td>
<td>1 ml. serum (SST)</td>
<td>Testing performed by Quest</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>HEMATOCRIT</td>
<td>HCT</td>
<td></td>
<td>3 ml. whole blood (Lavender)</td>
<td>Testing performed by Quest</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Diagnostics.</td>
<td></td>
</tr>
</tbody>
</table>

**Critical Values:**
- < 20 %
**HEMOGLOBIN**  
**HGB**

**Specimen Required:** 3ml. whole blood (Lavender)

**Expected Values:** See page 82 for expected ranges.

**Critical Values:** < 8.0 gm/dL

**Days Test Set Up:** Done all shifts.

**CPT code:** 85018

---

**HEMOGLOBIN & HEMATOCRIT**  
**HH**

**Specimen Required:** 3ml. whole blood (Lavender)

**Expected Values:** See page 82 for expected ranges.

**Critical Values:**
- HGB: < 8.0 gm/dL
- HCT: < 20 %

**Days Test Set Up:** Done all shifts.

**CPT code:** 85018, 85014

---

**HEMOGLOBIN ELECTROPHORESIS**  
**HGBEP**

**Specimen Required:** 2 ml. whole blood (Lavender)

**Expected Values:** AA phenotype.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83021

---

**HEPATITIS A ANTIBODY, IGG**  
**HAAB**

**Specimen Required:** 1 ml. serum (SST)

**Expected Values:** Non-Reactive

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86708

---

**HEPATITIS B CORE ANTIBODY, IGM**  
**HBCGM**

**Specimen Required:** 1 ml. serum (SST)

**Expected Values:** Non-reactive

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86705

---

**HEPATITIS B CORE ANTIBODY, TOTAL**  
**HBCAB**

**Specimen Required:** 1 ml. serum (SST)

**Expected Values:** Non-Reactive

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86704

---

**HEPATITIS B SURFACE ANTIBODY**  
**HBSAQ**

**Specimen Required:** 1 ml. serum (SST)

**Expected Values:** Non- Reactive.

**Days Test Set Up:** Testing performed Monday - Friday.

**CPT code:** 86706
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEPATITIS B SURFACE ANTIGEN</strong></td>
<td>HBSAG</td>
</tr>
<tr>
<td>Specimen Required: 2ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: Non-Reactive</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed Monday - Friday</td>
<td></td>
</tr>
<tr>
<td>CPT code: 87340</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS BE ANTIBODY</strong></td>
<td>HBEAB</td>
</tr>
<tr>
<td>Specimen Required: 1 ml serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: Non-reactive</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 86707</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS BE ANTIGEN</strong></td>
<td>HBEAG</td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: None detected</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 87350</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS C ANTIBODY</strong></td>
<td>HCV</td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: Non-Reactive</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 86803</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS C ANTIBODY, RIBA</strong></td>
<td>HCVRB</td>
</tr>
<tr>
<td>Specimen Required: 1 mL serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 86804</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS C RNA GENOTYPE</strong></td>
<td>HCVGN</td>
</tr>
<tr>
<td>Specimen Required: 5 mL PPT-Potassium EDTA plasma (white). Na EDTA (lavender) tube is also acceptable.</td>
<td></td>
</tr>
<tr>
<td>Expected Values: None detected</td>
<td></td>
</tr>
<tr>
<td>Instructions: Separate plasma from cells within 2 hours and FREEZE if collected in lavender top tube.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 87902</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS C VIRAL LOAD</strong></td>
<td>HCVRN</td>
</tr>
<tr>
<td>Specimen Required: 5 mL PPT-Potassium EDTA plasma (white). Na EDTA (lavender) tube is also acceptable.</td>
<td></td>
</tr>
<tr>
<td>Expected Values: None detected</td>
<td></td>
</tr>
<tr>
<td>Instructions: Separate plasma from cells within 2 hours and FREEZE if collected in lavender top tube.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 87522</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS DELTA ANTIBODY</strong></td>
<td>HDAB</td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: None detected</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 86692</td>
<td></td>
</tr>
<tr>
<td><strong>HEPATITIS PANEL, ACUTE</strong></td>
<td>HEPAC</td>
</tr>
<tr>
<td>Specimen Required: 3 ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: None detected</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 80074</td>
<td></td>
</tr>
</tbody>
</table>
HERPES SIMPLEX VIRUS
ANTIBODY, IGG – Type 1&2  HERPG

Specimen Required: 1ml. serum (SST). No Hemolysis.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86695, 86696

HERPES SIMPLEX VIRUS
ANTIBODY, IGM  HERPM

Titer is reflexed on positives

Specimen Required: 1ml. serum (SST). No Hemolysis.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86694

HERPES SIMPLEX CULTURE  CHERP

Specimen Required: Place swab in viral transport media. Media available in Microbiology.

Instructions: Use only plastic Shaft RAYON or DACRON swabs.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 87255

HETEROPHILE ANTIBODY  HETER

Specimen Required: 1 mL serum (SST)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86308

HGE ANTIBODIES  HGEAB
(Human Granulocytic Ehrlichiosis Antibodies)

Specimen Required: 1 mL serum (SST)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86666 (x2)

HIAA,5 (Serotonin Metabolite) 5-Hydroxyindoleacetic acid  HIAA5

Specimen Required: 10 ml aliquot from a 24 hour urine collection with 15 g of Boric Acid or 25 mL of 6N HCl as a preservative. Record total volume, or indicate random or timed urine and the time of collection.

Instructions: Patient should avoid food high in indoles: avocado, banana, tomato, plum, walnut, pineapple, and eggplant. Patient should also avoid tobacco, tea, and coffee for 3 days before specimen collection. Please specify total 24-hour urine volume on the request form and on the urine container.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 83497

HIGH SENSITIVITY C- REACTIVE PROTEIN  HSCRP

Specimen Required: 1ml. serum (SST)

Expected Values: <0.75 mg/dL

Days Test Set Up: Testing performed daily

CPT code: 86141

HISTAMINE  HIST

Specimen Required: 1ml. plasma (Lavender) .

Instructions: Centrifuge immediately and FREEZE

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 83088

HISTOPLASMA ANTIBODIES  HISAB

Specimen Required: 1 ml. serum . (SST)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86698
HIV ANTIBODIES

Specimen Required: 2ml. serum.

Instructions: HIV consent form MUST be completed. NOTE: All positive results will automatically be confirmed by Western Blot

Expected Values: Non-Reactive

Days Test Set Up: Testing performed Tues. & Thur.

CPT code: 86703

Western Blot

CPT code: 86689

HIV RNA VIRAL LOAD

Specimen Required: 3.0 mL PPT-Potassium EDTA plasma (White) or Na EDTA plasma (lavender).

Instructions: Separate plasma from cells and FREEZE immediately.

**Frozen PPT tubes (White) are unacceptable.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 87536

HOMOCYSTEINE

Specimen Required: 1 mL. serum (Red).

Instructions: Place whole blood on ice post-draw. Serum must be separated from the cells within one hour.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 83090

HUMAN CHORIONIC GONADOTROPIN, QUALITATIVE

Specimen Required: 2ml. serum (SST)

Expected Values: Negative

Days Test Set Up: Testing performed daily.

CPT code: 84703

HUMAN CHORIONIC GONADOTROPIN, QUANTITATIVE

Specimen Required: 2ml. serum (SST)

Expected Values: See page 77 for expected values.

Days Test Set Up: Testing performed daily.

CPT code: 84702

HUMAN CHORIONIC GONADOTROPIN - TUMOR MARKER

Specimen Required: 1ml. serum (SST)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 84702

HUMAN GRANULOCYTIC EHRLICHIOSIS ANTIBODIES

See HGE Antibodies
HUMAN GROWTH HORMONE  HGH

Specimen Required: 1ml. serum (SST).

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 83003

HUMAN PAPILLOMAVIRUS  HPV

Specimen Required: Digene Specimen Collection kit or use a Thin-Prep® vial. HPV testing can be performed off the same vial as used for Gynecological Cytology testing.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 87621

HUMAN PAPILLOMAVIRUS  HPV

Specimen Required: Digene Specimen Collection kit or use a Thin-Prep® vial. HPV testing can be performed off the same vial as used for Gynecological Cytology testing.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 87621

HUMAN PAPILLOMAVIRUS, HIGH RISK  HPV

Specimen Required: Digene Specimen Collection kit or use a Thin-Prep® vial. HPV testing can be performed off the same vial as used for Gynecological Cytology testing.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 87621

HUMAN PAPILLOMAVIRUS, HIGH RISK, REFLEX TO GENOTYPES 16, 18  HPVRX

If the initial High Risk HPV assay is detected, Genotypes 16 and 18 will be performed at an additional charge (CPT code: 87621)

Specimen Required: Thin-Prep® vial. HPV testing can be performed off the same vial as used for Gynecological Cytology testing.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 87621

HYDROXYCORTICOSTEROIDS, (INCLUDES CREATININE)  17HYD

Specimen Required: 20 ml. aliquot from a 24 hour urine collection with 10 gram boric acid, or 25 ML 50% acetic acid, or 25 mL 6N HCL as a preservative. Record total volume.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 83491

HYPERCOAGULABLE PANEL  HYPCO
(includes Antithrombin III, Protein C, Protein S, Factor V Leiden Mutation, Prothrombin Factor II Mutation, Lupus Anticoagulant, Homocystine, Antiphospholipid Antibody Panel and MTHFR DNA Mutation)

Specimen Required:
- Four citrated plasma blue top tubes. Centrifuge and separate plasma from cells. Centrifuge plasma again and transfer platelet poor plasma to 5 separate plastic vials. FREEZE immediately.
- Three EDTA whole blood Lavender top tubes. Maintain two at room temperature.
- Two serum – SST tubes. Place one tube in refrigerator after collection until clot formation has occurred (approximately 30 minutes). Centrifuge and transfer 1 mL of serum to plastic vial.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: see individual components.

IMIPRAMINE  IMI

Specimen Required: 3 ml. serum (Red)

Instructions: Collect as a trough at least 12 hours after last dose or just prior to next dose.

Therapeutic Range:
Imipramine plus Desipramine: 150-300 ug/L

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 80174
<table>
<thead>
<tr>
<th><strong>IMMUNE CELL FUNCTION</strong></th>
<th><strong>IMUCF</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 1 ml. sodium heparin whole blood (Green top).</td>
<td></td>
</tr>
<tr>
<td><strong>Instructions:</strong> Must arrive in the lab Monday – Thursday before 6pm on the same date of collection. Reference laboratory must be called by MH lab tech. prior to sending test.</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86353</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOFIXATION, BLOOD</strong></th>
<th><strong>IMFIX</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 1 ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86334</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOFIXATION, URINE</strong></th>
<th><strong>IMFXU</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 50 ml. random urine or a 24 hr. collection without preservative.</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86335</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOGLOBULIN A</strong></th>
<th><strong>IGA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82784</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOGLOBULIN E</strong></th>
<th><strong>IGE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 1 ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82785</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOGLOBULIN G</strong></th>
<th><strong>IGG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82784</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOGLOBULIN G SUBCLASSES</strong></th>
<th><strong>IGGS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2ml. serum (SST).</td>
<td></td>
</tr>
<tr>
<td><strong>Expected Values:</strong> See report for interpretation.</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82784, 82787 (x4)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOGLOBULINS G/A/M</strong></th>
<th><strong>IGGAM</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82784 (x3)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IMMUNOGLOBULIN M</strong></th>
<th><strong>IGM</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 2ml. serum (SST)</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 82784</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>INDIRECT COOMBS</strong></th>
<th><strong>GABS3</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specimen Required:</strong> 3ml whole blood (Pink)</td>
<td></td>
</tr>
<tr>
<td><strong>Expected Values:</strong> Negative. Positive screens will automatically reflex to an antibody identification.</td>
<td></td>
</tr>
<tr>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
<td></td>
</tr>
<tr>
<td><strong>CPT code:</strong> 86850</td>
<td></td>
</tr>
</tbody>
</table>

Antibody Identification: CPT 86870
<table>
<thead>
<tr>
<th><strong>INSULIN</strong></th>
<th><strong>IRON, TOTAL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimen Required: 1ml. serum (SST). Fasting specimen required.</td>
<td>Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>Expected Values:</td>
</tr>
<tr>
<td></td>
<td>Male: 45-182 ug/dL</td>
</tr>
<tr>
<td></td>
<td>Female: 28-170 ug/dL</td>
</tr>
<tr>
<td>CPT code: 83525</td>
<td>Days Test Set Up: Testing performed daily.</td>
</tr>
<tr>
<td><strong>INSULIN ANTIBODIES</strong></td>
<td><strong>CPT code:</strong> 83540</td>
</tr>
<tr>
<td>Specimen Required: 2 ml. serum (Red).</td>
<td><strong>ISLET CELL ANTIBODIES</strong></td>
</tr>
<tr>
<td>Instructions: Centrifuge and separate the serum from the cells. <strong>FREEZE</strong></td>
<td>Specimen Required: 2 ml. serum (Red or SST)</td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>Days Test Set Up: Testing performed by Quest Diagnostics</td>
</tr>
<tr>
<td>CPT code: 86337</td>
<td>CPT code: 86341</td>
</tr>
<tr>
<td><strong>INSULIN LIKE GROWTH FACTOR-1</strong></td>
<td><strong>17-KETOSTEROIDS, FRACTIONATED</strong></td>
</tr>
<tr>
<td><strong>IGF1</strong></td>
<td><strong>17KET</strong></td>
</tr>
<tr>
<td>(Somatomedin)</td>
<td>(includes creatinine)</td>
</tr>
<tr>
<td>Specimen Required: 0.5 ml. serum (Red or SST).</td>
<td>Specimen Required: 15 ml. 24 hr. urine collection with 10 gram boric acid added as a preservative. Record total volume</td>
</tr>
<tr>
<td>Instructions: Centrifuge and separate the serum from the cells. <strong>FREEZE</strong></td>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td>CPT code: 84305</td>
<td>CPT code: 83593</td>
</tr>
<tr>
<td><strong>INTRINSIC FACTOR ANTIBODY</strong></td>
<td><strong>LACTIC ACID</strong></td>
</tr>
<tr>
<td><strong>INFAB</strong></td>
<td><strong>LAC</strong></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (SST).</td>
<td>Specimen Required: 3ml. plasma. (Gray top) Transport on ice.</td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>Expected Values:</td>
</tr>
<tr>
<td></td>
<td>Venous: 0.5 - 2.2 mmol/L</td>
</tr>
<tr>
<td></td>
<td>Arterial: 0.5 – 1.6 mmol/L</td>
</tr>
<tr>
<td></td>
<td>CSF: 0.0 – 2.2 mmol/L</td>
</tr>
<tr>
<td>CPT code: 86340</td>
<td>Critical Values: &gt;3.4 mmol/L</td>
</tr>
<tr>
<td><strong>IRON BINDING CAPACITY, TOTAL</strong></td>
<td><strong>Days Test Set Up:</strong> Done all shifts.</td>
</tr>
<tr>
<td><strong>TIBT</strong></td>
<td><strong>CPT code:</strong> 83605</td>
</tr>
<tr>
<td>(Includes a Total Iron and a Transferrin)</td>
<td><strong>Expected Values:</strong></td>
</tr>
<tr>
<td>Specimen Required: 3 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td>Venous: 0.5 - 2.2 mmol/L</td>
</tr>
<tr>
<td>Expected Values: 280 - 400 ug/dL</td>
<td>Arterial: 0.5 – 1.6 mmol/L</td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed daily.</td>
<td>CSF: 0.0 – 2.2 mmol/L</td>
</tr>
<tr>
<td>CPT code: 83550</td>
<td>Critical Values: &gt;3.4 mmol/L</td>
</tr>
<tr>
<td></td>
<td>Days Test Set Up: Done all shifts.</td>
</tr>
<tr>
<td></td>
<td>CPT code: 83605</td>
</tr>
<tr>
<td>Test Name</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>LACTOSE TOLERANCE</strong></td>
<td>LACTO</td>
</tr>
<tr>
<td><strong>LAMOTRIGINE</strong></td>
<td>LAMO</td>
</tr>
<tr>
<td><strong>LDH</strong></td>
<td>LDH</td>
</tr>
<tr>
<td><strong>LDH ISOENZYMES</strong></td>
<td>LDHIS</td>
</tr>
<tr>
<td><strong>LDL, DIRECT</strong></td>
<td>LDLD</td>
</tr>
<tr>
<td><strong>LEAD</strong></td>
<td>LEAD</td>
</tr>
<tr>
<td><strong>LEAD- INDUSTRIAL</strong></td>
<td>LEADI</td>
</tr>
<tr>
<td><strong>LEGIONELLA PNEUMOPHILIA</strong></td>
<td>LEGIG</td>
</tr>
<tr>
<td><strong>LEGIONELLA PNEUMOPHILIA</strong></td>
<td>LEGPM</td>
</tr>
</tbody>
</table>
**LEGIONELLA ANTIGEN**

Specimen Required: 3 ml. random urine.

Days Test Set Up: Done on all shifts.

CPT code: 87449

---

**LEUKOCYTE ALKALINE PHOSPHATASE**

Specimen Required: 5 mL whole blood in Sodium Heparin (Green)

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 85540

---

**LIDOCAINE**

Specimen Required: 1ml. serum (Red)

Instructions: Draw just prior to next dose

Therapeutic Range: 1.5 - 5.0 ug/mL

Critical Values: > 6.0 ug/mL

Days Test Set Up: Testing performed by Quest Diagnostics

CPT code: 80178

---

**LIPASE**

Specimen Required: 2ml. serum (SST)

Expected Values: 0 - 60 U/L

Days Test Set Up: Done all shifts.

CPT code: 83690

---

**LIPID PROFILE**

(includes Cholesterol, Triglyceride, HDL Cholesterol and Calculated LDL Cholesterol)

Specimen Required: 5 ml. serum or sodium heparin plasma (SST or Light Green) ml. serum.(SST)

Instructions: 10-14 hr. fast is required.

Expected Values: See page 80 - 81 for expected ranges.

Days Test Set Up: Testing performed daily.

CPT code: 80061

---

**LITHIUM**

Specimen Required: 2ml. serum (Red)

Therapeutic Range: 0.5 - 1.0 mmol/L

Critical Values: > 2.0 mmol/L

Days Test Set Up: Done all shifts.

CPT code: 80178

---

**LIVER FUNCTION TESTS**

(includes Albumin, Total & Direct Bilirubin, Alkaline Phosphatase, AST, ALT, & Total Protein)

Specimen Required: 3 ml. serum or sodium heparin plasma (SST or Light Green)

Expected Values: See individual components for expected ranges.

Days Test Set Up: Done all shifts.

CPT code: 8076
**LUPUS ANTICOAGULANT**

**Specimen Required:** 3 ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Centrifuge plasma again and transfer platelet poor plasma to a new vial. FREEZE

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 85597

---

**LYMES DISEASE - BODY FLUID BY PCR**

**Specimen Required:** 1 mL CSF or Synovial Fluid

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 87476

---

**LYMES DISEASE - BODY FLUID BY PCR**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:**
- Male (20-70 years): 1.5 - 9.3 mIU/mL
- Female:
  - Follicular Phase: 1.9 - 12.5 mIU/mL
  - Midcycle Phase: 8.7 - 76.3 mIU/mL
  - Luteal Phase: 0.5 – 16.9 mIU/mL
  - Postmenopause: 15.9 – 54.0 mIU/mL

**Critical Values:** < 1.0 mg/dL or > 5.0 mg/dL

**Days Test Set Up:** Done all shifts.

**CPT code:** 83735

---

**MAGNESIUM, BLOOD**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 1.8 - 2.4 mg/dL

**Critical Values:** < 1.0 mg/dL or > 5.0 mg/dL

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83735

---

**MAGNESIUM, URINE 24 HOUR**

**Specimen Required:** 24 hr. urine collection with 25 ml. of 6N HCL added as a preservative.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83735

---

**MERCURY**

**Specimen Required:** 7 ml. EDTA whole blood (Dark Blue)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83825

---

**METANEPRINES**

**Specimen Required:** 24 hr. urine collection with 25 ml. 6N HCL added as a preservative.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83835
**METHEMOGLOBIN**  
**Specimen Required:** 5ml. whole blood (Green).  
**Instructions:** Must be delivered within 4 hr. for analysis.  
**Expected Values:** 0 - 1.5%  
**Days Test Set Up:** Done all shifts.  
**CPT code:** 83050

**METHOTREXATE**  
**Specimen Required:** 1 ml. serum (Red).  
**Instructions:** FREEZE. Protect from light. Record time of last dose.  
**Days Test Set Up:** Testing performed by Quest Diagnostics.  
**CPT code:** 80299

**METHYLMALONIC ACID**  
**Specimen Required:** 2 ml serum (SST)  
**Days Test Set Up:** Testing performed by Quest Diagnostics  
**CPT code:** 83921

**MICROALBUMIN, URINE- RANDOM**  
**Specimen Required:** 10ml. random urine  
**Expected Values:** <30 mg/dL  
**Days Test Set Up:** Testing performed daily.  
**CPT code:** 82043

**MICROALBUMIN, URINE 24 HOUR**  
**Specimen Required:** 24 hr urine collection with no preservative  
**Days Test Set Up:** Testing performed by Quest Diagnostics.  
**CPT code:** 82043

**MIXING STUDIES**  
**See Screen for Circulating Anticoagulants**

**MONO SCREEN**  
**Specimen Required:** 1ml serum (SST)  
**Expected Values:** Negative  
**Days Test Set Up:** Testing performed daily.  
**CPT code:** 86308

**MRSA by PCR**  
**Specimen Required:** Nasal swabbings that have been collected on the swab in a Cepheid Collection Device obtained from the Microbiology department.  
**Expected Values:** Negative  
**Days Test Set Up:** Testing performed daily.  
**CPT code:** 87641

**MTHFR DNA MUTATION**  
**(Methylenetetrahydofolate Reductase)**  
**Specimen Required:** 5ml. whole blood (Lavender).  
**Instructions:** Maintain specimen at Room Temperature.  
**Days Test Set Up:** Testing performed by Quest Diagnostics.  
**CPT code:** 83891, 83892 (x2), 83896 (x4), 83908 (x2), and 83912

**MUMPS ANTIBODIES - IgG**  
**Specimen Required:** 1ml. serum (SST)  
**Days Test Set Up:** Testing performed by Quest Diagnostics.  
**CPT code:** 86735
**MYCOPLASMA PNEUMONIAE TITER- IGG**

**Specimen Required:** 1ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86738

---

**MYELIN BASIC PROTEIN**

**Specimen Required:** 2 ml CSF in sterile tube.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83873

---

**MYOGLOBIN, BLOOD**

**Specimen Required:** 2 ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83874

---

**MYOGLOBIN, URINE**

**Specimen Required:** 3 ml. random urine.

**Freeze.**

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83874

---

**NASAL SMEAR FOR EOSINOPHILS**

**Specimen Required:** Nasopharangyeal Swab

**Expected Values:** None seen.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 89190

---

**N. GONORRHEA- DNA SDA**

**Specimen Required:** Endocervical or male urethral swab in BDProbetec collection kit.

Urine - 15-60 mL of random urine (1st part of stream, not midstream) in BD Urine Probetec; patient must not urinate 1 hour prior to collection.

**Expected Values:** Negative

**Test Set Up:** Testing performed Monday, Wednesday and Friday

**CPT code:** 87591

---

**NEURONTIN (Gabapentin)**

**Specimen Required:** 3 ml. EDTA plasma (Lavender).

**Instructions:** Draw 2 hours after last dose.

**Therapeutic Range:** > 2.0 mg/L

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80299

---

**NICKEL**

**Specimen Required:** 7 mL aliquot of 24 hour urine collection in an acid washed container.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83885

---

**NORTRYPHTILINE**

**Specimen Required:** 3 ml. serum (Red)

**Instructions:** Collect as a trough specimen or at least 12 hours after last dose.

**Therapeutic Range:** 50 - 140  μg/L

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80182
OLIGOCLONAL BANDING, CSF  OLIGO
Specimen Required: 1 ml. CSF in sterile tube plus 1 mL serum (Red) drawn within 48 hours of cerebrospinal fluid collection.

Days Test Set Up:  Testing performed by Quest Diagnostics.

CPT code: 83916

OPIATE PANEL, EXTENDED  EXOPI
Specimen Required: 10 ml. random urine.

Days Test Set Up:  Testing performed by Quest Diagnostics.

CPT code: 80101

OSMOLALITY, BLOOD  OSMO
Specimen Required: 3ml. serum (SST)

Expected Values: 270 - 290 mOsm/Kg

Days Test Set Up:  Done all shifts.

CPT code: 83930

OSMOLALITY, URINE  UOSMO
Specimen Required: 3ml. random urine

Expected Values: 300 - 1000 mOsm/Kg

Days Test Set Up:  Done all shifts.

CPT code: 83935

OVA & PARASITES  OP
Refer to Microbiology section, page 84 for specimen collection requirements and additional information.

OXALATES, 24 HR URINE  OXA
Specimen Required: 24 hr. urine collection with 30 ml of 6 N HCL added as a preservative.

Days Test Set Up:  Testing performed by Quest Diagnostics.

CPT code: 83945

OXOCODONE & METABOLITE PANEL  OXYCO
Specimen Required: 20 ml. random urine.

Days Test Set Up:  Testing performed by Quest Diagnostics.

CPT code: 83925

PARATHYROID HORMONE  PTHI
Includes Calcium
Specimen Required: 2 mL PPT-Potassium EDTA plasma (white) and 1 ml serum (SST).

NOTE: Na EDTA (lavender) tube is also acceptable as the plasma specimen.

Instructions: Separate cells from plasma if collected in Lavender top.

Days Test Set Up:  Testing performed Monday, Wednesday and Friday.

CPT code: 83970

PARTIAL THROMBOPLASTIN TIME  PTT
Specimen Required: 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube.

Instructions: Specimens may be kept refrigerated or at room temperature for up to 4 hours. If there will be a longer delay, specimen must be centrifuged, separate plasma from the cells and FREEZE

Expected Values:

aPTT: 21.9-34.8 seconds
Therapeutic Heparin Range: 51.7-88.0 seconds

Critical Values: > 100 seconds

Days Test Set Up:  Done all shifts.

CPT code: 85730
| **PARVOVIRUS- IgG** | **PARVG**<br>(B-19 IgG)** Specimen Required:** 1 ml. serum (SST).<br>**Days Test Set Up:** Testing performed by Quest Diagnostics.<br>**CPT code:** 86747  
| **PARVOVIRUS- IgM** | **PARVM**<br>(B-19 IgM)** Specimen Required:** 2 ml. serum (SST).<br>**Days Test Set Up:** Testing performed by Quest Diagnostics.<br>**CPT code:** 86747  
| **PH, BLOOD** | **PHABG** **Specimen Required:** 3 ml. heparinized syringe. Whole blood with no air bubbles. **Expected Values:** 7.35 - 7.45 **Days Test Set Up:** Testing performed daily. **CPT code:** 82800  
| **PHENOBARBITAL** | **PHENO** **Specimen Required:** 3 ml. serum (Red) **Therapeutic Range:** 15 - 40 ug/mL **Critical Values:** > 50 ug/mL **Days Test Set Up:** Done all shifts. **CPT code:** 80184  
| **PHENYTOIN** | **DIL** **Specimen Required:** 3 ml. serum (Red) **Therapeutic Range:** 10 - 20 ug/mL **Critical Values:** > 30 ug/mL **Days Test Set Up:** Done all shifts. **CPT code:** 80185  
| **PHOSPHATIDYLSERINE ANTIBODY** | **PPTSP**  
| **PHOSPHOLIPID ANTIBODY PANEL** | **APLAP** (includes Beta-2 Glycoprotein Panel, Cardiolipin Antibodies, and Phosphatidylserine Antibody Panel) **Specimen Required:** 3 ml. citrated plasma (Blue) and 4 mL serum (SST) **Instructions:** Centrifuge tubes and separate plasma from cells. Transfer plasma to plastic vial. **Days Test Set Up:** Testing performed by Quest Diagnostics. **CPT code:** See individual components.  
| **PHOSPHORUS, BLOOD** | **PHOS** **Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green) **Expected Values:** 2.5 - 4.9 mg/dL **Critical Values:** < 1.0 mg/dL or > 9.0 mg/dL **Days Test Set Up:** Done all shifts. **CPT code:** 84100
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Code(s)</th>
<th>Specimen Required</th>
<th>Expected Values</th>
<th>Days Test Set Up</th>
<th>CPT code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphorus, Urine 24UPH</td>
<td></td>
<td>24 hr. urine collection - No preservative.</td>
<td>0.34 - 1.00 gm/24 hr.</td>
<td>Testing performed daily.</td>
<td>84105, 81050</td>
</tr>
<tr>
<td>Potassium, Blood K</td>
<td></td>
<td>2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td>3.4 - 5.2 mmol/L</td>
<td>CPT code: 84132</td>
<td></td>
</tr>
<tr>
<td>Plasma Free Light Chains PLA FR</td>
<td></td>
<td>2 mL serum (SST)</td>
<td></td>
<td></td>
<td>83883 (x2)</td>
</tr>
<tr>
<td>Potassium, 24 HR Urine 24UK</td>
<td></td>
<td>24 hour urine collection.</td>
<td>25 - 125 mEq/24 hr.</td>
<td>Testing performed daily.</td>
<td>84133, 81050</td>
</tr>
<tr>
<td>Potassium, Random Urine RUK</td>
<td></td>
<td>2ml. random urine.</td>
<td></td>
<td>Critical values: &lt; 50 or &gt; 1000 x 10^9/L</td>
<td>84133</td>
</tr>
<tr>
<td>Prealbumin Prealbumin</td>
<td></td>
<td>2ml. serum (SST)</td>
<td>20 – 40 mg/dL</td>
<td></td>
<td>84134</td>
</tr>
</tbody>
</table>

**Platelet Count PLT**

Specimen Required: 2 mL. whole blood (Lavender)

Expected Values: 146 - 369 x 10^9/L

Critical Values: <50 or >1000 x 10^9/L

Days Test Set Up: Done all shifts.

CPT code: 85049

**Platelet Antibodies APLAT**

Specimen Required: 1 mL serum (red)

Instructions: Separate cells from serum and FREEZE serum.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 86022
<table>
<thead>
<tr>
<th>Test Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREGNANCY TEST, URINE UPREG</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 5 ml. random urine.</td>
<td></td>
</tr>
<tr>
<td>Expected Values: Negative</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Done all shifts.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 81025</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREGNATAL GLUCOSE TOLERANCE PNGTT</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 2ml. serum or plasma (SST or Grey). Specimen should be drawn 1 hour after giving the patient a 50 gram glucose solution.</td>
<td></td>
</tr>
<tr>
<td>Expected Values: 70 - 150 mg/dL</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed daily.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 82950</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREGNATAL PROFILE- BASIC PRNB</td>
<td></td>
</tr>
<tr>
<td>Includes CBC, RPR, Type &amp; Screen, &amp;HBsAG.</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 3ml. EDTA whole blood (Lavender), 4ml. whole blood (Pink), 4 ml. serum (SST).</td>
<td></td>
</tr>
<tr>
<td>Expected Values: See individual components for expected ranges.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: See individual components for testing days.</td>
<td></td>
</tr>
<tr>
<td>CPT code: See individual components.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREGNATAL WITH RUBELLA &amp; HIV PRNRH</td>
<td></td>
</tr>
<tr>
<td>Includes CBC, RPR, Type &amp; Screen, HBsAG, Rubella, &amp; HIV.</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 3ml. EDTA whole blood (Lavender), 4ml. whole blood (Pink), 4ml. serum (Red), 6 ml. serum(SST)</td>
<td></td>
</tr>
<tr>
<td>Expected Values: See individual components for expected ranges.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: See individual components for testing days.</td>
<td></td>
</tr>
<tr>
<td>CPT code: See individual components.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMIDONE PRIM (Includes Phenobarbital)</td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (Red)</td>
<td></td>
</tr>
<tr>
<td>Therapeutic Range: 5 - 12 mg/L</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
</tr>
<tr>
<td>CPT code: 80188</td>
<td></td>
</tr>
</tbody>
</table>
**PROCAINAMIDE PANEL**  (Includes NAPA)

**Specimen Required:** 1ml. serum (Red)

**Instructions:** Collect as a trough just prior to next dose.

**Therapeutic Range:**
Procaainamide & NAPA: 10 - 30 ug/mL

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80192

---

**PROGESTERONE**  (PROG)

**Specimen Required:** 1mL. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84144

---

**PROLACTIN**  (PROLC)

**Specimen Required:** 1ml. serum (SST)

**Expected Values:**
- Male: 2.1 – 17.7 ng/mL
- Female: 2.8 - 29.2 ng/mL

**Days Test Set Up:** Testing performed Mon. -Fri.

**CPT code:** 84146

---

**PROPRAFENONE (RYTHMOL)**  (PROP)

**Specimen Required:** 1 ml. serum (Red)

**Therapeutic Range:** 0.2 – 1.6 mcg/mL

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80299

---

**PROSTATIC SPECIFIC ANTIGEN - DIAGNOSTIC**  (PSADX)

**Specimen Required:** 3ml. serum (SST)

**Expected Values:** 0.0 - 4.0 ng/mL

**Days Test Set Up:** Testing performed Mon. -Sat.

**CPT code:** 84153

---

**PROSTATIC SPECIFIC ANTIGEN - SCREENING**  (PSAS)

**Specimen Required:** 3ml. serum (SST)

**Expected Values:** 0.0 - 4.0 ng/mL

**Days Test Set Up:** Testing performed Mon. -Sat.

**CPT code:** G0103

---

**PROSTATIC SPECIFIC ANTIGEN, FREE**  (PSAF)
(includes Total PSA)

**Specimen Required:** 3ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84154, 84153

---

**PROTEIN C ANTIGEN**  (PROTC)

**Specimen Required:** 3ml. citrated plasma (Blue).

**Instructions:** Centrifuge and separate plasma from cells. Centrifuge plasma again and transfer platelet poor plasma to a new vial. FREEZE immediately

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 85302
<table>
<thead>
<tr>
<th>Test Description</th>
<th>Specimen Required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROTEIN ELECTROPHORESIS, SERUM</strong></td>
<td>4 ml. serum (SST)</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>84165</td>
</tr>
<tr>
<td><strong>PROTEIN ELECTROPHORESIS, URINE 24 HOUR</strong></td>
<td>25 ml aliquot from a 24 hr urine collection  No preservative.</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>84166</td>
</tr>
<tr>
<td><strong>PROTEIN ELECTROPHORESIS, URINE RANDOM</strong></td>
<td>25 ml random urine.</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>84166</td>
</tr>
<tr>
<td><strong>PROTEIN S PROTS</strong></td>
<td>3ml. citrated plasma (Blue).</td>
</tr>
<tr>
<td>Instructions:</td>
<td>Centrifuge and separate plasma from cells. Centrifuge plasma again and transfer platelet poor plasma to a new vial. FREEZE immediately</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Testing performed by Quest Diagnostics.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>85305</td>
</tr>
<tr>
<td><strong>PROTEIN, TOTAL SERUM</strong></td>
<td>2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
</tr>
<tr>
<td>Expected Values:</td>
<td>5.8 - 7.6 gm/dL</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Done all shifts.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>84155</td>
</tr>
<tr>
<td><strong>PROTEIN, TOTAL URINE 24 HOUR</strong></td>
<td>24 hr. urine collection- No preservative.</td>
</tr>
<tr>
<td>Expected Values:</td>
<td>0 - 165 mg/24 hr.</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Testing performed daily.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>84156</td>
</tr>
<tr>
<td><strong>PROTEIN, TOTAL URINE-RANDOM</strong></td>
<td>10 mL random urine</td>
</tr>
<tr>
<td>Expected Values:</td>
<td>No expected ranges for random urine.</td>
</tr>
<tr>
<td>Days Test Set Up:</td>
<td>Testing performed daily.</td>
</tr>
<tr>
<td>CPT code:</td>
<td>84156</td>
</tr>
</tbody>
</table>
| **PROTHROMBIN TIME**                                 | 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube. Specimens may be kept refrigerated or at room temperature for up to 24 hours. If there will be a longer delay, specimen must be centrifuged, separate plasma from the cells and FREEZE.
| Expected Values:                                     | PT: 9.4 - 11.6 seconds. INR: 0.9 - 1.1                                              |
| Critical Values:                                     | INR > 4.0                                                                       |
| Days Test Set Up:                                    | Done all shifts.                                                                 |
| CPT code:                                            | 85610                                                                            |
| **PROTHROMBIN FACTOR II MUTATION**                   | 5mL EDTA (Lavender) whole blood.                                                 |
| Days Test Set Up:                                    | Testing performed by Quest Diagnostics.                                          |
| CPT code:                                            | 83891, 83892, 83896(x2), 83908, & 83912                                           |
**PROTOPORPHYRIN ZINC**

**Specimen Required:** 2 ml. whole blood (Lavender, Green, Tan or Royal Blue).

**Instructions:** If a Lead is also ordered, a Lead-free EDTA (Tan, or Royal Blue) should be used. Specimen should be foil-wrapped to avoid photo degradation.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84202

---

**QUINIDINE**

**Specimen Required:** 3ml. serum (Red)

**Therapeutic Range:** 2.3 - 5.0 ug/mL

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 80194

---

**PROZAC (FLUOXETINE)**

**Specimen Required:** 4 ml. serum (Red)

**Instructions:** Collect as a trough specimen.

**Therapeutic Range:**
- Fluoxetine: 40 - 450 ug/L
- Norfluoxetine: 30 - 450 ug/L

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80299

---

**RBC ACETYLCHOLINESTERASE**

**Specimen Required:** Two separate 5 mL whole blood (Lavender).

**Instructions:** Plasma must be separated from cells within 1 hour of collection.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82482

---

**PTT**

**Specimen Required:** 2.7 ml. plasma from a properly filled 3.2% Na Citrate blue top tube.

**Instructions:** Specimens may be kept refrigerated or at room temperature for up to 4 hours. If there will be a longer delay, specimen must be centrifuged, separate plasma from the cells and FREEZE.

**Expected Values:**
- aPTT: 21.9-34.8 seconds
- Therapeutic Heparin Range: 51.7-88.0 seconds

**Critical Value:** > 100 seconds

**Days Test Set Up:** Done all shifts.

**CPT code:** 85730

---

**REDUCING SUBSTANCE, FECES**

**Specimen Required:** 1 gram random liquid feces. FREEZE.

**Expected Values:** Negative

**Days Test Set Up:** Testing performed daily.

**CPT code:** 81005

---

**RENAL PANEL**

**Included:** Albumin, Calcium, Chloride, CO2, Creatinine, Glucose, Potassium, Sodium, BUN and Phosphorus.

**Specimen Required:** 4 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Done all shifts

**CPT code:** 80069
**RENIN**

**Specimen Required:** 2ml. plasma (Lavender)

**Instructions:** Separate plasma from cells and FREEZE plasma.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84244

---

**RESPIRATORY SYNCYTIAL VIRUS**

Refer to Microbiology section, page 93 for specimen collection requirements and additional information.

---

**RETICULOCYTE COUNT**

**Specimen Required:** 3ml. whole blood (Lavender)

**Expected Values:**
- 0.6 - 2.0 %
- 0.03 - 0.10 x 10^6/uL
- IRF: 0.01 - 0.13

**Days Test Set Up:** Done all shifts.

**CPT code:** 85046-automated count
- 85044-manual count

---

**RHEUMATOID FACTOR**

**Specimen Required:** 3ml. serum (SST)

**Expected Values:** Negative

**Days Test Set Up:** Done Tues. & Thur.

**CPT code:** 86430

Positive Screens will be tiered unless otherwise indicated. The Rheumatoid Factor screen will not be billed and the following fees will be charged.

**CPT code:** 86431

---

**RPR**

**Specimen Required:** 3ml. serum (SST)

**Expected Values:** Nonreactive

**Days Test Set Up:** Testing performed Tues. & Thur.

**CPT code:** 86592

A titer will be performed on all positive RPR screens. The RPR screen will not be billed and the following fees will be charged.

**CPT code:** 86593

---

**RUBELLA SCREEN**

**Specimen Required:** 1ml. serum (SST)

**Expected Values:** Presumed Immune

**Days Test Set Up:** Testing performed Tues. & Thur.

**CPT code:** 86762

---

**RUBEOLA ANTIBODIES -IgG**

(Measles Antibodies IgG)

**Specimen Required:** 1ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86765

---

**SALICYLATES**

**Specimen Required:** 1ml. serum (Red)

**Therapeutic Range:** 4-29 mg/dL

**Critical Values:** > 35 mg/dL

**Days Test Set Up:** Done all shifts.

**CPT code:** 80196

---
SCREEN FOR CIRCULATING ANTICOAGULANTS MIXING CORRECTION STUDIES, FACTOR INHIBITION TEST

Specimen Required: 3 mL citrated plasma. (Blue)

Instructions: FREEZE.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 85732

SEDIMENTATION RATE SED

Specimen Required: 3 ml. whole blood (Lavender)

Expected Values:
- Male: 0 - 10 mm
- Female: 0 - 20 mm

Days Test Set Up: Done all shifts.

CPT code: 85652

SEmen ANALYSIS, COMPLETE SEMNC

Specimen Required: Contact hematology for collection instruction. Test available Mon-Fri., 7AM to Noon.

Expected Values: See report for interpretation.

Days Test Set Up: Testing performed Mon. - Fri.

CPT code: 89320

SEmen POST VASeCTOMY PV

Specimen Required: Same as Semen Analysis

Expected Values: No sperm seen.

Days Test Set Up: Testing performed Mon. - Sat.

CPT code: 89321

SEROTONIN SERTO

Specimen Required: 2 ml. serum (Red)

Instructions: Centrifuge and freeze serum below -20 C within 2 hours after collection.

Patient Preparation: Patient should avoid food high in indoles such as avocado, banana, tomato, plum, walnut, pineapple, and eggplant. Patient should also avoid tobacco, tea and coffee 3 days prior to collection.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 84260

SEXUALLY TRANSMITTED DISEASE PANEL BY AMPLIFIED DNA CNDNA
Includes Chlamydia and N. Gonorrhea

Specimen Required: Endocervical or male urethral swab in BDProbes collection kit. Urine - 15-60 mL of random urine (1st part of stream, not midstream) in BD Urine Probe; patient must not urinate 1 hour prior to collection.

Expected Values: Negative

Test Set Up: Testing performed Monday, Wednesday and Friday

CPT code: 87491, 87591

SGOT AST

Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)

Expected Values: 11 - 35 U/L

Days Test Set Up: Done all shifts.

CPT code: 84450
**SGPT**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green). serum (SST)

**Expected Values:** 10-60 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84460

---

**ALT**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green). serum (SST)

**Expected Values:** 10-60 U/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84460

---

**SICKLING TEST**

**Specimen Required:** 3 ml. whole blood (Lavender)

**Expected Values:** Negative

**Days Test Set Up:** Testing performed

**CPT code:** 85660

---

**SJORGRENS ANTIBODY**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86235 (x2)

---

**SM & RNP ANTIBODIES**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86235 (2)

---

**SODIUM, BLOOD**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:** 135 - 145 mmol/L

**Critical Values:** < 120 mmol/L or > 155 mmol/L

**Days Test Set Up:** Done all shifts.

**CPT code:** 84295

---

**SODIUM, 24 HOUR URINE**

**Specimen Required:** 24 hour urine collection without preservatives.

**Expected Values:** 50 - 225 mEq/24 hr.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84300, 81050

---

**SODIUM, RANDOM URINE**

**Specimen Required:** 2 ml. random urine

**Expected Values:** No expected range for random urine.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84300

---

**SOLUBLE TRANSFERRIN RECEPTOR**

**Specimen Required:** 1 ml. serum (red top)

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 84238

---

**SOMATOMEDIN (Insulin Like Growth Factor)**

**Specimen Required:** 1 ml. serum (Red).

**Instructions:** Separate cells from serum and FREEZE serum.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84305

---

**SODIUM, 24 HOUR URINE**

**Specimen Required:** 24 hour urine collection without preservatives.

**Expected Values:** 50 - 225 mEq/24 hr.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84300, 81050

---

**SODIUM, RANDOM URINE**

**Specimen Required:** 2 ml. random urine

**Expected Values:** No expected range for random urine.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84300

---

**SOLUBLE TRANSFERRIN RECEPTOR**

**Specimen Required:** 1 ml. serum (red top)

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 84238

---

**SOMATOMEDIN (Insulin Like Growth Factor)**

**Specimen Required:** 1 ml. serum (Red).

**Instructions:** Separate cells from serum and FREEZE serum.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84305

---
<table>
<thead>
<tr>
<th>Test</th>
<th>STONERISK PANEL</th>
<th>Includes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ammonia, Citric Acid, Oxalates, Calcium, Creatinine, Magnesium, pH, Phosphorus, Potassium, Sodium and Uric Acid</td>
</tr>
<tr>
<td>Specimen Required</td>
<td>24 Hour urine collection. Obtain special Stonerisk collection kit.</td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up</td>
<td>Testing performed by Quest Diagnostic</td>
<td></td>
</tr>
<tr>
<td>CPT code</td>
<td>82140,82507,83945,82340,82570,83735,84105, 84133,84300,84550,83986</td>
<td></td>
</tr>
</tbody>
</table>

| Test                  | T3             | Specimen Required: 2ml. serum (SST) |
| Expected Values       | 0.60 - 1.81 ng/mL |
| Days Test Set Up      | Testing performed Mon. - Sat. |
| CPT code              | 84480 |

| Test                  | T4            | Specimen Required: 2ml. serum (SST) |
| Expected Values       | 4.5 - 10.9 ug/mL |
| Days Test Set Up      | Testing performed Mon. - Sat. |
| CPT code              | 84436 |

| Test                  | T4, FREE      | Specimen Required: 2 ml. serum (SST) |
| Expected Values       | 0.89 - 1.76 ng/dL |
| Days Test Set Up      | Testing performed Mon. - Sat. |
| CPT code              | 84439 |

| Test                  | TACROLIMUS (FK506) | Specimen Required: 2 ml. EDTA whole blood (Lavender) |
| Instructions          | Collect as a trough specimen |
| Days Test Set Up      | Testing performed by Quest Diagnostics. |
| CPT code              | 80197 |

<p>| Test                  | TB GAMMA INTERFERON | Specimen Required: 6 ml. heparin whole blood (Green) |
| Instructions          | Must arrive in the lab Monday-Friday the same day before 3 pm., maintain at room temp. |
| Days Test Set Up      | Testing performed by Oxford Diagnostic Laboratories. |
| CPT code              | 86481 |</p>
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Specimen Required</th>
<th>Therapeutic Range</th>
<th>Critical Value</th>
<th>Days Test Set Up</th>
<th>CPT code</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEGRETOL (Carbamazepine)</td>
<td>3ml. serum (Red)</td>
<td>4 - 10 ug/mL</td>
<td>&gt;15 ug/mL</td>
<td>Done all shifts</td>
<td>80156</td>
</tr>
<tr>
<td><strong>TESTOSTERONE, FREE AND TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (Red)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT code: 84402, 84403</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TESTOSTERONE, TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1 ml. serum (Red)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT code: 84403</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THEOPHYLLINE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 3ml. serum (Red)</td>
<td></td>
<td>10 - 20 ug/mL</td>
<td>&gt; 25 ug/mL</td>
<td>Done all shifts</td>
<td>80198</td>
</tr>
<tr>
<td><strong>THROMBIN TIME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 3 ml. citrated platelet poor plasma (Blue). Fill tube completely</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructions: Separate plasma from cells and FREEZE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT code: 85670</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THYROGLOBULIN ANTIBODIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 1ml. serum (SST)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT code: 86800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THYROGLOBULIN PANEL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(includes Quantitative Thyroglobulin and Thyroglobulin Antibodies)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 2 ml. serum (Red)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT code: 84432, 86800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THYROID ANTIBODIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Includes Thyroglobulin and Anti-Microsomal Antibodies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required: 2 ml. serum (SST)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPT code: 86800, 86376</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THYROID PEROXIDASE ANTIBODIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See Antimicrosomal Antibodies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**THYROID REFLEX PANEL**

If the TSH is normal, no further testing. If the TSH is increased, a Free T4 and Microsomal Antibody test will be performed. If the TSH is decreased, a Free T4 and T3 will be performed.

**Specimen Required:** 6ml. serum (SST)

**Expected Values:** See individual components for expected ranges.

**Days Test Set Up:** Testing performed Mon. - Sat.

**CPT code:** See individual components.

---

**THYROID STIMULATING HORMONE**

**Specimen Required:** 2ml. serum (SST)

**Expected Values:** 0.35 - 5.50 UIU/mL

**Days Test Set Up:** Testing performed Mon. - Sat.

**CPT code:** 84443

---

**THYROID STIMULATING IMMUNOGLOBULIN**

**Specimen Required:** 1 ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 84445

---

**THYROID STIMULATING IMMUNOGLOBULIN**

**Specimen Required:** 2 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 83520

---

**THYROID STIMULATING IMMUNOGLOBULIN, TSI**

**Specimen Required:** 1 ml. serum (Red)

**Days Test Set Up:** Testing performed by Quest Diagnostics

**CPT code:** 84445

---

**THYROXINE BINDING GLOBULIN**

**Specimen Required:** 1 ml. serum (SST)

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84442

---

**TOBRAMYCIN, PEAK**

**Specimen Required:** 1ml. serum (Red).

**Instructions:** Draw specimen 30 min. after I.V. infusion.

**Therapeutic Range:** Peak: 6 - 10 mg/L

**Critical Values:** > 12.0 mg/L

**Days Test Set Up:** Testing performed daily.

**CPT code:** 80200

---

**TOBRAMYCIN, RANDOM**

**Specimen Required:** 1ml. serum (Red)

**Therapeutic Range:** No therapeutic range established for random level.

**Critical Values:** > 12.0 mg/L

**Days Test Set Up:** Testing performed daily.

**CPT code:** 80200

---

**TOBRAMYCIN, TROUGH**

**Specimen Required:** 1 ml. serum (Red).

**Instructions:** Draw specimen immediately before next dose.

**Therapeutic Range:** Trough: 0.5 - 2 mg/L

**Critical Values:** > 12.0 mg/L

**Days Test Set Up:** Testing performed daily.

**CPT code:** 80200

---

**TOCAINIDE**

**Specimen Required:** 2 ml. serum (Red)

**Therapeutic Range:** 4 - 10 ug/mL

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 80299
<table>
<thead>
<tr>
<th>Test</th>
<th>Code</th>
<th>Requirements</th>
<th>Expected Values</th>
<th>Days Test Set Up</th>
<th>CPT code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOXOPLASMA ANTIBODIES-IgG</strong></td>
<td>TOXO</td>
<td>Specimen Required: 1ml. serum (SST).</td>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>CPT code: 86777</td>
<td></td>
</tr>
<tr>
<td><strong>TRANSFERRIN</strong></td>
<td>TRFN</td>
<td>Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green).</td>
<td>Instructions: No hemolysis</td>
<td>Expected Values: Male: 180-329 mg/dL Female: 192-382 mg/dL</td>
<td>Days Test Set Up: Testing performed daily.</td>
</tr>
<tr>
<td><strong>TRAZODONE</strong></td>
<td>TRAZO</td>
<td>Specimen Required: 1 ml. serum (Red)</td>
<td>Therapeutic Range: 900 – 210 ug/L</td>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>CPT code: 80299</td>
</tr>
<tr>
<td><strong>TREPONEMAL ANTIBODIES</strong></td>
<td>FTAAB</td>
<td>Specimen Required: 1ml. serum.</td>
<td>Days Test Set Up: Testing performed by Quest Diagnostics.</td>
<td>CPT code: 86781</td>
<td></td>
</tr>
<tr>
<td><strong>TRIGLYCERIDE</strong></td>
<td>TRIG</td>
<td>Specimen Required: 2 ml. serum or sodium heparin plasma (SST or Light Green)</td>
<td>Expected Values: See page 80 for expected ranges.</td>
<td>Days Test Set Up: Testing performed daily.</td>
<td>CPT code: 84478</td>
</tr>
<tr>
<td><strong>TROPONIN I</strong></td>
<td>TROPI</td>
<td>Specimen Required: 1 ml. serum (SST)</td>
<td>Expected Values: &lt;0.10 ng/mL</td>
<td>Days Test Set Up: Testing performed daily.</td>
<td>CPT code: 84484</td>
</tr>
<tr>
<td><strong>TSH</strong></td>
<td>TSH</td>
<td>Specimen Required: 2ml. serum (SST)</td>
<td>Expected Values: 0.35 - 5.50 UIU/mL</td>
<td>Days Test Set Up: Testing performed Mon. - Sat.</td>
<td>CPT code: 84443</td>
</tr>
<tr>
<td><strong>TYPE</strong></td>
<td>ABODG</td>
<td>Specimen Required: 6 ml. whole blood (pink)</td>
<td>Days Test Set Up: Done all shifts.</td>
<td>CPT code: 86900,86901</td>
<td></td>
</tr>
</tbody>
</table>
**TYPE & SCREEN**

**GTS**

**Specimen Required:** 6 ml. whole blood (pink)

**Days Test Set Up:** Done all shifts.

**CPT code:** 86900, 86901, 86850

---

**UREA NITROGEN, 24 HR URINE**

**24UUN**

**Specimen Required:** 24 Hour urine collection. No preservative.

**Expected Values:** 9-17 gm/24 hr.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84540, 81050

---

**UREA NITROGEN, RANDOM URINE**

**UUNR**

**Specimen Required:** 4 ml random urine

**Expected Values:** No expected ranges for random urine.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84540

---

**URIC ACID, BLOOD**

**URIC**

**Specimen Required:** 2 ml. serum or sodium heparin plasma (SST or Light Green)

**Expected Values:**
- Male: 3.1 - 7.7 mg/dL
- Female: 2.2 - 6.8 mg/dL

**Days Test Set Up:** Done all shifts.

**CPT code:** 84550

---

**URIC ACID, URINE 24 HOUR**

**24UA**

**Specimen Required:** 24 Hour urine collection- No preservative

**Expected Values:** 0.25 - 0.75 gm/24 hr.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84560, 81050

---

**URIC ACID, URINE RANDOM**

**URUA**

**Specimen Required:** 4 mL of random urine

**Expected Values:** No expected values have been established.

**Days Test Set Up:** Testing performed daily.

**CPT code:** 84560

---

**URINALYSIS with Microscopic**

**UA**

(includes color, appearance, specific gravity, pH, glucose, ketones, protein, bilirubin, blood, nitrite, leukocyte, urobilinogen.) Microscopic will only be performed if any of the following biochemical constituents are abnormal: Bilirubin, Blood, Protein, Nitrate or Leukocytes. Charges will be modified accordingly.

**Specimen Required:** 15 ml random urine

**Expected Values:**
- Specific Gravity: 1.005 - 1.025
- pH: 5.5 - 7.0
- Biochemical Tests: Negative

**Days Test Set Up:** Done all shifts.

**CPT code:** 81001- with microscopic
81003- dipstick only

---

**URINALYSIS- Dipstick**

**UADIP**

(includes color, appearance, specific gravity, pH, glucose, ketones, protein, bilirubin, blood, nitrite, leukocyte, urobilinogen.)

**Specimen Required:** 15 ml random urine

**Expected Values:**
- Specific Gravity: 1.005 - 1.025
- pH: 5.5 - 7.0
- Biochemical Tests: Negative

**Days Test Set Up:** Done all shifts.

**CPT code:** 81003
URINALYSIS REFLEX PANEL  
(Urine Culture will be performed if WBC > 4 cells/HPF.)

Specimen Required: 15 ml random urine collected in a sterile container.

Expected Values: See individual components for expected ranges.

Days Test Set Up: Done all shifts.

CPT code: See individual components.

URINE FOR EOSINOPHIL  
Specimen Required: random urine collection

Expected Values: None seen.

Days Test Set Up: Done all shifts.

CPT code: 85999

URORISK PANEL  
Includes: Citric Acid, Oxalates, Calcium, Creatinine, Magnesium, pH, Phosphorus, Potassium, Sodium and Uric Acid

Specimen Required: 24 Hour urine collection. Obtain special Urorisk collection kit.

Days Test Set Up: Testing performed by Quest Diagnostics.

CPT code: 82507,83945,82340,82570,83735,84105,84133,84300,84550,83986

VALPROIC ACID  
(Depakene)

Specimen Required: 3 ml. serum (Red)

Therapeutic Range: 50 - 100 ug/mL

Critical Values: > 200 ug/mL

Days Test Set Up: Done all shifts.

CPT code: 80164

VANCOMYCIN, PEAK  
Specimen Required: 3 ml. serum (Red).

Instructions: Draw 2 hours after end of IV infusion.

Therapeutic Range: 30 - 40 ug/mL

Critical Values: > 50 ug/mL

Days Test Set Up: Done all shifts.

CPT code: 80202

VANCOMYCIN, RANDOM  
Specimen Required: 3 ml. serum (Red)

Therapeutic Range: No therapeutic range established for random specimen.

Critical Values: > 50 ug/mL

Days Test Set Up: Done all shifts.

CPT code: 80202

VANCOMYCIN, TROUGH  
Specimen Required: 3 ml. serum (Red).

Instructions: Draw immediately prior to next dose.

Expected Values: 5 - 10 ug/mL

Critical Values: > 50 ug/mL

Days Test Set Up: Done all shifts.

CPT code: 80202
**VANILLYMANDELIC ACID**  
Includes Creatinine

**Specimen Required:** 24 Hour urine collection with 30 ml. 6 N. HCL added as a preservative.

**Instructions:** Patient should avoid alcohol, coffee, tea, nicotine, bananas, citrus fruits prior to collection.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84585

**VITAMIN B1**  
(Thiamine)

**Specimen Required:** 3 mL EDTA whole blood (Lavender)

**Instructions:** Transfer whole blood to a plastic vial to prevent breakage. Wrap tube in aluminum foil to protect from light. Freeze immediately.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84425

**VARICELLA ZOSTER**  
ANTIBODIES, IgG

**Specimen Required:** 1 ml. serum (SST).

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86787

**VARICELLA ZOSTER**  
ANTIBODIES, IgM

**Specimen Required:** 1 ml. serum (SST).

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86787

**VENOUS BLOOD GAS**  
VBG

See Blood Gas, Venous

**VDRL**  
VDRL

**Specimen Required:** 1 ml CSF in sterile tube or 1 mL serum (SST).

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86592

**VITAMIN B12**  
B12

**Specimen Required:** 2ml. serum (SST).

**Expected Values:** 211 - 911 pg/mL

**Days Test Set Up:** Testing performed Monday - Friday.

**CPT code:** 82607

**VITAMIN D, 25 - HYDROXY**  
VITAD

**Specimen Required:** 0.5 mL serum (RED).

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82306

**VITAMIN D, 25 - DIHYDROXY**  
VDDIH

**Specimen Required:** 1.7 mL serum (RED).

**Instructions:** Allow blood to clot for 30 min. at room temperature. Centrifuge and separate from cells.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 82652
VITAMIN E  
(Tocopherol)

**Specimen Required:** 2 ml. serum (SST).

**Instructions:** Send serum in an amber vial or wrap tube in aluminum foil to protect from light.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84446

---

WEST NILE VIRUS PANEL, BLOOD  
(WNVB)
(Includes IgG and IgM antibodies)

**Specimen Required:** 2 ml. serum (SST).

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86785, 86789

---

WEST NILE VIRUS PANEL, CSF  
(WNVF)
(Includes IgG and IgM antibodies)

**Specimen Required:** 2 ml. cerebrospinal fluid.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 86785, 86789

---

WHITE BLOOD CELL COUNT  
(WBC)

**Specimen Required:** 2 mL whole blood (Lavender)

**Expected Values:** See page 82 for expected ranges.

**Critical Values:** < 2.0 x 10⁻⁹/L or > 25.0 x 10⁻⁹/L

**Days Set Up:** Done all shifts.

**CPT Code:** 85048

---

ZINC, BLOOD  
(ZINC)

**Specimen Required:** 3 ml. EDTA whole blood (Dark Blue).

**Instructions:** Patient should refrain from taking vitamins and mineral supplements at least 3 days prior to collection.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84630

---

ZINC, URINE  
(UZINC)

**Specimen Required:** 24 hour urine collected in an acid washed container.

**Instructions:** To avoid contamination, do not measure urine. Send entire specimen.

Patient should refrain from taking vitamins and mineral supplements at least 3 days prior to collection.

**Days Test Set Up:** Testing performed by Quest Diagnostics.

**CPT code:** 84630
**ARTERIAL BLOOD GAS AND CO-OXIMETRY PARAMETERS**  
**EXPECTED RANGES**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Expected Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.35 - 7.45</td>
</tr>
<tr>
<td>pCO2</td>
<td>35 - 45 mm Hg</td>
</tr>
<tr>
<td>pO2</td>
<td>80 - 100 mm Hg</td>
</tr>
<tr>
<td>O2 Saturation</td>
<td>96 - 97 %</td>
</tr>
<tr>
<td>HCO3</td>
<td>22 - 26 mEq/L</td>
</tr>
<tr>
<td>Total CO2</td>
<td>23 - 27 mmol/L</td>
</tr>
<tr>
<td>Base excess</td>
<td>-2.0 - 2.0 mEq/L</td>
</tr>
<tr>
<td>Oxyhemoglobin</td>
<td>94 - 97 %</td>
</tr>
<tr>
<td>Methemoglobin</td>
<td>0 - 1.5 %</td>
</tr>
<tr>
<td>Carboxyhemoglobin</td>
<td>0 - 10 %</td>
</tr>
<tr>
<td>Oxygen Capacity of Hemoglobin</td>
<td>17.6 - 23.6 mL/dL</td>
</tr>
<tr>
<td>Hemoglobin Oxygen Saturation (SO2)</td>
<td>92.0 - 98.5 %</td>
</tr>
<tr>
<td>Oxygen Content of Hemoglobin</td>
<td>15 - 23 mg/dL</td>
</tr>
</tbody>
</table>

**LIPID PARAMETERS**  
**EXPECTED RANGES**

**Triglyceride**

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 29</td>
<td>20 - 150</td>
</tr>
<tr>
<td>30 - 39</td>
<td>20 - 170</td>
</tr>
<tr>
<td>≥ 40</td>
<td>20 - 200</td>
</tr>
</tbody>
</table>

Upper limits of normal for Triglycerides follow the recommendations of the National Institute of Health Consensus Conference on Hypertriglyceridemia.

The following Expected Ranges are based on the National Institute of Health Guidelines:

<table>
<thead>
<tr>
<th>Status</th>
<th>Total Cholesterol</th>
<th>LDL Cholesterol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desirable</td>
<td>&lt; 200 mg/dL</td>
<td>&lt; 130 mg/dL</td>
</tr>
<tr>
<td>Borderline/High Risk</td>
<td>200-239 mg/dL</td>
<td>130 - 159 mg/dL</td>
</tr>
<tr>
<td>High Risk</td>
<td>≥ 240 mg/dL</td>
<td>≥ 160 mg/dL</td>
</tr>
</tbody>
</table>
### HDL Cholesterol

<table>
<thead>
<tr>
<th>AGE (years)</th>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 15</td>
<td>30 – 65 mg/dL</td>
<td>35 – 70 mg/dL</td>
</tr>
<tr>
<td>16 - 29</td>
<td>35 – 70 mg/dL</td>
<td>35 – 75 mg/dL</td>
</tr>
<tr>
<td>30 - 39</td>
<td>30 – 65 mg/dL</td>
<td>35 – 80 mg/dL</td>
</tr>
<tr>
<td>≥ 40</td>
<td>30 – 65 mg/dL</td>
<td>35 – 90 mg/dL</td>
</tr>
</tbody>
</table>

### Cholesterol:HDL Cholesterol Ratio

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate Risk</td>
<td>&gt;6.09</td>
<td>&gt;6.09</td>
</tr>
<tr>
<td>High Risk</td>
<td>&gt;7.30</td>
<td>&gt;6.39</td>
</tr>
</tbody>
</table>

### QUANTITATIVE HCG

**EXPECTED RANGES**

<table>
<thead>
<tr>
<th>Gestational Age</th>
<th>HCG Level (mIU/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2-1 Week</td>
<td>5</td>
</tr>
<tr>
<td>1-2 Weeks</td>
<td>50</td>
</tr>
<tr>
<td>2-3 Weeks</td>
<td>100</td>
</tr>
<tr>
<td>3-4 Weeks</td>
<td>500</td>
</tr>
<tr>
<td>4-5 Weeks</td>
<td>1,000</td>
</tr>
<tr>
<td>5-6 Weeks</td>
<td>10,000</td>
</tr>
<tr>
<td>6-8 Weeks</td>
<td>15,000</td>
</tr>
<tr>
<td>2-3 Months</td>
<td>10,000</td>
</tr>
</tbody>
</table>
## COMPLETE BLOOD COUNT PARAMETERS
### EXPECTED RANGES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adult Male</th>
<th>Adult Female</th>
<th>0day -30d</th>
<th>31day-24mo.</th>
<th>2yr-10yr</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>4.0-9.6</td>
<td>*</td>
<td>9.1-34.0</td>
<td>6.0-14.0</td>
<td>4.0-12.0</td>
<td>10^9/L</td>
</tr>
<tr>
<td>RBC</td>
<td>4.06-5.64</td>
<td>3.75-5.06</td>
<td>4.10-6.70</td>
<td>3.80-5.40</td>
<td>4.00-5.30</td>
<td>10^12/L</td>
</tr>
<tr>
<td>HGB</td>
<td>12.5-17.5</td>
<td>11.7-15.3</td>
<td>15.0-24.0</td>
<td>10.5-14.0</td>
<td>11.5-14.5</td>
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<td>33-43</td>
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<tr>
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<td>72-88</td>
<td>76-90</td>
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<td>fL</td>
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<tr>
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<td>13.2-16.3</td>
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<tr>
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<td>44.0-73.4</td>
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<td>32-62</td>
<td>13-35</td>
<td>23-62</td>
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<tr>
<td>AB NEUT</td>
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<td>*</td>
<td>6.0-20.0</td>
<td>1.0-6.0</td>
<td>1.2-6.0</td>
<td>10^3/L</td>
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<td>26-36</td>
<td>42-78</td>
<td>35-52</td>
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</tr>
<tr>
<td>%Baso</td>
<td>0.00-1.00</td>
<td>*</td>
<td>0.00-1.00</td>
<td>0.00-1.00</td>
<td>0.00-1.00</td>
<td>%</td>
</tr>
<tr>
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<td>0.00-0.07</td>
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<td>0.00-0.07</td>
<td>%</td>
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<tr>
<td>%BAND</td>
<td>0-3</td>
<td>*</td>
<td>10-18</td>
<td>6-13</td>
<td>0-3</td>
<td>%</td>
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<tr>
<td>%META</td>
<td>0.00 - 0.01</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>%</td>
</tr>
<tr>
<td>%MYELO</td>
<td>0</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>%</td>
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<td>%BLAST</td>
<td>0</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>%</td>
</tr>
</tbody>
</table>

*see adult male range

Reference: Childrens Hospital of Buffalo; 1998 Normal Range Study-MH; York Hospital-York
BLOOD BANK

The following policies have been established to reduce the risks to the patient being transfused and to avoid waste of blood from improper handling. The policies are based on procedure considered to be good blood banking practice, on the recommendations of the American Association of Blood Banks, College of American Pathologist, the laboratory licensure laws of the State of Pennsylvania and the Food & Drug Administration.

These policies are enforced by the Blood Bank and have been approved by the Transfusion Committee of Memorial Hospital.

Pre-Admission Testing

1. Type and Screen.
   a. A type and screen may be ordered on Pre- Admission or Same Day Surgical patients. The type and screen will be run but no blood will be crossmatched. Any problems which would delay or prohibit transfusion if needed during surgery will be reported to the physician.
   b. A new specimen will be collected if the patient has been pregnant or transfused within the preceding 3 months when the patient is admitted.
   c. If the patient’s antibody screen is negative, blood can be crossmatched in a minimal amount of time.

2. Pre-Admission Crossmatch
   a. If the patient has not been pregnant or transfused within the last three months, blood will collected up to 10 days prior to surgery, crossmatched the day before surgery and held until the morning after surgery.
   b. If a patient has been pregnant or transfused within the last 3 months, blood may be crossmatched no sooner than 72 hours before transfusion.

Inpatient Testing

- Type and Crossmatch
  1. A type and antibody screen will be completed on the patient.
  2. The number of units, ordered by the physician, will be crossmatched and be held for 3 days.

Gammulin Rh - RHo (D) Immune Globulin (Human)

1. Gammulin is a concentrated solution of specific immunoglobulin (IgG) containing Anti-Rh(D). It is administered intramuscularly to the MOTHER. It acts by suppressing the specific immune response of Rh negative individuals to Rh positive RBC’s. The goal in utilizing Gammulin is to prevent primary immunization of Rh negative females of child-bearing age and thereby eliminate Hemolytic Disease of the Newborn due to Anti-Rh(D).
Gammulin should be used for all Rh negative females in any situation of risk of exposure to Rh positive RBC’s. All Rh negative females, who are pregnant and not sensitized to Anti-D, who undergo amniocentesis for any reason, at any time, or any other procedure that puts them at risk of being sensitized with Rh Positive cells for any reason, should receive Gammulin. All Rh negative women not previously sensitized to Anti-D should be given Gammulin following abortion.

2. Rh- Immune Globulin may only be released when a current ABO group and RH testing has been completed or is on record of being completed within the previous week. Arrangements for administration of Rh-Immune Globulin must be made with the Family Birth Center at 849-5650.

**Outpatient Transfusions**

1. Outpatient transfusions are performed in the Short Procedure Unit. The physician should schedule a time with the Short Procedure Unit Department for the transfusion and inform the Blood Bank of this time and the blood product needed.

2. The patient must have a written requisition from the physician before blood can be transfused.

3. The patient should come to the Outpatient Department on a weekday between 7:00 AM and 1:00 PM the day before the anticipated transfusion to have blood drawn for the type and crossmatch. The specimen must be collected within 72 hours of the transfusion.

4. If patients are incapacitated to such a degree that a second trip to the hospital is not possible, the crossmatch may be done on the day of the transfusion. There will usually be at least a 1-hour wait from specimen collection to time of transfusion.

5. All transfusion candidates will be banded with a Blood Band for identification. They will be instructed not to remove the band until all the blood has been transfused.

6. The patient must sign an Informed Consent for Blood Transfusion form before the Blood Bank will release any blood for transfusion.

**Autologous Donations**

1. Autologous Donation is the process of a patient giving units of blood for themselves to be used for a scheduled surgery if needed.

2. Autologous Donation phlebotomies will be performed by appointment only and scheduled through Central Pennsylvania Blood Bank or the American Red Cross.
   a. Collection by Central Pennsylvania Blood Bank –
      * The patient will need to contact Central PA Blood Bank by calling 717-566-6161 to set up appointments for the Autologous donation.
   b. Collection by American Red Cross –
Complete the “Request for Collection of Blood for Autologous Transfusion”- ARC form AD-2 and the Consent/Release- ARC form AD-3. Mail the original copies to:

American Red Cross Blood Services
Chesapeake Region
Attn: Special Collections
Mount Hope Drive
Baltimore, MD 21215-9970

or Fax to: 410-764-5306

The American Red Cross will contact the patient directly to set up appointments at a York County Collection site after the request has been reviewed.

3. Send one copy of the request to the Blood Bank at Memorial Hospital

**NOTE:** There must be 72 hours between successive donations and the last donation must be 5 working days before the anticipated date of transfusion.

---

**BLOOD BANK PROCEDURES AND ORDER CODES**

<table>
<thead>
<tr>
<th>Blood Type (ABO and Rh)</th>
<th>ABODG</th>
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</thead>
<tbody>
<tr>
<td>Antibody Screen</td>
<td>GABS3</td>
</tr>
<tr>
<td>Type &amp; Screen Panel</td>
<td>GTS3</td>
</tr>
<tr>
<td>Cord Blood Evaluation</td>
<td>CORDA</td>
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<tr>
<td>Direct Coombs</td>
<td>DATA</td>
</tr>
<tr>
<td>Therapeutic Phlebotomy (inpatient only)</td>
<td>THER</td>
</tr>
<tr>
<td>Packed Red Blood Cells</td>
<td>RC</td>
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<tr>
<td>Apheresis Platelets</td>
<td>PHP</td>
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<tr>
<td>Fresh Frozen Plasma</td>
<td>FFP</td>
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<tr>
<td>Cryoprecipitate</td>
<td>CRY</td>
</tr>
<tr>
<td>Gammulin-Rh</td>
<td>RHO</td>
</tr>
</tbody>
</table>

**Note:** An order for crossmatch is automatically generated when ordering the packed red cell product. Place any **special instructions** in the comment section of the order. Example: Irradiated, sickle negative, CMV negative, etc.
BLOOD PRODUCTS MAINTAINED BY THE BLOOD BANK

RED BLOOD CELLS:
- Use for symptomatic anemia, increase oxygen-carrying capacity
- Not indicated for
  - pharmacologically treatable anemia
  - volume expansion
  - coagulation deficiency
- Rate of infusion – 150 - 300 ml/hr, less than 4 hours
- Needs to be ABO Compatible

FRESH FROZEN PLASMA (Plasma frozen within 24 hrs):
- Used for clinically significant plasma protein deficiencies when no specific coagulation factors are available, TTP, source of all coagulation factors
- Not indicated for
  - volume expansion
  - coagulopathy that can be more effectively treated with specific therapy
- Rate of infusion – 200-300ml/hr, less than 4 hours
- Needs to be ABO Compatible

NOTE: needs 20 minutes to be thawed after ordering if the patient’s type has been completed

PLATELETS:
- Used for bleeding due to thrombocytopenia or platelet function abnormality, improves hemostasis
- Not indicated for
  - plasma coagulation deficiencies
  - some conditions with rapid platelet destruction (ITP, TTP) unless life threatening hemorrhage
- Rate of infusion – 200-300ml/hr, less than 4 hours
- Types
  - Apheresis platelet – collected from single donor, equivalent to 6-10 random platelets
    Suggested for the following patients – cancer, transplant, platelet antibodies, needs HLA typed platelets
  - Acrodose platelet – collected and pooled from 5 different donors, leukocyte reduced
    Suggested use – surgery, bleeding after surgery, lower volume product needed

POOLED CRYOPRECIPITATE:
- Used for hypofibrinogenemia, Factor XIII deficiency, von Willebrand disease, hemophilia A,
- Provides – fibrinogen, vWF, Factor XIII, and Factor VIII
- Rate of infusion – as rapidly as tolerated but less than 4 hours
- Contains – 5 units of individual cryoprecipitate packs
- Rate of infusion – as rapidly as tolerated but less than 4 hours

NOTE: needs 15 minutes to thaw after ordering
MICROBIOLOGY CULTURES AND PROCEDURES

Microbiology tests are ordered on an outpatient requisition by checking off the mnemonic describing the test requested. If you cannot find the order mnemonic needed or are not sure which one to use, give a full description of the desired test at the bottom of the section. It is essential that you include body source and/or site information, when not readily apparent from the test name. Provide any other pertinent information that may assist when processing and reading the culture (i.e. dog bite wound instead of “bite wound” or just “wound”)

If results are positive, additional testing may generate additional charges.

GRAM STAIN GS

Specify source. Submit on labeled slide, double-swabbed culturette or sterile container. If ordering on a stool specimen to rule out WBC’s, use FWBC order (fecal WBC’s)- See General Test Directory.

CPT Code: 87205

ACID FAST CULTURE (includes smear) CAFB

Specify source:
1. Sputum- first morning, deep cough specimen or induced sample (2 mL minimum).
2. Bronchial Washings- minimum 1 mL for AFB only, 3 mL if routine and/or fungal culture added.
3. Urine- first morning specimen.

The first 3 specimen types should be collected in sterile containers and 3 consecutive daily samples are highly recommended to increase recovery of organism.
4. CSF- minimum of 1.0 mL in a sterile tube.
5. Sterile Fluids- minimum of 5 mL (pleural, synovial, thoracentesis, etc) in a sterile tube.
6. Blood- Completely filled sodium heparin (green top) tube. Minimum specimen requirement is 3 mL.
7. Stool- submit in sterile container
8. Biopsy or tissue- submit sample in sterile container and keep moistened with non-bacteriostatic sterile saline; enough to just cover sample. Specify body source on requisition.

Swabs are not acceptable for AFB cultures.
Testing performed by Quest Diagnostics.

CPT code: 87206 & 87116

ANAEROBIC CULTURE CANA

Indicate source and site information. Fluid specimens are best collected in syringe and safely capped. Keep cool. Use port-a-cul collection device for swab specimens. Do not refrigerate swab. Anaerobic set-up is automatically included for Fluid and Tissue/Biopsy orders.

The following specimens are likely to be contaminated with indigenous flora and are NOT cultured anaerobically under routine circumstances. Please notify the lab if you feel special circumstances warrant anaerobic processing of the following specimen types: throat/tonsillar specimens, nasopharyngeal swabs, gingival or internal mouth surface swabs, expectorated sputum, sputum obtained via nasotracheal suction, bronchial washings or other specimens collected via a bronchoscope unless collected via a protected double lumen catheter or bronchoalveolar lavage, gastric and small bowel contents, large bowel contents except for specific etiologic agents (i.e. Clostridium difficile), ileostomy, colostomy effluents, feces, vaginal, cervix and penis.

Refer to additional collection guidelines section on page 92.

CPT code: 87075
BETA-STREP CULTURE

Specify source: Throat or genital. Group A strep identified from throat cultures is called to the physician’s office. Sensitivities are not performed on these isolates unless warranted by special circumstances. Collect on double swabbed culturettes.

CPT code: 87081

BETA-STREP SCREEN

Collect specimen using a polyester swab on plastic shaft. Recommend also submitting a culturette for follow-up testing on negative screens.

A negative result may be obtained at onset of disease due to low antigen concentration. Confirmation by culture method is recommended on negative screens if patient’s symptoms are indicative of a bacterial infection.

CPT code: 87430

BLOOD CULTURES – routine

Collect into appropriate blood culture collection devices. Refer to Blood Collection procedure previously described on page 12.
PROPER SKIN DECONTAMINATION IS EXTREMELY IMPORTANT! BLOOD CULTURE COLLECTIONS MUST BE PERFORMED BEFORE OTHER BLOOD WORK IS COLLECTED FROM THE SAME VENIPUNCTURE SITE

Blood cultures to rule out Mycobacteria (AFB): Collect a full Green top tube. Minimum volume is 3 mL. Sent to reference laboratory.

CPT code: 87040

BORDETELLA PERTUSSIS / PARAPERTUSSIS by PCR

Specimen Requirements: Nasopharyngeal swab in 1-3 ml of viral transport media or Nasopharyngeal washing.

Testing performed by Quest Diagnostics.

CPT code: 87798 (x2)

CHLAMYDIA CULTURE

Mycoplasma and Ureaplasma: Collect on sterile Dacron/Rayon swab from endocervix, urethra, conjunctiva, rectal mucosa (without feces), fluid aspirate, tissue, nasopharynx or throat. Place in V-C-M (green top) media. Indicate body site/source. Keep refrigerated.

Testing performed by Quest Diagnostics.

**Refer to additional collection guidelines section on page 96

CPT code: 87110, 87140
CHLAMYDIA, AMPLIFIED DNA BY SDA

Specimen Required: Endocervical or male urethral swab in BD Probetec collection kit. Urine - 15-60 mL of random urine (1st part of stream, not midstream) in BD Urine Probetec; patient must not urinate 1 hour prior to collection.

Testing performed Monday, Wednesday, and Friday. Refrigerate

Note: If ordered with Neisseria gonorrhoeae, testing for both is performed from the same collection device. Order as a CNDNA.

CPT code: 87491

EAR CULTURE

Ear: acute otitis media. Collect double-swabbed culturette of pus from ear canal; syringe with needle aspirate of middle ear fluid. Clean canal and tympanic membrane surface with 70% ethanol or povidone-iodine before needle aspiration.

CPT code: 87070

EYE CULTURE

EYE: conjunctiva, keratitis. Collect before application of topical anesthetics. Obtain material on double-swabbed culturette. Corneal scrapings, intraocular fluid, or biopsy may be required for detection of fungi. Biopsy, tissue pieces or other foreign bodies should be submitted in sterile tube and kept moist with minimal amount of sterile, non-bacteriostatic saline.

Corneal Scrapings: Directly inoculate media-Thioglycollate broth and SAB slant (for fungus) whenever possible.

CPT code: 87070

FLUID CULTURE (includes gram stain)

Specimen: CSF, pleural, synovial, thoracentesis, bile, ascites, bone marrow, kidney, other aspirates. Collect fluid specimen aseptically into syringe or sterile tube. Fluid specimen is better than swabbing since large amounts of fluid can be centrifuged to concentrate organisms.

CSF: 1.0 ml of specimen required for routine culture only.

3.0 mL is indicated if AFB and/or fungal culture is added.

Other fluids: Minimum of 5 mL for routine culture. 10 mL is indicated if AFB and/or fungal culture is added. Indicate specimen source and site of collection.

CPT code: 87205 & 87075
**Fungal Culture**

Specify source and site. Collect on double-swabbed culturette, syringe, petri plate or between 2 microscope slides (for skin scrapings, hair, nails); sputum collection container or other sterile container. Dependent on the source specimen may be collected directly onto SAB slant media. This is not recommended for sterile fluids or tissue/biopsy specimens. Once collected on this media, other testing cannot be performed. Blood for fungus must be collected in Bactec blood culture bottles only.

CPT code: 87101 - Skin, Hair or Nail
87103 - Blood
87102 - Other sites

**Fungal Smear - KOH Prep**

Specify source. Use sterile container, sputum collection container. Done on skin scrapings, hair, nails, sputum, bronchial specimens. Swabs are not acceptable.
Fungal culture (CFUNGUS) should be ordered to rule out presence or absence of yeast or if fungal culture is indicated.
Order gram stain (GS) if looking for yeast in genital specimen. Send on culturette or 2 slides prepared in office. Do not spray with cytology fixative.

CPT code: 87220

**Genital Culture**

Specimens: vaginal, cervix, culdocentesis fluid, penis, uterus, prostatic fluid, placenta, Bartholin cyst, fallopian tube, endometrial material or tissue biopsy surgically obtained.
Collect on double-swabbed culturette or sterile container with aspirate of material; or tissue/biopsy in sterile container and moistened with sterile, non-bacteriostatic saline.

The following specimens usually contain indigenous flora and will not be cultured anaerobically: vaginal, cervix, penis. Anaerobic cultures will be honored and cultured on deep genital specimens not harboring “normal” flora or collected via a protected double lumen catheter so as to bypass bacterial contamination.
Example: Endometrial, Bartholin cyst, cul-de-sac, placenta, uterus, fallopian tubes. Refer to Anaerobic Culture requirements.

CPT code: 87070
HERPES SIMPLEX CULTURE

**Specimen:** biopsy, conjunctival or corneal swab, endocervical or endourethral swab, urogenital and respiratory specimens such as swabs, secretions or washings, CSF, Vesicle, lesion fluid, scrapings or swab from the base of the lesion. Place in V-C-M (green top) media.

Viral Culture transport tube, which contains special collection swabs, must be used. Obtain from lab. Specimen must be received in lab as soon as possible to maintain viability of organism. The color of liquid in the vial should be pink or orange. Do not use vials that are purple or yellow. Do not use past the expiration date on the vial.

**REFRIGERATE SPECIMENS.**
The virus may be isolated from lesions for up to 5 days after onset. Herpes typing can be requested after positive results are received. Call or fax the request to the lab within 5 days of positive result. Testing performed by Quest Diagnostics.

**Refer to additional collection guidelines section on page 95**

CPT code: 87255

INDIA INK PREP (for Cryptococcus)

Test used to detect the presence of yeast cells resembling Cryptococcus. Minimum of 3 mL of CSF in a sterile tube.

CPT code: 87210

MRSA by PCR

**Methacillin Resistant Staphylococcus aureus**

**Specimen Required:** Nasal swabbings that have been collected on the swab in a Cepheid Collection Device

Testing performed daily.

CPT code: 87641

N. GONORRHEAOAE, AMPLIFIED DNA BY SDA

**Specimen Required:** Endocervical or male urethral swab in BD Probetec collection kit. Urine - 15-60 mL of random urine (1st part of stream, not midstream) in BD Urine Probetec; patient must not urinate 1 hour prior to collection.

Testing performed Monday, Wednesday, and Friday. Refrigerate

*Note: If ordered with Chlamydia trachomatis, testing for both is performed from the same collection device. Order as a CNDNA.*

CPT code: 87591
OVA & PARASITE EXAM

Specimen: Feces or colon contents collected in Ova & Parasite collection vials. Fill until the liquid level reaches the indicated fill line on the side of the vial. Collect a minimum of 3 specimens- once per day for 3 consecutive days or every other day. Note collection date and time on the vial. Refer to Specimen Collection guidelines in next section for more details. DO NOT REFRIGERATE VIALS!

Testing performed by Quest Diagnostics.

CPT code: 87177

PINWORM EXAM

Collect preferably in the morning or before bathing. Eggs are deposited outside the anal opening. An ova & parasite exam on stool may not detect infection.

Use special pinworm collection paddle:

a. Remove cap containing the paddle. The sticky side of the paddle is marked. Do not touch this side with fingers.
b. Press the sticky surface against the perianal skin with moderate pressure. Collect early in the morning and before a bowel movement. Do not cleanse the perianal area before collecting the specimen.
c. Replace the cap into the container and tighten.
d. Label the outside of the container with appropriate patient information.
e. Transport to the lab within 24 hours. Maintain at room temperature.

CPT code: 87172

RESPIRATORY CULTURE (includes gram stain)

Specimens: Sputum, bronchial washings, tracheal aspirates, bronchial brushings

Rayon, calcium alginate or cotton swabs with either aluminum or plastic shafts are acceptable. Do not use wooden shaft swabs.

Use sputum collection kit for sputum samples. The most suitable specimen is the expectorate obtained after a deep cough; usually the first morning sample is best.

Specimens should not be collected over a 24 hour period. Avoid excessive contamination of specimens by saliva or indigenous upper respiratory tract flora. Patient should rinse his mouth or gargle with sterile water prior to collection of specimen. Have patient cough deeply or induce coughing with heated aqueous aerosol of glycerin and sodium chloride. Transport to the lab within 1 hour or refrigerate if transport will be delayed.

CPT code: 87070 & 87205

ROUTINE CULTURE- OTHER

Catheter tips and/or culture orders not covered in other areas of this section. Foley tips are not acceptable cultures. Swabbings of catheter sites should be ordered as a wound culture.

Disinfect area around entry site, remove catheter, and clip off tip aseptically into a sterile specimen container.

CPT code: 87070
**STOOL CULTURE**

The lab routinely cultur\es for Salmonella, Shigella, Campylobacter and E. Coli 0157. Other enteric pathogens must be specifically requested.

Collect specimen in a stool preservative vial. Alternatively it may be collected in a clean container. Do not mix urine or toilet water with specimen. If a culturette is used, it should be passed beyond the anal sphincter, rotated carefully, and withdrawn.

Stool preservative vial may be kept at room temperature. Stool in any other container must be refrigerated.

CPT code: 87045

**THROAT CULTURE**

Nasopharynx, nares, throat, other upper respiratory sites. To look for other potential respiratory pathogens in addition to beta-strep. Collect on culturette.

Order Beta-Strep (CBETA)culture if only interested in the presence or absence of beta-strep.

CPT code: 87070

**TISSUE/BIOPSY CULTURE** (includes gram stain)

*Microbiological exam CANNOT be performed on tissue samples placed in formalin.*

Tissue or skin obtained by surgical procedure. Tissue can be placed within the semisolid gel of Port-a-cul tube to keep moist or sent in a sterile container with a small amount (enough to cover tissue) of non-bacteriostatic, sterile saline.

CPT code: 87205 & 87075

**UREAPLASMA/MYCOPLASMA CULTURE**

*Mycoplasma and Ureaplasma: Collect on sterile dacron swab. Place in V-C-M (green top only) media. Indicate body site/source. Keep refrigerated.*

Testing performed by Quest Diagnostics.

**Refer to additional collection guidelines section on page 96**

CPT code: 87109

**URINE CULTURE**

Indicate site of collection: voided, catheterized (foley or straight), suprapubic aspirate, cystoscopy, nephrostomy, etc. Refer to specimen collection guidelines on page 17 for clean catch collection procedure. Collect in urine culture kit cup/vial with preservative. If urine is sent in a sterile container without preservative it must be kept refrigerated in transit to prevent overgrowth of low numbers of bacteria or commensal organisms. Do not collect foley urine from collection bag.

CPT code: 87086
VIRAL CULTURE

(Include Adenovirus, RSV, CMV, Mumps, Enterovirus, Varicella, HSV 1, 2, and 3, Influenza A & B, and Parainfluenza)

Body fluids, tissues, conjunctiva, newborn urine, lower respiratory, stool, and CSF. Collect on sterile dacron swab. Place in V-C-M (green top only) media or equivalent. Indicate body site/source. Keep refrigerated.

Testing performed by Quest Diagnostics.

CPT code: 87254

WOUND CULTURE (includes gram stain)

This is the general bacteriology culture order for superficial skin sites, lesions, abscess sites, drainage sites, pus, etc. Note detailed source/site information on request form or other clinical/history information that may aid in the identification of potential pathogens.

Use double-swabbed culturette or aspirate pus/fluids using sterile needle and syringe. Expel air from syringe and cap end of syringe (removing needle). Using culturette with only one swab will compromise accuracy of gram stain due to lack of sufficient specimen material.

CPT code: 87205 & 87075
MISCELLANEOUS CULTURES & ANTIGEN TESTING

VAGINAL SCREEN
Used to determine the presence or absence of Trichomonas, Gardnerella vaginalis, or Candida species.

Endocervical swab in Ambient Transport System collection kit. The Ambient Transport System kits are supplied by the Microbiology department.

CPT code:
- Medicare - 87480, 87510, 87660
- Medicaid – 87797 (x2), 87660

CLOSTRIDUM DIFFICILE TOXIN A & B, PCR
Collect stool sample in clean container. Keep specimen refrigerated or freeze if transport will be delayed > 24 hours. Test cannot be performed from swabs. Semi-formed or watery specimens are required. Formed stool specimens will be rejected.

Days Test Set Up: Done all shifts.

CPT code: 87493 (x2)

DIRECT FLUORESCENT ANTIBODY SMEAR
Pneumocystis: PCARD  Induced sputum or lower respiratory tract specimen.
Legionella: LGDFA  Sputum, Tracheal aspirate, pleural fluid, lung biopsy, bronchial washing.

Send specimen in sterile container on ice.

Testing is performed by Quest Diagnostics.

It may be helpful to consult with an Infectious Disease Specialist before collection/ordering this test since multiple testing on the same specimen may be warranted.

CPT code:
- Pneumocystis: 87299
- Legionella: 87278

HANGING DROP
Used to determine the presence or absence of Trichomonas or yeast.

Collect vaginal or endocervical swab. Place in capped tube containing a small amount of sterile saline. Transport to Microbiology immediately after collection.

CPT code: 87210
LEGIONELLA ANTIGEN  

**Specimen Required:** 1 ml Random urine.

**Days Test Set Up:** Testing performed Daily.

CPT code: 87449

RESPIRATORY Syncytial Virus (RSV)  

Collect nasal washing by using plastic catheter, a mucous trap, and irrigation with sterile 0.9% saline. Minimum of 1.0 mL washing is required for RSV testing only. Transport immediately on ice to the lab.

CPT code: 87420

ROTAVIRUS ANTIGEN TEST  

Submit stool in clean container. Rotavirus infection is usually seasonal in occurrence and can pose a serious threat in young children.

CPT code: 87425

STREP. PNEUMOCOCCAL ANTIGEN  

**Specimen Required:** 0.5 ml CSF or 1.0 ml Random urine.

**Days Test Set Up:** Testing performed Daily.

CPT code: 87449
The Microbiology Department

Organism Reporting and Sensitivity Results:

Organisms with sensitivities, when appropriate, are reported in accordance with specimen site information and/or pathogenicity of the organism in question and any anticipated commensal or normal flora expected for the body site. Results are updated as new information becomes available or new organisms are identified or sensitivity results completed.

Depending upon the organism isolated and reported and it’s relationship to the body site, sensitivity testing may not be appropriate or indicated, regardless of how the order was initially placed. In addition, different classes or types of antibiotics are tested against different organisms. For example, gram positive and gram negative infections are not usually treated the same and this difference is related to the unique cell structure of each type of organism and their relative permeability to different classes of antibiotics. Therefore, sensitivity reports on gram negative vs. gram positive bacteria will appear different on a report.

In addition, antibiotic suppression rules insure selection of the more appropriate antimicrobial based on proven clinical efficacy, safety or pharmacy formulary restrictions (i.e. if Gentamicin is sensitive, Tobramycin and Amikacin will not be reported, however these results could be given to you if you called the lab to request them). Also, certain antibiotics are never tested nor reported on an organism (i.e. Cephalothin for Enterococcus) because of intrinsic resistance on the part of the organism.

The Microbiology technologist is not trained to make treatment decisions based on the sensitivity result available. We can only tell you which antibiotics MAY be effective based on in vitro results. Other clinical decisions must be made in conjunction with the sensitivity result before determining which antibiotic may be effective for your patient (i.e. permeability considerations, achievable blood levels, patient allergies and immune status, or relative drug toxicity based on your patient’s overall health) If you are in doubt please consult the "Sanford Guide to Antimicrobial Therapy" (a new one is published each year) and/or consult a Infectious Disease physicians.

Antibiotic Sensitivity Testing: CPT code: 87186
MICROBIOLOGY SPECIMEN COLLECTION GUIDELINES

**CULTUREtte microorganism collection and transport system (aerobic)**

Can be stored at room temperature. A sterile collection system containing 2 rayon-tipped swabs and one ampule of modified Stuart's transport medium. **DO NOT USE BEYOND EXPIRATION DATE.** It is important that we receive the double-swabbed collection device since, for some specimen types, each swab has a specific purpose.

- a. Peel open package. Remove culturette
- b. Remove cap with attached swabs
- c. Collect sample on both swabs. The lab must receive both swabs inoculated. Return cap and swabs to tube
- d. Push cap back into tube to force swab into moistened ampule on bottom. Make sure it is firmly attached
- f. Label culturette and transport to lab.

**HERPES and CHLAMYDIA CULTURE, VIRAL TRANSPORT TUBE**

Collection device: Viral Culture Transport Medium (VCTM). See Chlamydia. **Do not** use calcium alginate or wooden shaft swabs for specimen collection; use dacron, rayon-tipped or cotton swabs on plastic or metal shafts.

Body sites: Vesicle swab, urogenital swab, nasopharyngeal, throat, CSF or tissue in VCTM.

- a. Endocervix: Swab the endocervix as well as the exocervix with sufficient force to obtain epithelial cells. Utilize an additional swab to perform a "vulvar sweep". Break swab tip(s) off into VCTM.

- b. Cutaneous/vesicular lesion: Wash vesicle with sterile saline and aspirate fluid with a tuberculin syringe. Transfer fluid into VCTM

- c. Rectal swab: Insert swab at least 3 cm. into anal orifice; rotate to ensure fecal specimen on swab; break swab tip off into VCTM.

- d. Biopsy/Autopsy specimen: Formalinized or fixed-tissue specimens will **NOT** be accepted. Collect fresh tissue from appropriate site using a separate sterile instrument to cut and remove each sample; Each specimen need not be more than 1-2 cm in diameter; place each sample into an individual leak-proof sterile container and cover with sufficient transport medium (from VCTM) to prevent drying.

- e. Throat: rotate swab in both tonsillar crypts and against posterior oropharynx; Break swab tip off into VCTM

- f. Urethral: Insert swab at least 2 cm into urethral orifice. rotate gently to obtain epithelial cells; break swab tip off into VCTM
g. CSF: Transfer up to 2 ml (amount equal to transport medium) to VCTM tube. **If less than 1 ml of CSF is available,** submit without transport medium in a sterile, leakproof container. Keep cold. Do not freeze.

The reference lab will not process specimens that are not submitted in the appropriate medium or subjected to prolonged delay or adverse conditions during collection or transport.

**MYCOPLASMA/UREAPLASMA CULTURE TRANSPORT**

**GENITAL SOURCE**

Collection device: M4 (Blue top tube only) transport. Do not use beyond expiration date. Refrigerate after collection or deliver to lab as soon as possible.

*Mycoplasma hominis* and *Ureaplasma urealyticum* will be isolated and identified. Note: M. pneumoniae is NOT usually suspected in genital specimens. Test sent to Reference lab.

**GENITAL SOURCE:** cervical or urethral swab, urine, endometrial washings, fallopian tube, placenta, fetal part, semen

a. Obtain specimen with sterile swab (provided). **Do not** use calcium alginate or wooden shaft swabs for specimen collection; use dacron, rayon-tipped or cotton swabs on plastic or metal shafts.
b. Mix swab vigorously in the transport medium and discard the swab.
c. Tightly cap, store and transport vial to the lab at room temperature or 4°C
d. **URINE** specimen: Collect urine in sterile container. 0.2 ml urine sediment is inoculated into the transport vial.

**RESPIRATORY SOURCE:** Includes Throat swab, sputum, bronch washing, lung tissue, transtracheal aspirates

To rule out the presence or absence of *Mycoplasma pneumoniae*.

Collection Information:

a. Obtain specimen with sterile swab (provided). **Do not** use calcium alginate or wooden shaft swabs for specimen collection; use dacron, rayon-tipped or cotton swabs on plastic or metal shafts.
b. Place swab in transport broth, mix vigorously. Vials must be kept refrigerated or frozen until ready to use. **If frozen, allow to thaw before inoculating.**
c. Specimen must reach the reference lab within 72 hrs of collection time and, therefore, should be received no later than 24 hrs. after collection at Memorial Hospital Microbiology lab. If specimen is collected on a Friday, it should be received no later than 3 pm at the Microbiology lab in Memorial. Specimens that cannot be collected and transported to the lab on Friday afternoon, should be re-collected the following Monday.
d. Tightly cap, store and transport vial to the laboratory at room temperature or 4°C. Do NOT freeze after inoculating.
PARASITOLOGY SPECIMEN COLLECTION

Specimen preservation is necessary to maintain protozoan morphology and to prevent the continued development of some helminth eggs and larvae.

**Filling preservative vials:** Vials are available and can be obtained from the microbiology lab or outpatient laboratory. Use the appropriate sized vial for the amount of specimen received. The use of more specimen is always preferable. Select mucoid, bloody sections of formed/semi-formed specimens using spork attached to lid of preservative vials. Fill each vial until liquid reaches indicated fill line. If specimen is watery, specimen may be filled to slightly above the fill line. Under no circumstances should specimen be filled to the top of the vial. Both vials contain different preservatives and both must be filled.

Specimens can be sent in clean container if preservative transport vials are not available, however, in this case, the specimen must be delivered to the lab as soon as possible on the day of collection.

**Number of specimens:** A normal examination of stool for parasites should include a minimum of 3 specimens, two from normal movements and one with a cathartic such as magnesium sulfate or Fleet’s phosphosoda. Oil-based cathartics should not be used and a stool softener is usually inadequate to obtain a purged specimen. If the patient already has diarrhea, a cathartic would be contraindicated. Three specimens are also suggested for post-therapy examination.

In Taenia infections, a cure is assumed unless proglottids reappear in the stool.

Multiple specimens must not be submitted on the same day, unless the patient has severe watery diarrhea for which multiple specimens can compensate for the dilution factor due to fluid loss. Consultation with the physician may be warranted before a specimen is rejected.

**Collection Times:** Specimens should be submitted on separate days, preferably every other day, but within a 10 day period. This time frame is recommended due to the intermittent appearance of organisms in the stool and the greater probability of discovery when more than one specimen is collected. Six specimens are recommended when a patient is suspected of having amoebic infections. However, this number is rarely, if ever, received usually due to cost-containment measures. If six specimens will be submitted, it should be done over a 14 day period.

**Specimens collected from diapers:** Watery specimens that tend to soak through a diaper can be best collected by first lining the inside of diaper with plastic wrap. The specimen can then be scraped from the plastic into the preservative vials.

**Interfering substances:** Certain substances and medications interfere with the detection of intestinal protozoa: barium, mineral oil, bismuth, antibiotics, antimalarials and nonabsorbable antidiarrheal preparations. Specimen collection should be delayed 5-10 days (after barium use) and 10-14 days (after antibiotics).

Antibiotics that affect numbers of intestinal flora will affect numbers of protozoa since they feed on intestinal bacteria. Contamination of stool with urine or water must be avoided.
PORT-A-CUL TRANSPORT TUBE FOR ANAEROBIC CULTURES

These tubes contain a semisolid agar gel into which two specimen swabs (included with collection kit) are inserted and broken off at the lip of the tube. The cap is then tightened and the tube is sent, unrefrigerated, to the lab as soon as possible after collection. An **anaerobic** order should always be sent with an **aerobic culture** order on the same specimen, collected at the same time. An aerobic culture, depending upon body site, may not include an anaerobic culture. See microbiology collection procedures for details and contraindications.

If necessary, aerobic cultures can be performed from specimens collected into port-a-cul tubes.
HISTOLOGY AND CYTOLOGY

The Histology and Cytology department examines all surgical specimens including tissues, fluids, stones as well as Cytological specimens. The interpretive component of this service is performed by a pathologist.

Cytology specimens

The Pathology/Cytology Request Form should be completely filled out and should include:
- patient's name
- address
- date of birth
- social security number
- patient’s sex
- physician's name.
- source of specimen

Additional information needed for gynecological specimens:
- date of last menstrual period
- date of last PAP smear and results
- any medical history pertinent to the interpretation of smears

Gynecological - PAP smears.
Medicare differentiates between screening and diagnostic PAP smear codes. The appropriate box must be checked on the requisition designating the reason for testing as well as the method for cytotechnologist review. The automated imaged technology is recommended since the dual review approach has been shown to increase sensitivity and improve specificity over manual review, further reducing the rate of false negative ASCUS.

**Routine Screen** (V76.2)
- Medicare covers screening PAP smears for no-risk patients once every two years

**Screen - Known Medical History** (V15.89)
- There is evidence on the basis of the patient’s medical history or other findings that she is at high risk of developing cervical cancer and her physician recommends she have the test performed more often than every two years.

**Diagnostic PAP Smears (provide the appropriate diagnosis code based on the reason the test was performed)**
Medicare covers diagnostic PAP smears under the following conditions:
- Previous cancer of the cervix, uterus or vagina that has been or is currently being treated
- Previous abnormal PAP smear
- Any abnormal findings of the cervix, uterus, ovaries, vagina or adnexa
- Any significant complaint by the patient referable to the female reproductive system
- Any signs or symptoms that might in the physician’s judgment, reasonably be related to a gynecological disorder

An Advanced Beneficiary Notice should be completed if the above criteria is not met and the diagnosis does not meet the criteria of the local medical review policy.
Conventional PAP
1. The smear(s) should be submitted on frosted edge slides. The slides should be properly labeled with a pencil indicating the patient's name and the source of the specimen.

2. The slides must be fixed with a cytology fixative immediately after preparation and should not be allowed to dry. A spray or liquid fixative may be used.

3. The fixed and labeled slide should be sent to the lab in a slide mailer.

Thin-Prep Pap- Manual and automated imaged
1. Obtain an adequate sampling from the ectocervix using a plastic spatula.
2. Rinse the spatula into the PreservCyt Solution vial by swirling the spatula vigorously in the vial 10 times. Discard the spatula.
3. Obtain an adequate sampling from the endocervix using an endocervical brush. Insert the brush into the cervix until only the bottommost fibers are exposed. Slowly rotate ¼ to ½ turn in one direction. Do not over-rotate.
4. Rinse the brush in the PreservCyt Solution by rotating the device in the solution 10 times while pushing against the PreservCyt vial wall. Swirl the brush vigorously to further release material. Discard the brush.
5. Tighten the cap so that the torque line on the cap passes the torque line on the vial.
6. Label the vial with the patient’s name and a second patient identifier (date of birth is recommended).

Non-Gynecological Cytology Specimens, Fluids and Washings.

1. A Pathology/Cytology Request Form must be completely filled out and should include the patient's name, age, social security number, insurance information, the date, source of specimen, time specimen was obtained, and the physician's name.
2. Any previous history or relevant clinical findings that may be helpful in diagnosing a patient's condition should be noted on the requisition.
3. All specimen containers must be labeled with the patient's name, a second patient identifier (date of birth is recommended), the date of specimen collection, ordering physician, source of specimen and time of collection.
4. All cytology fluids should be refrigerated immediately. From 7 AM to 3 PM, specimens may be delivered directly to the histology area. After hours, specimens should be delivered to the Specimen Accessioning Area.
5. No fixatives or additives should be added to fluids for cytology.
6. The protocol for Body Fluid analysis for clinical testing should be consulted if other testing is required.

In general, material of cytologic examination is obtained either in the form of smears prepared at the time of clinical examination or in the form of fluid specimens preserved in Cytolyt™ solution. Cytolyt™ filled containers may be obtained from the Cytology department.

Respiratory Tract Specimens:
Place as much of the specimen as is available into pre-filled 30 mL Cytolyt™ fluid container. Never place more than 80 mL of specimen in a single container, using additional containers if necessary. If the specimen collection is large, fresh specimen may be sent to the Cytology department immediate processing.

If slides are prepared, every effort should be made to place as much as possible of the material obtained onto the slide and to prepare a thin, uniform smear. Slides should be sprayed immediately with cytology fixative. Air drying of slides may result in distortion and compromise interpretation.
Breast Nipple Discharge
Collect a small amount of nipple secretion directly into a pre-filled 30 mL Cytolyt™ fluid container. or onto glass slides. Oppose a second glass slide onto the first, allowing the collected material to provide surface tension between the two slides, and then gently and quickly pull the two slides apart in a horizontal motion to distribute the material in a thin film over both slides. The smears should be immediately fixed in either spray fixative or placed into 95% ethyl alcohol to prevent air drying.

For aspirations of accessible masses, localize the lesion and aspirate into a syringe with attached needle. Expel the material into a pre-filled 30 mL Cytolyt™ fluid container.

Gastrointestinal Tract Brushings
Using standard endoscopy technique, identify the lesion in question and obtain a brushing sample of the lesion. Upon withdrawing the brush, place brush into a pre-filled 30 mL Cytolyt™ fluid container. Gently yet rapidly rotate the brush in the cytolyt fluid, remove the brush and discard.

Bronchial Brushings
Using standard bronchoscopy technique, identify the lesion in question and obtain a brushing sample of the lesion. Upon withdrawing the brush, place brush into a pre-filled 30 mL Cytolyt™ fluid container. Gently yet rapidly rotate the brush in the cytolyt fluid, remove the brush and discard.

Bronchial Aspirates and Washings
Using standard bronchoscopy technique, lavage the distribution of the bronchus to be sampled. Collect the wash in a clean container. Place as much of the specimen as is available into pre-filled 30 mL Cytolyt™ fluid container. Never place more than 80 ml of specimen in a single container, using additional containers if necessary. Any solid pieces will be removed and processed as a cell block preparation.

Urine
A midstream, clean catch specimen is recommended to avoid vaginal contamination in female patients. A midstream specimen, not necessarily clean catch, is recommended for male patients. If the patient must be catheterized to obtain the specimen, this should be noted on the specimen requisition. Specimen is collected fresh and added to 30mL pre-filled Cytolyt™ fluid container in an amount not exceed 80 mL of specimen per container. The specimen should be refrigerated until transported to the lab.

Bladder Washings
Using standard cystoscopy technique, obtain washing specimens, carefully denoting specific specimen sites for each specimen on the requisition. The specimen should be refrigerated until transported to the lab.

Cerebrospinal Fluid
The volume of sample has considerable bearing on the diagnostic accuracy; the larger the sample, the better the results. If several samples are obtained, the second or third tube should be used for cytology. Fluid will be added to 30mL pre-filled Cytolyt™ fluid container immediately after collection or when received in the laboratory. Transport to the laboratory immediately.

Other Body Fluids
Pleural, pericardial or ascitic fluids may be collected in tubes, bottles or syringes either without preservative or heparinized to prevent coagulation. Cells in such fluids do not deteriorate very rapidly. Fluid will be added to 30mL pre-filled Cytolyt™ fluid container immediately after collection or when received in the laboratory. Transport to the laboratory immediately. Never place more than 80 ml of specimen in a single container, using additional containers if necessary.

Fine Needle Aspiration
A fine needle attached to a syringe is passed into the mass. After aspiration of the material, expel specimen slowly into 30 mL pre-filled Cytolyt™ fluid container. Now aspirate 5-10 mL of the cytolyt™ solution back into the syringe through the needle and slowly inject fluid back into the container. Repeat this process. Remove
the needle and discard into sharps container. Bloody specimens may require glacial acetic acid to be added to the Cytolyt™ solution in a 1:9 ratio.

**Surgical Pathology or Tissue Specimens**

A. Specimens for Pathology studies require a Pathology/Cytology Request Form completed with the patient's name, address, age, physician, clinical data, specimen source and any medical history pertinent to evaluation of the specimen submitted.

B. For routine pathology studies, all tissue must be placed in a 10% buffered formalin phosphate solution within 15 minutes of removal. After 15 minutes, the tissue will begin a degenerative process. Specimen container must be labeled with the patient name and a second patient identifier (date of birth is recommended). Exceptions to fixation are specimens for flow cytometry studies or tissue to be cultured. These should be placed in a sterile container in the fresh state and transported to the laboratory immediately.

**CYTOPATHOLOGY PROCEDURES AND CHARGES**

**Gynecological Smear - Conventional PAP**
CPT Codes: Screening P3000
Diagnostic 88164

**Gynecological Smear - ThinPrep PAP**
CPT Codes: Screening G0123
Diagnostic 88142

**Gynecological Smear - Thin Prep automated imaged**
CPT Codes: Screening G0145
Diagnostic 88175

Additional charges for professional component will be assessed on Gynecological Cytology if pathologist review is indicated.

- Conventional CPT Codes: Screening P3001, Diagnostic 88141
- Thin Prep CPT Codes: Screening G0124, Diagnostic 88141

**Non-Gynecological Cytology**
CPT Code: 88112

**Fluids - Washings and Brushings**
CPT Code: 88104

**ANATOMIC PATHOLOGY PROCEDURES AND CHARGES**

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<th>Procedure</th>
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Prostate Needle Biopsies (1-20 specimens) CPT code: G0416
Decalcification CPT code: 88311
Immunoperoxidase Stain CPT code: 88342
Special Stain CPT code: 88312/88313

Please consult the most current American Medical Association’s CPT manual for definitions of the Surgical Pathology Levels.

**AUTOPSY AUTHORIZATION**

1. The “Certificate of Death” must be signed by the physician pronouncing the death, completing items 23 to 26. The remainder of the form may be completed by nursing staff.

2. Complete the “Autopsy permit” form in its entirety. *This form is not necessary if the autopsy is requested by the coroner.* Guidelines regarding who may give permission for autopsies (next of kin) may be found on the reverse side of the Autopsy Permit.
   a) Verbal authorization is acceptable if the next of kin is unable to come to the hospital (the person is disabled) or, the next of kin is not a local resident. Two witnesses to the verbal authorization are required in this circumstance.
   b) If an autopsy is requested by a physician and refused by the next of kin, the authorization form should still be completed with the reason for refusal and signed by the next of kin.
   c) The witness may be any adult who has not been judged legally incompetent.

3. After both the “Certificate of Death” and “Autopsy Permit” forms have been completed, place the forms on the top of the chart and deliver the chart to the Pathology office. If the death occurs on a weekend, the pathologist on call must be contacted.

4. Remove all jewelry and other personal effects, place body in a body bag and put it in a morgue cooler.

5. Autopsy services have been contracted with Penn State Milton Hershey Medical Center.

6. When the autopsy is completed the nursing coordinator will be contacted to make a copy of the “Certificate of Death” and call the funeral home.