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## Section II

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Introductory Remarks:

The Glens Falls Hospital, Department of Pathology manual has been prepared by the supervisory staff for the purpose of providing both general and specific information dealing with a variety of laboratory procedures, reports, specimen identification and submission of specimens, the handling of emergency requests and the technical coverage of the laboratories.

There are section supervisors and managers in the laboratory to help solve administrative and technical problems as required. When needed, they will confer with the appropriate pathologist-on-call. Please utilize this system to obtain resolution to problems and information that is not readily available from other members of the technical staff. The pathologists are also available for consultation. They have a call schedule that is available from the hospital telephone operators and the laboratory.

The proper collection and submission of specimens is fundamental and vital to having accurate laboratory results. The proper collection, labeling, and submission of specimens is the responsibility of the appropriate party (i.e. lab staff, office staff, nurses, unit clerks, physicians etc). Whether the specimens are body fluids or secretions, catheter tips or prosthetic devices, it is imperative that they be collected and labeled properly. If there are any questions, please call the lab for further information.

The laboratory is a tool and, like any tool, can be most effective if used selectively, efficiently and properly. In a constantly evolving and changing milieu, it is obviously not possible to have a manual that is complete, up to date, and final. This manual should help answer most queries, but there will always be questions that need to be individually researched and answered. We welcome your comments and suggestions, as they will impact on how we respond to your needs.

If there are any questions regarding specimen requirements or tests, please call us at 926-3800.

Jayant R. Paranjpe, M.D.
Medical Director
Department of Pathology

How To Use This Manual

Section II of this manual lists all the procedures performed by the department and the most frequently ordered tests sent to a reference laboratory. If a test cannot be found in Section II, please consult the Table of Synonyms in Section III to see if the test may be listed under a different name. If the test cannot be found in Section II or III, please call 926-3800 for more information.

Unless otherwise specified, reference ranges will be listed for the adult regardless of sex. Fasting specimens are recommended for some tests. It is always possible for us to run an analysis on a non-fasting specimen; however, the majority of the reference range studies in Chemistry are performed on fasting specimens. We recommend that if at all possible, request testing on fasting specimens.

The manual lists many tests that are sent to a reference laboratory. In most cases the turn around time for the more common tests is 24 to 48 hours. This excludes weekends and holidays. Most other tests will take 3 to 5 days depending on the reference laboratory production schedule. The more difficult procedures, especially tests that require growing cell cultures (e.g. chromosome, lymphocyte studies, etc.) may take weeks.

We have identified the minimum amount of specimen needed to perform the analysis. The volume along with the tube type to be used will allow you to adjust the amount of specimen that needs to be drawn. This is important when pediatric or other difficult patients are encountered.
"A laboratory test is no better than the specimen and the specimen no better than the method by which it was collected." This phrase may be trite, but it is most appropriate. This manual has been designed to aid the hospital and medical staff in proper patient preparation and specimen collection. If problems arise concerning procedures, please do not hesitate to contact anyone listed in the “Supervision List” with questions.

Special Instructions

BLOOD BANK SPECIMEN LABELING

Introduction:
Collection of a properly labeled blood sample from the intended recipient of blood is critical to safe transfusion practice. Most hemolytic transfusion reactions result from errors in patient or sample identification. Clerical errors such as improper identification of the patient at the time the specimen is drawn, transcription errors, mislabeling of the blood product or misidentification of the patient at the time of transfusion accounts for 73% of the preventable occurrences of transfusion associated fatalities.

Overview:
The person drawing the blood sample must identify the intended recipient in a positive manner, most effectively done by comparing the information on the request form (or computer labels) with the information on the patient’s identification band. The phlebotomist must not rely on a bed tag, charts, or records placed nearby. After positive identification, the sample is drawn and the patient is armbanded with a yellow typenex armband. Upon receipt in the Blood Bank, the specimen label is checked to verify that all of the information is complete, accurate and legible.

1. Identify the Patient
   - Inpatient – If the patient is coherent, ask the patient to state his/her full name and date of birth. Compare the information on the request slip or computer labels with the information on the patient’s hospital armband. Verify that the name and medical records number match. NEVER use bed labels as a source of information. If the patient does not have a hospital armband on their arm, DO NOT DRAW THE PATIENT UNTIL ONE HAS BEEN PUT ON THE PATIENT.
   - Outpatient – Ask the patient to state their full name and date of birth.

2. If the patient has a yellow armband from a previous blood bank specimen that is 72 hours old or greater, cut it off and discard.

3. If the patient has a yellow armband from a previous blood bank specimen that is less than 72 hours old, call the Blood Bank for guidance.

4. Draw a 10 mL lavender top tube.

5. Write the patient’s first and last name (spelled correctly), patient’s date of birth, date and time specimen was drawn, and the phlebotomist initials on the large yellow strip (PRESS HARD because you are making 2 copies):
6. Peel off the yellow strip.

7. Place label on the tube with all of the information showing.

8. Wrap the band around the patient’s wrist, leaving at least one finger’s width between the armband and the arm. Close the clasp completely (blades inside the clasp will cut the band) and tear off the remainder of the extra number labels. (submit these labels with the specimen).

9. **It is absolutely imperative that the steps listed above be completed before leaving the patient bedside. Do not leave the patient room until the specimen has been properly labeled as described above.**

10. Verification by Blood Bank personnel
    a. The technologist receiving the specimen will verify that the specimen was drawn and labeled correctly with a yellow armband. Compare the information on the tubes with the requisition. If there is any doubt as to the identity of the sample, a new sample **must** be obtained.
b. There are no substitutes for the required information listed below. (For example, a financial number or MR# on the label cannot replace the requirements listed below). All specimens must contain the following information:
   i. Patient's first and last name spelled exactly as it appears on the hospital armband. It must be spelled correctly and completely with no abbreviations. Misspelled names, nicknames, or abbreviations are not acceptable.
   ii. Yellow armband number
   iii. Patient's date of birth
   iv. Date and time that the specimen was drawn
   v. Phlebotomist initials

ALL INFORMATION MUST BE COMPLETE, ACCURATE AND LEGIBLE.

c. If a specimen is received that is labeled incorrectly and:
   i. the error is associated with the identification of the patient (i.e. yellow armband number, patient name, and date of birth), the specimen must be discarded and the patient redrawn with a new armband.
   ii. the error is not associated with the identification of the patient (i.e. date/time of specimen collection and phlebotomist initials), then it is acceptable to have the person who drew the blood correct the error on the specimen label.

d. The specimen must have the top layer of the completed yellow armband attached to the tube. Hand labeled tubes with a small yellow armband sticker attached are not acceptable except in the case of a redraw for additional specimen on a current armband.

e. If a patient needs to be drawn for additional specimen before the 72 hour period has expired, hand label the tube with the patient name, date of birth, yellow armband number, date/time of draw, and phlebotomist initials.

f. All inpatient blood bank specimens must be labeled according to these requirements regardless of what tests are ordered. Specimens on inpatients for blood bank testing other than for transfusion must be labeled as if they were potential transfusion recipients (e.g. such as specimens for hold clot, DAT, indirect coombs, blood types, etc.)

g. Outpatient specimens, such as those for prenatal, antenatal Rhogam, or antibody titer testing, need to comply with general laboratory specimen labeling standards.

h. If a specimen is rejected on a trauma, O.R., or other critical patient when blood is needed immediately, have the specimen redrawn in accordance with this policy and follow the policy for "Issue of Blood in Urgent Situations".

i. Specimens that are accepted which do not meet the above criteria must have a “Deviation From Standard Operating Procedure” form completed and signed by the Pathologist (See Procedure for Deviation from Policy).

j. If a specimen is discovered during the 72 hour period which was accepted but should not have been accepted because of a labeling error, then the specimen must be redrawn with a new yellow armband, and units must not be issued for transfusion on that patient until testing is completed on the new specimen. If the situation is urgent, follow policy for “Issue of Blood in Urgent Situations”.

Therapeutic Drug Levels
When requesting drug levels for therapeutic monitoring, the patient should be at a "steady state" concentration. By definition "steady state" is the condition where a drug is no longer accumulating in the body and the rate of drug administration approximates the rate of drug elimination. Obviously, if a drug determination is made prior to "steady state", the level will underestimate the concentration of the drug, which then may lead to inappropriate dosage changes. The time it takes to reach "steady state" is determined by the pharmacokinetics of the drug. Please consult a PDR for this information.

For most therapeutic monitoring concentrations it is suggested to draw a trough level. The trough is the lowest concentration of drug observed during the dosing interval and is measured, usually, prior to the next dose. This insures that a therapeutic concentration is maintained throughout the dosage interval.

The therapeutic range should be used as a guide to making dose adjustments and represents the usual levels associated with a therapeutic response. To relate the serum concentration to a therapeutic/toxic
effect, the following should be considered:

1. Time of drug dosage
2. Duration of drug therapy
3. Time of drug collection
4. Pharmacokinetics of the drug
5. Specificity and accuracy of analytical method
6. Concentration and pharmacological activity of drug and metabolite(s)
7. Degree of drug protein-binding
8. Presence of disease or drugs which alter pharmacokinetics

Serologic Testing
The most useful information, for serological testing is gained by the simultaneous submission of an acute and convalescent specimen. (Convalescent specimens are best collected one to two weeks after the acute specimen). Wherever possible, we strongly recommend an acute and convalescent specimen. We know however, that this is difficult to accomplish when the patient does not return for the convalescent specimen or when the clinical situation requires an "immediate picture" of the patient's condition.

Supervision
The Department of Pathology is composed of the following Clinical and Anatomic sections. Below is a list of the Technical Supervisors and Pathologists for each area.

<table>
<thead>
<tr>
<th>SECTION</th>
<th>NAME</th>
<th>TITLE</th>
<th>PATHOLOGIST</th>
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</thead>
<tbody>
<tr>
<td>General Laboratory</td>
<td>Carl Rueckert</td>
<td>Administrative Director</td>
<td>Dr. Paranjpe</td>
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<tr>
<td></td>
<td>Helen Meehan</td>
<td>Operations Manager</td>
<td></td>
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<tr>
<td></td>
<td>Noel Harding</td>
<td>Operations Manager</td>
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</tr>
<tr>
<td>Blood Bank</td>
<td>Kathleen Dickinson</td>
<td>Supervisor</td>
<td>Dr. Paranjpe</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Barbara Mierzwa</td>
<td>Supervisor</td>
<td>Dr. Solis</td>
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<td></td>
<td>Barbara Cherry</td>
<td>Lead Technologist</td>
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<tr>
<td>Cytology</td>
<td>Kathy Potter</td>
<td>Supervisor</td>
<td>Dr. Solis</td>
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<tr>
<td>Hematology, Coagulation, and Urinalysis</td>
<td>Lori Pinelli</td>
<td>Supervisor</td>
<td>Dr. Paranjpe</td>
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<tr>
<td></td>
<td>Diane Thibodeau</td>
<td>Lead Technologist</td>
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<tr>
<td>Histology</td>
<td>Teresa Brayton</td>
<td>Supervisor</td>
<td>Dr. Kim</td>
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<td></td>
<td>Nancy Crotty</td>
<td>Lead Technologist</td>
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<tr>
<td>Microbiology</td>
<td>Robin Gerhardt-Linkens</td>
<td>Supervisor</td>
<td>Dr. Tapawan</td>
</tr>
<tr>
<td>Laboratory Information Systems</td>
<td>Julie Madonna-Morris</td>
<td>Supervisor</td>
<td>On-call</td>
</tr>
<tr>
<td>Referral Testing</td>
<td>Deborah Dezalia</td>
<td>Lead Technician</td>
<td>On-call</td>
</tr>
<tr>
<td>Point of Care Testing</td>
<td>Jeffory Bengle</td>
<td>Supervisor</td>
<td>Dr. Paranjpe</td>
</tr>
<tr>
<td>3-11 Shift</td>
<td>Eric Leskovec</td>
<td>Supervisor</td>
<td>On-call</td>
</tr>
<tr>
<td>11-7 Shift</td>
<td>Charles Porrier</td>
<td>Lead Technologist</td>
<td>On-call</td>
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Hours of Operation

Clinical Pathology

A. Blood Bank, Chemistry, and Hematology
   Monday – Saturday (7 a.m. – 11 p.m.) Routine and stat procedures
   (11 p.m. – 7 a.m.) Stat procedures
   Sunday (7 a.m. – 3 p.m.) Routine and stat procedures
   (3 p.m. – 7 a.m.) Stat procedures

B. Microbiology
   Monday – Friday (7 a.m – 6 p.m.) Routine and stat procedures
   Sat. and Sun. (7 a.m. – 3 p.m.) Routine and stat procedures
   All other hours Stat call back

C. Serology/Diagnostic Immunology
   Monday – Friday (7 a.m. – 3 p.m.) Routine and stat procedures

Anatomic Pathology

A. Cytology
   Monday – Friday (8 a.m. – 4 p.m.) Routine and stat procedures
   All other days/hours Stat call back

B. Histology
   Monday – Friday (7 a.m. – 4:30 p.m.) Routine and stat procedures
   Saturday (6 a.m. – noon) Routine and stat procedures
   All other days/hours Stat call-back

Specimen Collection/Submission/Rejection Policy

The laboratory can only perform requested procedures on specimens that follow the proper collection protocol. They must be followed to maintain patient specimen integrity, quality control, and accurate results.

Specimens must:
1. Be labeled properly, with the patient name, location, date and time of collection, and initials of the person collecting the sample.
2. Be in the proper container required for the test.
3. Not be drawn above an IV infusion line.
4. Be collected at the time of day required for the test.
5. Be placed in an individual plastic specimen bag for transport.
6. Arrive in the laboratory within the specified time frame required for the specific tests ordered.
7. Be kept at the correct temperature to maintain specimen integrity.
8. Not be clotted when drawn in an anticoagulant tube.
9. Be collected and transported in the correct media for Microbiology and Virology requests.

Specimens that do not meet these requirements, unless there are mitigating circumstances, will be discarded and the appropriate nursing unit/physician notified.
Emergency (STAT) Testing Procedures

Chemistry

- Acetaminophin
- Alcohol (Ethanol)
- ALT
- Ammonia
- Amylase
- AST
- Bilirubin (Total and Direct)
- BNP (B-type Natriuretic Peptide)
- BUN
- Calcium
- CO2, Total
- Chloride
- Creatinine Kinase, Total
- Cholesterol
- Creatinine
- CK-MB
- CSF glucose and protein
- Digoxin
- Dilantin
- Drug Screen (urine)
- Gentamicin
- Glucose
- GGT
- HCG, serum
- Iron/TIBC
- Ketones
- Lactic Acid
- LDH
- Lipase
- Magnesium
- Lithium
- Magnesium
- Osmolality
- Phenobarbital
- pH fluids
- Potassium
- Salicylate
- Sodium
- Theophylline
- Tobramycin
- Troponin I
- Uric Acid
- Valproic Acid
- Vancomycin

Hematology

- APTT
- D-dimer
- FDP
- Fibrinogen
- Prothrombin Time
- Thrombin Time

Blood Bank

- ABO and Rh typing
- Antibody Screening
- Antibody Identification
- Crossmatch
- Direct Coombs
- Crossmatch
- Transfusion Reaction

Microbiology

- Gram Stains – CSF
- Sterile Fluids
- Blood Cultures

NOTE: Exceptions to this list can be approved by the Laboratory Director or the On-call Pathologist.

Guidelines For Drawing Blood From a Patient

1. See Special Instructions for drawing and labeling Blood Bank specimens. For all other specimens, the instructions are as follows.
2. Identify patient: This is the most important step when any test is being drawn/ performed.
   a. INPATIENT: Check the patient’s wristband and compare the name and medical record number on the computer labels against the patient armband. If the patient does not have an ID wrist band, have the patient care staff put a wrist band on the patient. If there are any discrepancies, do not draw the specimen(s) until these discrepancies are resolved.
   b. OUTPATIENT: Ask the patient their name and date of birth. Do not say, “Are you John Smith?” rather, ask “What is your name?” and “What is your date of birth?”. Compare the information given to the information on the computer labels. If there are any discrepancies, do not draw the specimen(s) until these discrepancies are resolved.
3. Tubes with handwritten labels must have the patient’s full name, location, date and time of collection, and the initials of the person drawing the blood. Computer labels may also be used.
however, do not pre-label the tubes. Label the tubes after the blood is drawn and before leaving the patient’s bedside.

4. For multiple specimen collection, the following order of draw should be used:
   a. Blood Culture
   b. Light blue top (coagulation)
   c. Red top (serum)
   d. SST/corvac tubes
   e. Green top (heparin)
   f. Lavender top
   g. Gray top

When using a winged blood collection set for venipuncture and a coagulation tube (light blue) is the first specimen tube to be drawn, a discard tube should be drawn before the light blue tube. The discard tube is used to fill the blood collection set tubing’s dead space. This important step will ensure maintenance of the proper blood-to-anticoagulant ratio in the blue top tube. The discard tube should be a non-additive tube or coagulation tube.

**Result Reporting**

**Inpatient**

In general, results are not available until after 9:00 a.m. Completed culture reports are generally not available until after 10:00 a.m. Telephone inquiries should be kept to a minimum during this period to allow the technical staff to complete all requested testing in a timely manner. All critical values are immediately called to the floor. All inpatient results can be viewed through PowerChart. If there are any questions, please call extension 3800.

**Outpatient**

Outpatient reports are printed at night for results from the previous day, and delivered by hospital courier or mail. All critical values are immediately called to the physician office.

**Reference Laboratories**

Our laboratory is not equipped to perform all requests for testing. Reasons for using a reference laboratory include: low test volume, high test cost, or the need for specialized equipment or expertise. The following laboratories are used for our reference work and are approved by the Medical Executive Committee.

- American Red Cross, Farmington, CT 06032
- AFIP, Washington, DC 20306
- Albany Medical Center Hospital, Albany, NY 12208
- Albany Medical College, Albany, NY 12208
- ARUP Laboratories, Salt Lake City, UT 84108
- Brigham and Women’s Hospital, Boston, MA
- Connecticut Pathology Laboratories, Inc., Willimantic, CT 06226
- Genzyme, New York, NY 10021
- John Hopkins Medical Institute, Baltimore, MD 21239
- LabCorp, Richmond, VA
- MAYO Medical Laboratories, Rochester, MN 55905
- New England Medical Center Hospitals, Boston, MA 02111
- NYS Department of Health, Albany, NY
- Palo Alto Medical Foundation, Palo Alto, CA 94301
- Quest Diagnostics, Teterboro, NJ
- Sydney Farber Cancer Institute, Boston, MA 02115
SECTION II

ALPHABETICAL LISTING OF TESTS
**Acetaminophen**

**Methodology:** Colormetric  
**Synonyms:** Acetaminophen; Tylenol; Datril  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- Minimum Volume: 0.5 mL of blood  
- Transport/Stability: Centrifuged specimen stable for 1 week refrigerated.  
**Reference Interval:** Therapeutic range: 10 - 30 ug/Ml  
Hepatotoxicity possible at the following levels:  
- 150 ug/mL at 4 hours after ingestion  
- 75 ug/mL at 8 hours after ingestion  
- 35 ug/mL at 12 hours after ingestion  
**Minimum Volume:** 0.5 mL of blood  
**Remarks:**  
**Powerchart Orderable:** Acetaminophen Level

**Acetone**

**Methodology:** Manual  
**Synonyms:** Acetone; Serum Ketones  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- Minimum Volume: 2.0 mL of blood  
- Transport/Stability: Centrifuged specimen stable for 4 days refrigerated and unopened.  
**Reference Interval:** Negative  
**Remarks:**  
**Powerchart Orderable:** Acetone

**Acid Phosphatase**

**Methodology:** Reference Laboratory  
**Synonyms:** Acid Phosphatase; Acid Phos  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Specimen Required:**  
- Collect: one red top tube (no gel).  
- Minimum Volume: 5.0 mL of blood  
- Transport/Stability: Bring specimen to the Laboratory immediately. Specimen must be separated and frozen within 1 hour.  
**Reference Interval:** 0.0 - 4.3 U/L  
**Remarks:**  
**Powerchart Orderable:** Acid Phosphatase

**Activated Partial Thromboplastin Time (APTT)**

**Methodology:** Clot Detection  
**Synonyms:** Activated Partial Thromboplastin Time; aPTT; PTT  
**Performed:** As ordered. Turn around time is 2 hours.  
**Specimen Required:**  
- Collect: One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.  
- Minimum Volume: 4.5 mL of blood  
- Transport/Stability: Specimen is stable for 4 hours at room temperature or 2 hours if the patient is receiving unfractionated heparin. Stability can be extended to 1 week if platelet poor plasma is frozen.  
**Reference Interval:** 23 - 32 seconds  
**Remarks:**  
**Powerchart Orderable:** APTT
AFB Blood Culture

Methodology: Reference Laboratory

Synonyms: AFB Blood Culture; Blood Culture for AFB

Performed: As ordered. Turn around time is 8 weeks.

Specimen Required:

Collect: Blood or bone marrow in a Yellow Top SPS Sterile Tube (available from the Laboratory)

Minimum Volume: 5 mL of blood

Transport/Stability: Transport at room temperature, must be received within 24 hours of collection

Remarks: Disinfect site as for routine blood culture. Mix tube contents immediately after collection. Specimens must be labeled with complete source and body site information. AFB Cultures are held for 8 weeks of incubation.

Reference Interval:

Powerchart Orderable: AFB Blood Culture
**Methodology:** Reference Laboratory

**Synonyms:** AFB Culture; AFB Smear & Culture

**Performed:** As ordered. Turn around time is 8 weeks.

**Specimen Required:**

- **Collect:** sputum, bronchial washings, fluid aspirates, CSF, tissue, first a.m. urine or stool in a clean, sterile, leakproof container

- **Minimum Volume:** 1 mL for CSF, 5 mL for all others

**Transport/Stability:** Transport at room temperature, must be received within 24 hours of collection

**Remarks:** Specimens must be labeled with complete source and body site information. Exam includes both smear and culture. AFB cultures are held for 8 weeks of incubation. See attached chart for specific specimen collection guidelines:

- Abscess contents, aspirated fluid - As much as possible should be aspirated into a syringe with needle removed. Cap or transfer to a sterile leakproof container or Port a Cul vial prior to transport of the specimen. Collect specimen on swab, and place in transport medium only if volume is insufficient for aspiration by needle and syringe. If there is little material in the syringe, a small amount of sterile 0.85% NaCl or sterile broth should be drawn through the syringe and then transfer the specimen to a sterile tube.

- Body fluids (pleural, pericardial, peritoneal, etc.) - Collect as much as possible in a sterile, leakproof container, Port a Cul vial, or syringe with needle removed and capped.

- Bone - Place bone in a sterile, leakproof container without fixative or preservative.

- Broncho-alveolar, lavage or bronchial washings - Collect greater than 5 mL in a sterile, leakproof container. Avoid contaminating bronchoscope with tap water. Saprophytic mycobacteria may produce false-positive culture or smear results.

- Lymph node - Place node or portion of node in a sterile, leakproof container without fixative or preservative. Add sufficient physiological saline to keep moist in transit (if not transported within 1 hr) Collect aseptically, and avoid indigenous flora. Select a caseous portion if available.

- Skin lesion material - Submit biopsy specimen in a sterile, leakproof container without fixative or preservative. Submit aspirates in a syringe with the needle removed and capped or transfer specimen to a sterile container. If specimen is not transported within an hour, add physiologic saline to keep moist in transit. Swabs in transport medium (Amies or Stuart’s) are not acceptable. For cutaneous ulcer, collect biopsy sample from periphery of lesions, or aspirate material from under margin of lesion. If infection was acquired in Africa, Australia, Mexico, South America, Indonesia, New Guinea, or Malaysia, note on request, because Mycobacterium ulcerans may require prolonged incubation for primary isolation.

- Sputum - Collect 5-10 mL in sterile, wax-free, leakproof container. Collect an early-morning specimen from a deep, productive cough on at least 3 consecutive days. Do not pool specimens. For follow-up of patients on therapy, collect at weekly intervals, beginning 3 weeks after initiation of therapy. Indicate on request if specimen is induced sputum. For expectorated sputum, instruct patient on how to produce sputum specimen as distinct from saliva or nasopharyngeal discharge. Have the patient rinse mouth with water before collecting sputum to minimize contaminating specimen with food particles, mouthwash, or oral drugs - which may inhibit the growth of mycobacteria. For induced sputum, use sterile hypertonic saline. Avoid sputum contamination with nebulizer reservoir water. Saprophytic mycobacteria in tap water may produce false-positive culture or smear results.

- Stool - No longer accepted for acid fast culture

- Tissue Biopsy Sample - Collect 1 gram of tissue, if possible, in sterile, leakproof container without fixative or preservative. Add sufficient physiological saline to keep specimen moist in transit if not transported within 1 hour of collection. Collect aseptically, and avoid indigenous flora. Select a caseous portion if available.

- Transtracheal aspirate - Collect as much as possible in a capped syringe with needle removed or other sterile leakproof container.

- Urine - Collect as much as possible of a first morning specimen obtained by catheterization or midstream clean catch. Submit in a sterile, leakproof container. For suprapubic tap, collect as much as possible in a capped syringe with needle removed or other sterile leakproof container. Collect a first morning specimen on 3 consecutive days. Collect only one specimen per day. Organisms accumulate in the bladder overnight, so the first morning void provides the best yield. The entire first morning specimen is preferred. Specimens collected at other times are dilute and are not optimal.

- Wound material - Swabs are acceptable only if biopsy or aspirate is not obtainable. If used, they must be placed in transport medium (Amies or Stuart’s).
Reference Interval:
Negative results are not reliable.

Powerchart Orderable: AFB Smear & Culture (for tissue and stool order only AFB Culture)

### AFB Smear

**Methodology:** Cytospin  
**Synonyms:** AFB Smear

**Performed:** 7 a.m. - 9 p.m. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** sputum, bronchial washings, fluid aspirates, CSF, tissue, first a.m. urine or stool in a clean, sterile, leakproof container
- **Minimum Volume:** 1 mL for CSF, 5 mL for all others
- **Transport/Stability:** Transport at room temperature, must be received within 2 hours of collection.
- **Remarks:** Ordered for stat direct smears only. Does NOT include culture. Specimens must be labeled with complete source and body site information. See chart under AFB culture for specific specimen requirements.

### Alanine Aminotransferase (ALT)

**Methodology:** Colormetric  
**Synonyms:** Alanine Aminotransferase; ALT; SGPT

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Centrifuged specimens stable for 24 hours refrigerated.
- **Remarks:**

**Reference Interval:** 20 - 65 U/L

### Albumin (Serum or Fluid)

**Methodology:** Colormetric  
**Synonyms:** Albumin

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube. For a fluid, collect at least 2 mL in a clean, dry container.
- **Minimum Volume:** 0.5 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:**

**Reference Interval:** 3.4 - 5.0 gm/dL

### Alcohol

**Methodology:** Enzymatic  
**Synonyms:** Alcohol; Ethanol; ETOH

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 0.5 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 24 hours refrigerated and unopened.
- **Remarks:** Use betadyne to clean the site for venipuncture. Do not open the container after the specimen is collected.

**Reference Interval:** None detected. Toxic >200mg/dL

**Powerchart Orderable:** Ethanol
### Alkaline Phosphatase

**Methodology:** Colormetric  
**Synonyms:** Alkaline Phosphatase; Alk Phos

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 0.5 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 24 hours refrigerated.

**Remarks:**

**Reference Interval:** 50 - 136 U/L

**Powerchart Orderable:** Alkaline Phosphatase

### Allergen Panel

**Methodology:**

**Synonyms:** Allergen Panel; Allerg/GFH-Oak Panel

**Performed:** Monday - Friday. Turn around time is 72 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 6.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.

**Remarks:** Includes the following allergens: cat dander, dog epithelia, mold, mites, egg white, milk, June grass, house dust, oak, and common ragweed. Latex, white pine, mildew and elm may be ordered separately.

**Reference Interval:** <65% or <0.35 KU/L

**Powerchart Orderable:** Allergen Panel/GFH

### Alpha Fetoprotein, Tumor Marker

**Methodology:** Reference Laboratory

**Synonyms:** Alpha Fetoprotein, Tumor Marker; AFP  
Tumor Marker; AFPTM

**Performed:** As ordered. Turn around time is 1-3 days.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 8 hours at room temperature or 24 hours refrigerated.

**Remarks:**

**Reference Interval:** See report. Adult males and non-pregnant females: 0-15 ng/mL

**Powerchart Orderable:** Alpha Fetoprotein - Tumor Marker

### Ammonia

**Methodology:** Enzymatic  
**Synonyms:** Ammonia; NH4

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one green top tube. Immediately place on ice and deliver to the Laboratory.  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Place the green top tube on ice and immediately deliver to the Laboratory. Must be received within 20 minutes of collection. Should not be collected at outreach locations.

**Remarks:**

**Reference Interval:** 11 - 32 umol/L

**Powerchart Orderable:** Ammonia
**Amputated Limbs**

**Methodology:** Histology  
**Performed:** Monday - Saturday. Turn around time is 48 hours.

**Specimen Required:**
- **Collect:**
- **Minimum Volume:**
- **Transport/Stability:** Bring specimens immediately to the Laboratory
- **Remarks:** All specimens must be labeled with the patient's name, age, attending surgeon, type and location of specimen. The same information must appear on the request slip in addition to the pre-op diagnosis. The specimen should be brought directly to the Histology department. After 4 p.m., the limb should be submitted to the front desk in the Laboratory. Laboratory personnel will place the request slip in the Histology basket and the limb will be placed in the large refrigerator directly to the left, behind the door in Histology.

**Reference Interval:**
**Powerchart Orderable:** Surgical Pathology

**Amylase, Fluid**

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** fluid in a clean, dry container  
- **Minimum Volume:** 2.0 mL of fluid  
- **Transport/Stability:** Stable for 1 week refrigerated.  
- **Remarks:** Reference ranges may not be available for all fluid sources.

**Reference Interval:** See report  
**Powerchart Orderable:** Amylase, Fluid

**Amylase, Serum**

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 1 week refrigerated.  
- **Remarks:**

**Reference Interval:** 25 - 115 U/L  
**Powerchart Orderable:** Amylase - Blood

**Amylase, Urine**

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** urine in a clean, dry container for a random specimen. If collecting for a 24 hour urine amylase, obtain a 24 urine container from the Laboratory and keep refrigerated during collection.  
- **Minimum Volume:** 10.0 mL of urine  
- **Transport/Stability:**
- **Remarks:** Note time specimen was collected on request slip. No preservative is necessary.

**Reference Interval:** 59 - 401 U/24 hours  
**Powerchart Orderable:** Amylase - Random Urine  
Amylase - 24hr Urine
## Anaerobic Culture

**Methodology:** Culture  
**Synonyms:** Anaerobic Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 5 days.

**Specimen Required:**
- **Collect:** Aspirates or swabs in an anaerobic transport container (Port-a-Cul Vial or Tube). Collect tissue in a clean, sterile, leakproof container with a small amount of sterile saline added.
- **Minimum Volume:** 2 mL
- **Transport/Stability:** Transport at room temperature. Specimen must be received within 2 hours of collection. The Port-a-Cul medium must remain clear below the surface. If the medium turns blue it indicates oxygen saturation and the specimen is no longer suitable for anaerobic recovery.
- **Remarks:** This test may not be requested separately from Routine Culture. Anaerobic culture is only included with Routine Culture workup on properly collected specimens and is not appropriate for sites with indigenous anaerobic flora such as rectal swabs or vaginal specimens. Specimens must be labeled with complete source and body site information.

**Reference Interval:**

**Powerchart Orderable:** Anaerobic Culture

## Angiotensin Converting Enzyme

**Methodology:** Reference Laboratory  
**Synonyms:** Angiotensin Converting Enzyme; ACE  
**Performed:** As ordered. Turnaround time is 1-3 days.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 1 week at room temperature.
- **Remarks:**

**Reference Interval:**  
- 0-14 years: 18-90 IU/L  
- 15-17 years: 14-78 IU/L  
- 18 years and older: 9-67 IU/L

**Powerchart Orderable:** Angiotensin Converting Enzyme

## Antibody Screen

**Methodology:** Gel  
**Synonyms:** Antibody Screen; Indirect Coombs; Indirect Antibody Screen  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one 7 mL lavender top tube. All inpatients must have a yellow armband label applied to their wrist and the tube. Specimens received without a yellow armband will be rejected. Outpatient samples should be labeled with the patient's name, date, and phlebotomist initials. Yellow armbands may also be used for outpatients.
- **Minimum Volume:** 4.0 mL of blood
- **Transport/Stability:** Stable at room temperature for 24 hours.
- **Remarks:** Collection of a properly labeled blood sample from the intended recipient of blood is critical to safe blood transfusion. Most hemolytic transfusion reactions result from errors in patient or sample identification. Clerical errors such as improper identification of the patient at the time the specimen is drawn, transcription errors, mislabeling of the blood product or misidentification of the patient at the time of transfusion accounts for 73% of the preventable occurrences of transfusion associated fatalities. The person drawing the blood sample must identify the intended recipient in a positive manner, most effectively done by comparing the information on the request form (or computer labels) with the information on the patient's identification band. The phlebotomist must not rely on a bed tag or on charts or records placed nearby. After positive identification, the sample is drawn and the patient is armbanded with a yellow typenex armband.

**Reference Interval:** Negative

**Powerchart Orderable:** Antibody Screen
### Anti-nuclear Antibody (ANA)

**Methodology:** Enzyme Immunoassay (EIA)  
**Performed:** Monday/Wednesday/Friday. Turn around time is 3 days.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Separated serum is stable for 48 hours at 2 - 8°C, freeze for extended storage
- Remarks: - Lipemic or hemolyzed specimens are not recommended for testing.  
- Positive specimens are sent to a reference laboratory for confirmation.

**Reference Interval:** Negative
**Powerchart Orderable:** ANA

### Arthropod Identification

**Methodology:** Reference Laboratory  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 24 hours.

**Specimen Required:**
- Collect: Intact ticks, lice or bedbugs, in a clean, sealed container. Skin scrapings for scabies mites should be put directly into a small amount of 70% ethanol in a sealed leakproof container.
- Minimum Volume:  
- Transport/Stability: Transport at room temperature. Specimens in ethanol remain stable for up to one month.
- Remarks: The identification services provided are limited to the medically significant arthropods listed above. The screening of arthropods for Lyme Disease or Rocky Mountain Spotted Fever is also beyond the scope of this laboratory.

**Reference Interval:**
**Powerchart Orderable:** Arthropod Identification

### Aspartate Aminotransferase (AST)

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.
- Remarks:

**Reference Interval:** 12 - 32 U/L
**Powerchart Orderable:** AST(SGOT)

### Aspirate/Tissue Culture

**Methodology:** Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 2 days.

**Specimen Required:**
- Collect: Tissue, biopsy or aspirate in a clean sterile leakproof container, or Port-a-Cul Vial. Some sterile saline may be added to tissue samples to prevent desiccation.
- Minimum Volume: 2 mL
- Transport/Stability: Transport at room temperature. Specimens must be received within 2 hours of collection. The Port-a-Cul medium must remain clear below the surface. If the medium turns blue it indicates oxygen saturation and the specimen is no longer suitable for anaerobic recovery.
- Remarks: Specimens must be labeled with complete source and body site information. Includes Direct Smear (gram stain) and anaerobic culture if properly submitted. Also, includes susceptibility testing, when appropriate, for the isolates recovered.  
- NOTE: Sterile Body Fluid Aspirates should be ordered as “Fluid Culture”.

**Reference Interval:**
**Powerchart Orderable:** Microbiology Culture Request
Basic Metabolic Panel

Methodology: Various  
Synonyms: Basic Metabolic Panel; BMP; AMA BMP; AMA Basic Metabolic Panel
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
Collect: One SST/gel tube  
Minimum Volume: 4.0 mL of blood  
Transport/Stability: Allow specimen to clot, then centrifuge for 10 minutes. Refrigerate for up to 24 hours.
Remarks: Includes: Glucose, BUN, Creatinine, Sodium, Potassium, Chloride, Carbon Dioxide, and Calcium.

Reference Interval: See individual tests
Powerchart Orderable: AMA Basic Metabolic Panel

Bilirubin, Direct

Methodology: Colormetric  
Synonyms: Bilirubin, Direct; D. Bili
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
Collect: one SST/gel tube  
Minimum Volume: 0.5 mL of blood  
Transport/Stability: If protected from light, specimen is stable for 24 hours refrigerated.
Remarks:
Reference Interval: 0.0 - 0.2 mg/dL
Powerchart Orderable: Bilirubin, Direct

Bilirubin, Total

Methodology: Colormetric  
Synonyms: Bilirubin, Total; T. Bili
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
Collect: one SST/gel tube  
Minimum Volume: 0.5 mL of blood  
Transport/Stability: If protected from light, specimen is stable for 24 hours refrigerated.
Remarks:
Reference Interval: 0.2 - 1.0 mg/dL
Powerchart Orderable: Bilirubin, Total

Bladder Tumor Antigen

Methodology: Qualitative immunoassay  
Synonyms: Bladder Tumor Antigen; Bladder Tumor Associated Antigen; BTA
Performed: Tuesdays and Fridays (day shift). Turn around time is 1-5 days.
Specimen Required:
Collect: urine in a clean, dry container. DO NOT use paper or foam cups for collection.
Minimum Volume: 2.0 mL of urine  
Transport/Stability: Specimen is stable for 2 days at room temperature and 7 days refrigerated.
Remarks: Bladder Tumor Antigen should not be used as a screening test for individuals without biopsy confirmed bladder cancer.
Reference Interval: Negative
Powerchart Orderable: Bladder Tumor Ag - GFH
<table>
<thead>
<tr>
<th><strong>Bleeding Time</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong>  Template</td>
</tr>
<tr>
<td><strong>Performed:</strong> As ordered. Turn around time is 4 hours.</td>
</tr>
<tr>
<td><strong>Specimen Required:</strong></td>
</tr>
<tr>
<td>Collect: Contact Laboratory for testing</td>
</tr>
<tr>
<td>Minimum Volume:</td>
</tr>
<tr>
<td>Transport/Stability:</td>
</tr>
<tr>
<td>Remarks: Bleeding times are performed at the patient bedside.</td>
</tr>
<tr>
<td><strong>Synonyms:</strong> Bleeding Time; Simplate Bleeding Time; Template Bleeding Time; Duke Bleeding Time; Ivy Bleeding Time</td>
</tr>
<tr>
<td><strong>Reference Interval:</strong></td>
</tr>
<tr>
<td>Ages 16 years and up: 2.0 - 8.0 minutes</td>
</tr>
<tr>
<td>Ages 5 months to 15 years: 1.5 - 9.0 minutes</td>
</tr>
<tr>
<td>Newborns up to 5 months: 0.5 - 2.0 minutes</td>
</tr>
<tr>
<td><strong>Powerchart Orderable:</strong> Bleeding Time - Simplate</td>
</tr>
</tbody>
</table>
**Blood Culture**

**Methodology:** Culture  
**Synonyms:** Blood Culture; Blood C&S  
**Performed:** As ordered. Turn around time is 5 days.

**Specimen Required:**
- **Collect:** A set of Blood Culture Bottles (blue top and red top)
- **Minimum Volume:** Collect as much as possible per bottle up to 5 mL
- **Transport/Stability:** Transport at room temperature. Specimen should be received within 24 hours of collection.
- **Remarks:** 1 mL is the minimum acceptable volume per bottle but is not optimal for the recovery of microorganisms. Two sets per 24-hour period are the maximum accepted unless collected to rule out Endocarditis. For Endocarditis, 3 sets may be drawn in the first 24-hour period followed by 2 sets the next day, for a total of 5 sets. To avoid contamination, the venipuncture site must be properly disinfected with an antiseptic scrub solution before collection. The tops of the blood culture bottles should be similarly disinfected before inoculating. If other blood orders are to be drawn, the blood culture must be collected first.

**Procedure:**
1. Equilibrate the bottles of media to room temperature. Label bottles with complete patient information and the date and time of collection. Also note the date and time of collection on the collection label and the phlebotomist initials. Place one of the medium sized rectangular bar code labels along one side of the bottle. Do NOT wrap the label around the bottle as the bar code cannot be read in this position.
2. Disinfect the exposed tops of the bottle stoppers using a 70% alcohol prep. Do NOT touch the top of the stopper after disinfection.
3. Set up the specimen collection device as follows:
   - SYRINGE AND NEEDLE - Assemble the sterile needle and syringe or use a sterile needle-syringe combination. Loosen but do not remove the needle shield.
   - BLOOD COLLECTOR (Butterfly Adapter) - Remove the blood collector from the packaging. Do NOT clamp the tubing. Follow manufacturer’s directions for use of the device. Loosen but do not remove the needle shield at the venipuncture collection end of the tubing.
4. SITE PREPARATION
   - Chloraprep Scrub: Apply the tourniquet and select venipuncture site, then release the tourniquet. Remove Chloraprep scrub from the kit, hold applicator with sponge facing downward and gently squeeze wings, releasing solution for a controlled flow. Place sponge on selected venipuncture site and apply Chloraprep solution using a back and forth friction scrub. Scrub vigorously for 30 seconds and allow the area to dry.
5. DRAWING SPECIMEN:
   - Re-apply the tourniquet and palpate vein, using the disinfected finger, and draw specimen with butterfly adapter. ESP bottles accommodate up to 5 mL of blood. Attempt to collect the full 5 mL, but do NOT overfill the bottles. The ESP bottle label displays 5 mL sample fill increments and is designed for a measured 5 mL draw.
   - SYRINGE AND NEEDLE - Remove the needle shield and perform venipuncture, withdrawing blood to be cultured. Add this blood to the culture medium in the bottle by puncturing the bottle stopper with the needle and allowing the vacuum in the bottle to withdraw the specimen.
   - BLOOD COLLECTOR (Butterfly) - Remove the needle shield and perform venipuncture, allowing the blood to reach the end of the stopper puncturing needle. Puncture the stopper of the bottle with this needle. Loosen the tourniquet as soon as the blood starts to flow. Fill the bottle to the designated volume. Remove the needle from the 1st bottle and fill subsequent bottle as required.

Discard all collection devices into an approved sharps container. Disinfect and clean the tops of the bottle stoppers with an alcohol pad. Mix the blood with the broth by gently inverting the bottle 4 - 5 times.

**Reference Interval:**

**Powerchart Orderable:** Blood Culture
### Blood Gas, Arterial

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Blood Gas, Arterial; ABG  
**Performed:** As ordered. Turn around time is 1 hour.  
**Specimen Required:**  
- **Collect:** arterial blood sample in a heparin coated plastic syringe.  
- **Minimum Volume:** 0.5 mL  
- **Transport/ Stability:** Place specimen immediately on ice for transport.  
- **Remarks:** Testing performed by Respiratory Therapy.  

**Reference Interval:** See report  
**Powerchart Orderable:** Blood Gas

### Blood Gas, Venous

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Blood Gas, Venous; VBG; ABG  
**Performed:** As ordered. Turn around time is 1 hour.  
**Specimen Required:**  
- **Collect:** blood sample in a heparin coated syringe.  
- **Minimum Volume:** 0.5 mL  
- **Transport/ Stability:** Do not expose blood to room air during collection or transport. Deliver on ice.  
- **Remarks:** Testing performed by Respiratory Therapy  

**Reference Interval:** See report  
**Powerchart Orderable:** Venous Blood Gas

### Blood Parasite Examination

**Methodology:** Reference Laboratory  
**Synonyms:** Blood Parasite Examination; Malaria Smear  
**Performed:** Monday through Friday only (see collection procedure below)  
**Specimen Required:**  
- **Collect:** In an EDTA (lavender top) collection tube before 11am Monday through Thursday only, as specimens for blood parasite examination must reach the reference laboratory within 24 hours of collection.  
- **Minimum Volume:** 1 mL or 6 slides (4 thin film/2 thick film)  
- **Transport/ Stability:** Transport at room temperature. Stable for 24 hours only.  
- **Remarks:** The blood sample must be labeled with the date and time of collection as well as the patient name, so findings may be correlated with symptoms and other pertinent clinical information. Some parasites appear more frequently in the blood during certain periods of the fever cycle. To accommodate this, blood for parasite detection is usually collected as follows:  
  - On admission or when parasitemia is first suspected.  
  - At 6 - 12 hour intervals thereafter, if no parasites were demonstrated in the original collection.  

**Reference Interval:**  
**Powerchart Orderable:** Blood Parasite Examination

### Blood Type

**Methodology:** Tube  
**Synonyms:** Blood Type; Type; Type and Hold; Type and Rh; ABO and Rh; ABORH  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one 7 mL lavender top tube. All inpatients must have a yellow armband label applied to their wrist and the tube. Specimens received without a yellow armband will be rejected. Outpatient samples should be labeled with the patient's name, date, and phlebotomist initials. Yellow armbands may also be used for outpatients.  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/ Stability:** Transport at room temperature for 24 hours.  
- **Remarks:**  

**Reference Interval:**  
**Powerchart Orderable:** Blood Type
**Blood Urea Nitrogen (BUN)**

**Methodology:** Colormetric  
**Synonyms:** Blood Urea Nitrogen; BUN; BUN, serum  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 0.5 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.  
**Remarks:**  
- **Reference Interval:** 7 - 24 mg/dL  
- **Powerchart Orderable:** Urea Nitrogen - Blood

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**Bone Marrow Aspirates and Cores**

**Methodology:** Histology  
**Synonyms:** Bone Marrow Aspirates and Cores; Surgical Pathology; Histology  
**Performed:** Monday - Saturday. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** Outpatients: Bone marrow aspirate and cores should be submitted in 10% formalin (containers available from the Laboratory). Specimens must be accompanied by a completed request slip.  
- **Minimum Volume:**  
- **Transport/Stability:**  
- **Remarks:**  
- **Reference Interval:**  
- **Powerchart Orderable:** Surgical Pathology

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**Bone Marrow Culture**

**Methodology:** Culture  
**Synonyms:** Bone Marrow Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 5 days.  
**Specimen Required:**  
- **Collect:** Bone marrow aspiration in a set of blood culture bottles and/or in a green top (heparin) tube. (The collection of both is preferable.)  
- **Minimum Volume:** 2.0 mL  
- **Transport/Stability:** Transport at room temperature. Green top tubes must be received within 2 hours of collection.  
- **Remarks:** Bone marrow collected in a green top tube is also acceptable for AFB and fungal cultures. Exam includes a direct smear (gram stain).  

Collection protocol:  
Carefully disinfect the skin in the area to be sampled, as you would for a blood culture collection, using an antiseptic scrub for disinfection of the skin (see blood culture collection protocols). Carefully disinfect the tops of the blood culture bottles and/or Vacutainer tubes using the same procedure as for disinfecting the skin. Collect the specimen with a sterile disposable needle and syringe and aseptically transfer the specimen to the following:  
- For bacterial culture: inoculate both 80A and 80N culture bottles and a Heparin Vacutainer tube. 1-5 mL of specimen is required for each culture bottle (a larger inoculum is optimal for organism recovery) and these should be inoculated first. Any remaining specimen should then be transferred to the Vacutainer tube.  
- For fungal culture (see fungal blood culture): transfer 1-5 mL of specimen to a green top tube.  
- For AFB culture (see AFB blood culture): transfer 1-5 mL of specimen to a green top tube or isolator tube.  
**NOTE -** If multiple culture types are requested, a single Vacutainer tube may be collected, however a minimum of 2 mL of specimen is required for each culture desired.  
**Reference Interval:**  
**Powerchart Orderable:** Microbiology Culture Request
**Breast Smear**

**Methodology:** Cytology  
**Synonyms:** Breast Smear, Nipple Secretion

**Performed:** Monday-Friday (8a-4p). Turn around time is 2-3 days.

**Specimen Required:**
- **Collect:** Smears and preserve in 95% ethyl alcohol (Coplan jar) or collect secretions in CytoLyt fixative (50 cc tube).
  - Do not massage or squeeze the breast.
  - All smears are made on dry, clean glass slides. Six (6) or more slides is highly recommended.
  - Containers may be obtained from the Cytology section of the Laboratory.
  - Smears/secretions may be rejected if they have been allowed to dry before fixation or are received in an improper fixative.
  - Smears/secretions may be rejected if they are received without the patient name and exact source (e.g. left breast) penciled in on the frosted end of the slide or if not accompanied by a completed request slip.

**Minimum Volume:**

**Transport/Stability:** Specimens should be preserved in 95% ethyl alcohol or CytoLyt fixative.

**Remarks:**
- The secretion is expressed by gently pressing the areolar area with the thumb and index finger, first vertically, then in a clockwise direction to include the total area. If no secretion appears at the nipple with this gentle compression, do not manipulate further. The expressed secretion at the nipple is smeared lengthwise on the slide using the nipple to smear the material. The slide is immediately placed in 95% ethyl alcohol fixative. Immediate fixation in the 95% ethyl alcohol is essential for reliable evaluation of the smears.

**Reference Interval:**

**Powerchart Orderable:** Cytology - Non GYN

**Bronchial Washing**

**Methodology:** Cytology  
**Synonyms:** Bronchoscopy; Bronchial Washing

**Performed:** Monday-Friday (8a-4p). Turn around time is 2-3 days.

**Specimen Required:**
- **Collect:** Sample obtained during bronchoscopy and place in 50 mL conical centrifuge tube with screw cap containing 15 mL of CytoLyt fixative. Containers can be obtained from the Cytology section of the Laboratory. Specimen may be rejected if:
  - not received in the proper container
  - improper fixative is used
  - improperly labeled
  - incomplete requisition is submitted

**Minimum Volume:**

**Transport/Stability:** Transport in 50 mL conical centrifuge tube with screw cap containing 15 mL of CytoLyt fixative.

**Remarks:**
- Add the specimen obtained during bronchoscopy directly to the tube contained the fixative. Cap the tube tightly and shake two or three times to insure proper mixing of the specimen and fixative. It is no longer necessary to measure equal parts of specimen and preservative. Be sure to label the tube with the full name of the patient and appropriate identification as to the source of the specimen (e.g. Left bronchial washing). The specimen must be accompanied by the completed cytology request slip which also indicates the source. If the samples collected represent two or more sampling sites (e.g. left and right bronchial washing), a cytology request slip is required for each specimen. Collecting the post bronchial sputum specimen as soon as possible after removal of the bronchoscope is essential. The specimen should be sent to Cytology as soon as possible after the bronchoscopy sample is obtained. If the proper fixative is not available, immediately place the unfixed specimen in the refrigerator located in Cytology.

**Reference Interval:**

**Powerchart Orderable:** Cytology - Non GYN
**Brushings, Endoscopic**

<table>
<thead>
<tr>
<th>Methodology:</th>
<th>Cytology</th>
<th>Synonyms:</th>
<th>Brushings, Endoscopic; Brushings, Bronchoscopic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>Monday-Friday (8a-4p). Turn around time is 2-3 days.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** Smears on a glass slide and preserve in 95% ethyl alcohol or a brush suspended in CytoLyt fixative in a 50 mL tube. Smears may be rejected if:
  - they have been allowed to dry before fixation
  - they are received without fixative or in an improper fixative
  - they are received without the patient's name written on the container and the exact source of the specimen (e.g. left bronchial brushing)
  - specimen is submitted without a requisition form

- **Minimum Volume:**

- **Transport/Stability:** Transport in 95% ethyl alcohol (smears) or CytoLyt fixative (brushings).

- **Remarks:** Smears must be fixed in 95% ethyl alcohol immediately after smearing. If submitting a brush in CytoLyt, the end of the brush should be cut off and the bristles completely immersed in CytoLyt fixative. The specimen must be accompanied by a completed Cytology Request Form which indicates the source. If the sample collected represents two or more sampling sites (e.g. left and right bronchial brushings), a Cytology Request Form is required for each specimen.

**Reference Interval:**

**Powerchart Orderable:** Cytology - Non GYN

**B-type Natriuretic Peptide**

<table>
<thead>
<tr>
<th>Methodology:</th>
<th>Chemiluminescence</th>
<th>Synonyms:</th>
<th>B-type Natriuretic Peptide; BNP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>As ordered. Turn around time is 4 hours.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** one EDTA lavender top tube.

- **Minimum Volume:** 2.0 mL

- **Transport/Stability:** Uncentrifuged samples are stable for 24 hours at room temperature or refrigerated. After centrifugation, plasma should be stored at refrigerated temperature and tested within 24 hours of collection. If plasma samples are not tested within 24 hours, they should be stored in a plastic container at -20 degrees C. (frozen).

- **Remarks:** Plasma must be separated and tested within 24 hours of collection.

**Reference Interval:** less than 100 pg/mL

**Powerchart Orderable:** BNP

**C-3**

<table>
<thead>
<tr>
<th>Methodology:</th>
<th>Reference Laboratory</th>
<th>Synonyms:</th>
<th>C-3; Complement Component 3; C-3 Complement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>As ordered. Turn around time is 1-3 days.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** one SST/gel tube

- **Minimum Volume:** 1.0 mL of blood

- **Transport/Stability:** Stable for 1 hour at room temperature and 24 hours refrigerated.

- **Remarks:**

**Reference Interval:** See report

**Powerchart Orderable:** C-3
**C-4**

Methodology: Reference Laboratory  
Synonyms: C-4; Complement Component 4; C-4 Complement

Performed: As ordered. Turn around time is 1-3 days.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Stable for 1 hour at room temperature and 24 hours refrigerated.

Remarks:
- Reference Interval: See report
- Powerchart Orderable: C-4

**CA 125**

Methodology: Chemiluminescence  
Synonyms: CA 125; Cancer Antigen 125; Ovarian Cancer Antigen

Performed: Monday - Saturday. Turn around time is 24 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 2.0 mL of blood
- Transport/Stability: Centrifuged specimen stable for 24 hours refrigerated.
- Remarks: This assay should not be used as a cancer screening test, but should be used in conjunction with other clinical methods for monitoring ovarian cancer.

Reference Interval: < 30.2 U/mL
Powerchart Orderable: CA 125

**CA 19-9**

Methodology: Reference Laboratory  
Synonyms: CA 19-9; Cancer Antigen 19-9

Performed: As ordered. Turn around time is 1-3 days.

Specimen Required:
- Collect: one plain red top tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Stable for 8 hours at room temperature or 24 hours refrigerated.
- Remarks: The CA 19-9 assay value, regardless of level, should not be interpreted as absolute evidence of the presence or absence of malignant disease.

Reference Interval: 0 - 37 U/mL
Powerchart Orderable: CA 19-9

**CA 27.29**

Methodology: Chemiluminescence  
Synonyms: CA 27.29; Cancer Antigen 27.29

Performed: Monday - Saturday. Turn around time is 24 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 2.0 mL of blood
- Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.
- Remarks: This assay should not be used as a cancer screening test, but should be used in conjunction with other clinical diagnostic procedures.

Reference Interval: < 38.6 U/mL
Powerchart Orderable: CA 27.29
Calcium

Methodology: Colormetric  
Synonyms: Calcium; Calcium, Serum; Ca

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.

Remarks:
- Reference Interval: 8.5 - 10.2 mg/dL
- Powerchart Orderable: Calcium - Blood

Calcium, Urine 24 hour

Methodology: Colormetric  
Synonyms: Calcium, Urine 24 hour

Performed: 7 a.m. - 3 p.m. Turn around time is 4 hours.

Specimen Required:
- Collect: urine in a 24 hour urine container
- Minimum Volume: Submit entire collection for a 24 hour period
- Transport/Stability: Stable at room temperature for 4 hours and for 4 days refrigerated.
- Remarks: 24 hour urine containers can be obtained from the Laboratory. Requires 30 mL of 6N Hydrochloric Acid as a preservative. CAUTION: Hydrochloric acid can cause severe burns. Do not get in eyes, on skin or on clothing. Avoid breathing vapor.

Collecting a 24 hours urine sample:
1. To start the collection, empty bladder and discard this specimen. This will be the start of the collection period. Write the date and time on the collection container.
2. DO NOT VOID directly into the container. Void into a clean container and then pour the specimen into the 24 container. Keep the container refrigerated during the collection period.
3. At precisely the same time that the collection was started 24 hours earlier, empty bladder one final time and add this specimen to the 24 hour collection container.
4. Deliver container to the Laboratory.

Reference Interval: 50 - 400 mg/24 hr
Powerchart Orderable: Calcium - 24hr Urine

Calculi

Methodology: Reference Laboratory  
Synonyms: Calculi; Stone Analysis; Kidney Stone

Performed: As ordered. Turn around time is 7-10 days.

Specimen Required:
- Collect: Calculi in a clean, dry container
- Minimum Volume: Total calculi
- Transport/Stability: 
- Remarks:

Reference Interval: See report
Powerchart Orderable: Surgical Pathology

Carbamazepine

Methodology: Petinia  
Synonyms: Carbamazepine; Tegretol

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 5 days refrigerated.
- Remarks: Patient should be at a "steady state" concentration. Draw specimen immediately before dose.

Reference Interval: 4.0 - 12.0 ug/mL
Powerchart Orderable: Carbamazepine Level
### Carbon Dioxide, Total

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Carbon Dioxide, Total; CO2; Carbon Dioxide Total Blood

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- **Minimum Volume:** 0.5 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 24 hours refrigerated and unopened.

**Remarks:**
- **Reference Interval:** 21 - 32 mmol/L
- **Powerchart Orderable:** CO2 - Total Blood

### Carboxyhemoglobin

**Methodology:** Spectrophotometry  
**Synonyms:** Carboxyhemoglobin; Carbon Monoxide Level; COHgb; Carboxy Hgb

**Performed:** as ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one lavender top tube (blood gas sample also acceptable for testing)
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Coordinated delivery and testing with the Respiratory Therapy Department.

**Remarks:** Specimen is drawn by the Laboratory and tested by the Respiratory Therapy Department.
- **Reference Interval:** Non-smoker: < 1.5%  
  Smoker: 1.5 - 5.0%
- **Powerchart Orderable:** Carboxyhemoglobin

### Carcinoembryonic Antigen (CEA)

**Methodology:** Chemiluminescence  
**Synonyms:** Carcinoembryonic Antigen; CEA

**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:** Submit specimen as soon as possible after collection. The CEA value should not be interpreted as evidence for the presence or absence of malignant disease and is not recommended for use as a screening procedure to detect the presence of cancer in the general population.
- **Reference Interval:** Non-smoker: <2.5 ng/mL  
  Smoker: <5.0 ng/mL
- **Powerchart Orderable:** CEA

### Cardiolipin Antibodies, IgG & IgM

**Methodology:** Reference Laboratory  
**Synonyms:** Cardiolipin Antibodies, IgG & IgM; Anti-Cardiolipin Antibodies; Anti-Phospholipid Antibodies

**Performed:** As ordered. Turn around time is 1-5 days.

**Specimen Required:**
- Collect: one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** After separation from clot, stable for 2 days at room temperature.

**Remarks:**
- **Reference Interval:** See report
- **Powerchart Orderable:** Anti-Cardiolipin Antibodies IgG/M
Cell Count, Serous Fluid

Methodology: Manual
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
- **Collect:** one lavender top tube
- **Minimum Volume:** 0.5 mL of blood
- **Transport/Stability:** 4 hours at room temperature or 24 hours refrigerated.
- **Remarks:** Cell counts cannot be performed on clotted fluids. If a clotted fluid is received, only a differential will be performed.

Reference Interval: See report
Powerchart Orderable: Cell Count - Serous Fluid

Cell Count, Spinal Fluid

Methodology: Manual
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
- **Collect:** the third tube in sequence. (See remarks)
- **Minimum Volume:** 0.5 mL of fluid
- **Transport/Stability:** Transport immediately to the Laboratory. White blood cells in the fluid begin to deteriorate within 1 hour after collection.
- **Remarks:** The CSF specimen is usually collected via lumbar puncture and submitted to the laboratory in 3 or 4 tubes labeled in the order in which they were taken from the puncture.
  - Tube #1 is used for Chemistry and Serology
  - Tube #2 is used for smear and culture (Microbiology)
  - Tube #3 is used for cell count/differential (Hematology)
  - Tube #4 (if provided) is used for send out tests

Reference Interval: See report.
Powerchart Orderable: Cell Count - CSF

Cell Count, Synovial Fluid

Methodology: Manual
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
- **Collect:** one lavender top tube.
- **Minimum Volume:** 0.5 mL of fluid
- **Transport/Stability:** 4 hours at room temperature or 24 hours refrigerated.
- **Remarks:** Cell counts cannot be performed on clotted fluids.

Reference Interval: See report.
Powerchart Orderable: Cell Count - Synovial Fluid

Ceruloplasmin

Methodology: Reference Laboratory
Performed: As ordered. Turn around time is 1-3 days.
Specimen Required:
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 8 hours at room temperature or 3 days refrigerated.
- **Remarks:**

Reference Interval: 20 - 60 mg/dL
Powerchart Orderable: Ceruloplasmin
<table>
<thead>
<tr>
<th><strong>Cervical Cold Cone Biopsy</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong> Histology</td>
</tr>
<tr>
<td><strong>Performed:</strong> Monday - Saturday. Turn around time is 24 hours.</td>
</tr>
<tr>
<td><strong>Specimen Required:</strong></td>
</tr>
<tr>
<td><strong>Collect:</strong> specimen and place in saline.</td>
</tr>
<tr>
<td><strong>Minimum Volume:</strong></td>
</tr>
<tr>
<td><strong>Transport/Stability:</strong> Deliver specimen immediately to the Histology section of the Laboratory. All specimens must be labeled with the patient's name, age, attending surgeon, type and location of specimen. The request slip must contain the information listed above as well as the pre-op diagnosis and date/time of collection. All placenta's must be accompanied with a history form completed in its entirety. If the attending surgeon is one of a group, a specific surgeon must be indicated. If the above information is not on both the request form and the specimen container, the specimen will not be accepted without further follow-up initiated by the Laboratory.</td>
</tr>
</tbody>
</table>

| **Remarks:** | |
| **Reference Interval:** | |
| **Powerchart Orderable:** Surgical Pathology |

<table>
<thead>
<tr>
<th><strong>CH-50 Complement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong> Reference Laboratory</td>
</tr>
<tr>
<td><strong>Performed:</strong> As ordered. Turn around time is 1-5 days.</td>
</tr>
<tr>
<td><strong>Specimen Required:</strong></td>
</tr>
<tr>
<td><strong>Collect:</strong> one 7 mL plain red top tube</td>
</tr>
<tr>
<td><strong>Minimum Volume:</strong> 1.0 mL of blood</td>
</tr>
<tr>
<td><strong>Transport/Stability:</strong> Transport to Laboratory immediately.</td>
</tr>
<tr>
<td><strong>Remarks:</strong> Separate serum from cells as soon as possible.</td>
</tr>
<tr>
<td><strong>Reference Interval:</strong> Low: &lt; 60 CAE Units Normal: 60-144 CAE Units High: &gt;= 145 CAE Units</td>
</tr>
<tr>
<td><strong>Powerchart Orderable:</strong> CH-50 Complement</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Chlamydia/GC DNA Probe</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong> DNA Probe</td>
</tr>
<tr>
<td><strong>Performed:</strong> Monday/Wednesday/Friday. Turn around time is 3 days.</td>
</tr>
<tr>
<td><strong>Specimen Required:</strong></td>
</tr>
<tr>
<td><strong>Collect:</strong> a swab of the cervix or urethra and place into a Pace 2 GC/Chlamydia collection container</td>
</tr>
<tr>
<td><strong>Minimum Volume:</strong> one swab (do not include 2 swabs)</td>
</tr>
<tr>
<td><strong>Transport/Stability:</strong> Stable for 7 days at room temperature (20 - 25°C).</td>
</tr>
<tr>
<td><strong>Remarks:</strong> - Follow collection instructions on collection kit packaging. - All specimens must be properly labeled with patient name, source of specimen and date of collection. - All sample collection tubes must have a swab inserted in the tube. Specimens without swabs are not acceptable, and must be recycled. - Female collection tubes containing 2 swabs are not optimal for the assay. This introduces excess mucous into the sample, which may interfere with the assay, possibly causing false negative test results. The presence of the 2nd swab also tends to absorb too much of the sample diluent and may leave insufficient sample to run the assay. One swab is to be used to clean the cervix before collecting the sample and should be DISCARDED. - Specimens, which are grossly bloody (dark and opaque), cause too much interference with the assay to be run and are not acceptable for testing. Small amounts of blood will not interfere significantly with the assay and specimens that are only tinged with blood (pink and transparent) are acceptable.</td>
</tr>
<tr>
<td><strong>Reference Interval:</strong> Negative</td>
</tr>
<tr>
<td><strong>Powerchart Orderable:</strong> Chlamydia/GC DNA Probe</td>
</tr>
</tbody>
</table>
**Chlamydia/GC RNA, TMA**

**Methodology:** Transcription-Mediated Amplification  
**Synonyms:** Chlamydia/GC RNA, TMA; CT/GC Amplified; CT/GC APTIMA; CT Amplified; CT APTIMA; GC Amplified; GC APTIMA

**Performed:** Monday/Wednesday/Friday. Turn Around Time is 3 days.

**Specimen Required:**
- Endocervical or male urethral specimens must be submitted only in an APTIMA Unisex Swab collection Kit.
- For all urine collections, the patient should not have voided for at least 1 hr. prior to collection. A minimum of 2 ml of urine is added directly to the APTIMA Urine Specimen Transport Tube. Urine may be submitted unprocessed at 2o C to 30o C, but must be transferred to the APTIMA Urine Specimen Transport Tube within 24 hr. of collection.
- Vaginal specimens must be submitted only in the APTIMA Vaginal Swab collection Kit.

**Minimum Volume:**

**Transport/Stability:** Endocervical or male urethral:
After collection, transport and store swab at 2o C to 30o C until tested. Specimens must be assayed within 60 days of collection. See the Unisex Swab Collection Kit collection and transport instructions.

Urine:
Transport and store the processed urine specimen at 2o C to 30o C until tested. Specimens must be assayed within 30 days of collection. See the Urine Specimen Collection Kit for collection and transport instructions.

Vaginal specimens:
After collection, transport and store swab at 2o C to 30o C until tested. Specimens must be assayed within 60 days of collection. See the Vaginal Swab Collection Kit for collection and transport instructions.

**Remarks:** SPECIMEN REJECTION:  
- Specimen received in a grossly leaking APTIMA transport tube.  
- Specimen received in expired transport media.  
- Unlabeled specimen or name discrepancy between specimen and requisition.

Female Cervical/Vaginal or Male Urethral Specimens:  
- Any non-Genprobe swab in the APTIMA transport tube  
- Wooden shaft swab in an APTIMA transport tube.  
- White Cleansing swab for female endocervical collections in the APTIMA transport tube.  
- No swab or 2 swabs in an APTIMA transport tube.  
- Dry specimen swab  

Urine specimens:  
- Liquid level too High or Low in APTIMA urine transport tube.  
- Unprocessed Urine specimen received greater than 24 hr. after collection.

**Reference Interval:** CT - None Detected.  
GC - None Detected

**Powerchart Orderable:**

---

**Chloride, Fluid**

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Chloride, Fluid

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- one plain red top tube (no gel)

**Minimum Volume:** 0.5mL of fluid

**Transport/Stability:** Stable at refrigerated temperature for 24 hours.

**Remarks:**

**Reference Interval:** By report if available. Reference ranges may not be available for all fluid sources.

**Powerchart Orderable:** Chloride - Fluid
Chloride, Serum

Methodology: Ion Selective Electrode (ISE)  
Synonyms: Chloride, Serum; Chloride Blood

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 5 days refrigerated.

Remarks:
- Reference Interval: 100 - 109 mmol/L
- Powerchart Orderable: Chloride - Blood

Chloride, Urine 24 hour

Methodology: Ion Selective Electrode (ISE)  
Synonyms: Chloride, Urine 24 hour

Performed: 7 a.m. - 3 p.m. Turn around time is 4 hours.

Specimen Required:
- Collect: urine in a 24 hour urine container
- Minimum Volume: entire collection of urine
- Transport/Stability: Please keep refrigerated throughout the collection period and submit the Laboratory as soon as possible after collection has ended.

Remarks: Collecting a 24 hours urine sample:
1. To start the collection, empty bladder and discard this specimen. This will be the start of the collection period. Write the date and time on the collection container.
2. DO NOT VOID directly into the container. Void into a clean container and then pour the specimen into the 24 hour container. Keep the container refrigerated during the collection period.
3. At precisely the same time that the collection was started 24 hours earlier, empty bladder one final time and add this specimen to the 24 hour collection container.
4. Deliver container to the Laboratory.

Reference Interval: 170 - 250 mEq/L
Powerchart Orderable: Chloride - 24hr Urine

Cholesterol

Methodology: Colormetric  
Synonyms: Cholesterol

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 5 days refrigerated.

Remarks: Fasting specimen is preferred.

Reference Interval: < 200 mg/dL
Powerchart Orderable: Cholesterol
**Chromosome Studies, Products of Conception**

**Methodology:** Histology

**Performed:** Monday - Thursday (before 1 p.m.). Turn around time is 3-4 weeks.

**Synonyms:** Chromosome Studies, Products of Conception; Surgical Pathology; Histology; Cytogenetic Studies

**Specimen Required:**

**Collect:** Specimens should be submitted in a dry, sterile container and accompanied by a completed request slip. DO NOT use formalin. A reference laboratory request must also be completed and signed by the ordering physician (this form is available by calling extension 3819).

**Minimum Volume:**

**Transport/Stability:** Specimen should be transported to the Laboratory immediately.

**Remarks:** These studies need to be handled promptly as they are sent to a reference laboratory for additional studies. It is preferred that these specimens be received on Monday through Thursday to avoid the specimen from being unprocessed on the weekend (specimens must reach the reference laboratory within 24 hours of collection). The Histology section of the Laboratory should be notified prior to the specimen's arrival to prevent misplacement, delay, or other adverse event. On the evening shift, night shift, or on the weekend, the Pathologist-on-call should be notified. The Pathologist-on-call beeper number is available from the Hospital operator or the Laboratory.

**Reference Interval:**

**Powerchart Orderable:** Surgical Pathology

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**Clostridium Difficile Toxins A&B Screen**

**Methodology:** Synonyms: Clostridium Difficile Toxins A&B Screen; C Difficile Toxins A/B; C. Diff

**Performed:** Monday/Wednesday/Friday. Turn around time is 3 days.

**Specimen Required:**

**Collect:** stool into a clean, leak proof container

**Minimum Volume:** 1 mL or 1 gram

**Transport/Stability:** Specimens are stable at 2 - 8°C for 4 days. Freeze for extended storage.

**Remarks:**

- Meconium may interfere with the assay; therefore, specimens from infants less than 4 weeks of age are not acceptable.
- Rectal swabs are not acceptable specimens.

**Reference Interval:** Negative

**Powerchart Orderable:** Cdf Toxins A/B

---

**Complete Blood Count (CBC)**

**Methodology:** Flow Cytometry

**Performed:** As ordered. Turn around time is 4 hours.

**Synonyms:** Complete Blood Count; CBC; Coulter Profile; Hemogram; H & H

**Specimen Required:**

**Collect:** one lavender top tube.

**Minimum Volume:** 1.0 mL of blood

**Transport/Stability:** 24 hours at room temperature or 36 hours refrigerated. If specimens are going to reach the laboratory more than 8 hours after collection, storage at refrigerated temperatures is recommended

**Remarks:** Includes the following parameters: White blood cell count, red blood cell count, hemoglobin, hematocrit, red cell indices, and platelet count.

**Reference Interval:** See report

**Powerchart Orderable:** CBC
### Complete Blood Count with Differential

**Methodology:** Flow Cytometry  
**Synonyms:** Complete Blood Count with Differential; CBC with diff; CBC with autodiff; CBC with manual differential  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** one lavender top tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** 24 hours at room temperature or 36 hours refrigerated. If specimens are going to reach the laboratory more than 8 hours after collection, storage at refrigerated temperatures is recommended  
- **Remarks:** Includes the following parameters: White blood cell count, red blood cell count, hemoglobin, hematocrit, red cell indices, platelet count, neutrophil %, lymphocyte %, monocyte %, eosinophil % and basophil %. If any abnormal populations are identified by flow cytometry, a manual differential is automatically performed.  
**Reference Interval:** See report  
**Powerchart Orderable:** CBC w/autodiff

### Comprehensive Metabolic Panel

**Methodology:** Various  
**Synonyms:** Comprehensive Metabolic Panel; CMP; AMA CMP; AMA Comprehensive Metabolic Panel  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** One SST/gel tube  
- **Minimum Volume:** 4.0 mL of blood  
- **Transport/Stability:** Allow specimen to clot, then centrifuge for 10 minutes. Refrigerate for up to 24 hours.  
- **Remarks:** Includes: Glucose, BUN, Creatinine, Sodium, Potassium, Chloride, Carbon Dioxide, Calcium, Total Protein, Albumin, Total Bilirubin, Alkaline Phosphatase, ALT (SGPT), and AST (SGOT).  
**Reference Interval:** See individual tests  
**Powerchart Orderable:** AMA Comprehensive Metabolic Panel

### Cord Blood

**Methodology:** Manual  
**Synonyms:** Cord Blood  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** one lavender top tube and one plain red top tube.  
- **Minimum Volume:** 1.0 mL of blood in each tube  
- **Transport/Stability:** Stable at room temperature for 24 hours.  
- **Remarks:** Testing is automatically performed on cord bloods from type O mothers and all Rh negative mothers, otherwise, no testing is performed. All cord bloods are held in the Blood Bank for 7 days if testing is required at a later date. Testing includes: ABO type, Rh type, and direct coombs.  
**Reference Interval:** N/A  
**Powerchart Orderable:** Cord Blood

### Cortisol, Serum

**Methodology:** Chemiluminescence  
**Synonyms:** Cortisol, Serum; Cortisol - Blood  
**Performed:** Monday - Saturday. Turn around time is 24 hours.  
**Specimen Required:**
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 4.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.  
**Reference Interval:**
- 7 - 9 a.m.: 4.3 - 22.4 ug/dL  
- 3 - 5 p.m.: 3.1 - 16.6 ug/dL  
**Powerchart Orderable:** Cortisol Level
### C-Reactive Protein (CRP)

**Methodology:** Nephelometry  
**Synonyms:** C-Reactive Protein; CRP  
**Performed:** 7 a.m. - 3 p.m. Turn around time is 24 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 1 week refrigerated.

**Remarks:**
- Reference Interval: <0.9 mg/dL
- Powerchart Orderable: C-Reactive Protein

### C-Reactive Protein, High Sensitivity

**Methodology:** Reference Laboratory  
**Synonyms:** C-Reactive Protein, High Sensitivity; CRP; High Sensitivity; Cardio CRP; HSCRP  
**Performed:** As ordered. Turn around time is 1-3 days.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 1 week refrigerated.

**Remarks:**
- Reference Interval: See report
- Powerchart Orderable: High Sensitivity CRP

### Creatine Kinase, MB

**Methodology:** Enzyme Linked Immunoassay (E)  
**Synonyms:** Creatine Kinase, MB; CK-MB; CK-MB Quantitative  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.

**Remarks:** Includes total Creatine Kinase (CK)

**Reference Interval:** 0.0 - 3.6 ng/mL
**Powerchart Orderable:** CK-MB Quant

### Creatine Kinase, Total

**Methodology:** Colormetric  
**Synonyms:** Creatine Kinase, Total; CK; Total CK  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.

**Remarks:** Total CK may be elevated after exercise.

**Reference Interval:** Male: 35 - 232 U/L  
Female: 21 - 215 U/L

**Powerchart Orderable:** CK - Total
### Creatinine Clearance

**Methodology:** Calculation  
**Synonyms:** Creatinine Clearance; Creat Cl  
**Performed:** 7 a.m. - 3 p.m.  Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine in a 24 hour urine container and collect blood in one SST/gel tube (a serum creatinine must be performed to calculate the clearance).  
- **Minimum Volume:** submit entire 24 hour collection  
- **Transport/Stability:** Keep specimen refrigerated during collection and transport as soon as possible to the Laboratory.  
- **Remarks:**  
  - Please write the patient's height and weight on the request form.  
  - A creatinine clearance can be performed on any timed collection; however, a 24 hour collection is recommended.  
  - Collecting a 24 hour urine sample:  
    1. To start the collection, empty bladder and discard this specimen. This will be the start of the collection period. Write the date and time on the collection container.  
    2. DO NOT VOID directly into the container. Void into a clean container and then pour the specimen into the 24 container. Keep the container refrigerated during the collection period.  
    3. At precisely the same time that the collection was started 24 hours earlier, empty bladder one final time and add this specimen to the 24 hour collection container.  
    4. Deliver container to the Laboratory.  
- **Reference Interval:** 72 - 130 mL/min for a 24 hour collection  
- **Powerchart Orderable:** Creatinine Clearance - Urine

---

### Creatinine, Fluid

**Methodology:** Colormetric  
**Synonyms:** Creatinine, Fluid  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** fluid in one plain red top tube or any clean, dry container.  
- **Minimum Volume:** 0.5 mL of fluid  
- **Transport/Stability:** Stable for 5 days refrigerated.  
- **Remarks:**  
- Reference Interval: See report. Reference ranges may not be available for all fluid sources.  
- **Powerchart Orderable:** Creatinine - Fluid

---

### Creatinine, Serum

**Methodology:** Colormetric  
**Synonyms:** Creatinine, Serum; Creatinine Blood  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.  
- **Remarks:** Includes an estimated glomerular filtration rate calculation (eGFR) for each result. Reference range: >60 mL/min/1.73m²  
- **Reference Interval:** 0.6 - 1.3 mg/dL  
- **Powerchart Orderable:** Creatinine - Blood

---
Creatinine, Urine 24 hour

Methodology: Colormetric  
Performed: 7 a.m. - 9 p.m. Turn around time is 4 hours.

Specimen Required:
- Collect: urine in a 24 urine container
- Minimum Volume: Submit entire collection
- Transport/Stability: Keep specimen refrigerated during collection and transport as soon as possible to the Laboratory.
- Remarks: 24 hour urine containers can be obtained from the Laboratory. No preservative is required; however, boric acid and 6N Hydrochloric acid are acceptable preservatives.
  1. To start the collection, empty bladder and discard this specimen. This will be the start of the collection period. Write the date and time on the collection container.
  2. DO NOT VOID directly into the container. Void into a clean container and then pour the specimen into the 24 container. Keep the container refrigerated during the collection period.
  3. At precisely the same time that the collection was started 24 hours earlier, empty bladder one final time and add this specimen to the 24 hour collection container.
  4. Deliver container to the Laboratory.

Reference Interval: Male: 1.3 - 2.6 g/24 hours  
Female: 0.9 - 1.7 g/24 hours

Cryptococcal Antigen

Methodology: Latex Agglutination  
Performed: Monday - Friday. Turn around time is 3 days.

Specimen Required:
- Collect: one SST/gel for blood or collect Cerebral Spinal Fluid in a conical CSF collection tube
- Minimum Volume: 1.0 mL of blood or 0.5 mL of spinal fluid
- Transport/Stability: Separated serum and CSF are stable for 2 days at 2 - 8 °C. Freeze for extended storage.
- Remarks: Exam replaces India Ink prep to screen for Cryptococcus in CSF.

Reference Interval: Negative

Powerchart Orderable: Cryptococcal Antigen

CSF Culture

Methodology: Culture  
Performed: As ordered. Turn around time is 5 days.

Specimen Required:
- Collect: In a sterile conical CSF collection tube.
- Minimum Volume: 1 mL (per test ordered)
- Transport/Stability: Transport at room temperature. Specimen must be received within 2 hours of collection.
- Remarks: CSF specimens must be collected prior to the start of antimicrobial therapy. The skin must be disinfected with an antiseptic solution in the area to be sampled. If tests other than culture are requested, the microbiology sample should be collected after the first few milliliters are drawn (tube 2 or higher). The specimen must be transported immediately to the laboratory. Any delay could cause loss of fastidious organisms in the sample. Specimens should never be refrigerated. Exam includes cytospin smear (gram stain) and susceptibility testing, when appropriate, for the isolates recovered. Specimen is also acceptable for AFB, fungal and viral cultures, if sufficient volume is obtained.

Reference Interval:  
Powerchart Orderable: CSF Culture
Cutaneous Swab Culture

Methodology: Culture
Performed: 7 a.m. - 9 p.m.  Turn around time is 2 days.

Specimen Required:
- Collect: Culturette swab of superficial skin surfaces or wounds
- Minimum Volume: 1 swab, (2 swabs are preferred)
- Transport/Stability: Transport at room temperature. Specimen must be received within 48 hours of collection.

Remarks: Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain) and susceptibility testing, when appropriate, for the isolates recovered. NOTE: Anaerobic culture is not performed on cutaneous specimens.

Reference Interval:
Powerchart Orderable: Microbiology Culture Request

Cyclosporin

Methodology: Reference Laboratory
Performed: As ordered. Turn around time is 1-4 days.

Specimen Required:
- Collect: one 5 mL lavender top tube
- Minimum Volume: 0.5 mL of blood
- Transport/Stability: Stable for 7 days at room temperature.

Reference Interval: See report
Powerchart Orderable: Cyclosporin Level

Cystic Fibrosis Mutation Panel

Methodology: Reference Laboratory
Performed: As ordered. Turn around time is 6-10 days.

Specimen Required:
- Collect: one 5 mL lavender top tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Stable for 24 hours at room temperature.

Remarks: This test requires a consent form.
Reference Interval: Negative: This individual is negative for the mutations screened, including the 25 CF mutations recommended by the American College of Medical Genetics.
Powerchart Orderable: Cystic Fibrosis Mutation-PCR

D-Dimer

Methodology: Immuno-turbidometric
Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.
- Minimum Volume: 4.5 mL of blood
- Transport/Stability: Specimen is stable for 4 hours, if it is not centrifuged or refrigerated. It is stable for 8 hours at room temperature if the plasma is removed from the cells. Otherwise, the specimen should be centrifuged, the plasma removed, and the plasma frozen at -20 degrees C. Plasma frozen in this manner is stable for 1 month.

Remarks:
Reference Interval: <0.42 ug/mL FEU (Fibrinogen Equivalent Units)
Powerchart Orderable: D-Dimer
**DHEA Sulfate**

**Methodology:** Reference Laboratory

**Synonyms:** DHEA Sulfate; Dehydroepiandrosterone Sulfate; DHEAS

**Performed:** As ordered. Turn around time is 1-4 days.

**Specimen Required:**
- Collect: one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 24 hours at room temperature.

**Remarks:**
- **Reference Interval:** See report
- **Powerchart Orderable:** DHEA Sulfate

**Digoxin**

**Methodology:** Immunoassay

**Synonyms:** Digoxin; Lanoxin Level; Dig

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube. Draw the specimen 6 - 10 hours after dose.
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:** Patient should be at a "steady state" concentration.

**Reference Interval:** Therapeutic: 0.9 - 2.0 ng/mL
- Potentially Toxic: > 2.0 ng/mL

**Powerchart Orderable:** Digoxin Level

**Dilantin**

**Methodology:** Petinia

**Synonyms:** Dilantin; Phenytoin

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube. Draw specimen prior to next dose.
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:** Patient should be at a "steady state" concentration.

**Reference Interval:** 10 - 20 ug/mL

**Powerchart Orderable:** Dilantin Level

**Direct Coombs**

**Methodology:** Agglutination

**Synonyms:** Direct Coombs; Direct Antiglobulin Test; DAT

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one 7 mL lavender top tube.
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 3 days at room temperature.

**Remarks:** Direct Coombs testing is performed with polyclonal antisera. If testing is positive, monospecific antisera for IgG and C3d are used and reported.

**Reference Interval:** Negative

**Powerchart Orderable:** Direct Coombs
## Drug Screen Panel

**Methodology:** Reference Laboratory  
**Synonyms:** Drug Screen Panel  
**Performed:** As ordered. Turn around time is 1-6 days.  
**Specimen Required:**  
- **Collect:** random urine in a clean, dry container  
- **Minimum Volume:** 30.0 mL of urine  
- **Transport/Stability:** Stable for 1 week at room temperature.  
- **Remarks:** Screen-positive specimens will automatically be confirmed by GC/MS.  
**Reference Interval:** See report  
**Powerchart Orderable:** Drug Screen Panel 10

## Drug Screen, Urine

**Methodology:** Colormetric  
**Synonyms:** Drug Screen, Urine; Drug Screen, Urine GFH  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine in a clean, dry container.  
- **Minimum Volume:** 25 mL of urine  
- **Transport/Stability:** Specimen is stable for up to 24 hours refrigerated. Sample should be frozen if longer storage is required.  
- **Remarks:** Positive screens are preliminary and will be sent to a reference laboratory for confirmation by GC/MS. Drugs tested include: Amphetamines, Barbiturates, Opiates, Benzodiazepines, Cocaine, and PCP.  
**Reference Interval:** See report  
**Powerchart Orderable:** Drug Screen (Urine) - GFH

## dsDNA Antibody, IgG

**Methodology:** Reference Laboratory  
**Synonyms:** dsDNA Antibody, IgG; DS-DNA; Double Stranded DNA; Native DNA  
**Performed:** As ordered. Turn around time is 1-5 days.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** After separation from clot, stable for 2 days at room temperature.  
- **Remarks:** dsDNA antibodies are screened using an ELISA assay. Positive results are titered by IFA. "None detected" correlates with an IFA titer of less than 1:10.  
**Reference Interval:** None detected  
**Powerchart Orderable:** DS-DNA

## Ear Culture

**Methodology:** Culture  
**Synonyms:** Ear Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 2 days.  
**Specimen Required:**  
- **Collect:** Culturette swab or aspirate of outer or middle ear in a clean, sterile, leakproof container or port a Cul vial.  
- **Minimum Volume:** 1 swab or 1 mL of aspirate.  
- **Transport/Stability:** Transport specimens at room temperature. Swabs and port a Cul vials are stable for 48 hours after collection. Aspirate material must be received within 2 hours of collection.  
- **Remarks:** Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain) and susceptibility testing, if appropriate, for the isolates recovered. NOTE: Specimens aspirated from the inner ear should be ordered as aspirate/tissue cultures or as surgical swab cultures, if collected on swab.  
**Reference Interval:**  
**Powerchart Orderable:** Microbiology Culture Request
**Electrolytes**

**Methodology:** Ion Selective Electrode (ISE)  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** One SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** See individual tests.  
- **Remarks:** Includes: Sodium, Potassium, Chloride, and Carbon Dioxide and anion gap calculation. Reference range for anion gap is 7-18 mEq/L.  
**Reference Interval:** See report  
**Powerchart Orderable:** AMA Electrolyte Panel

**Electrolytes, Fluid**

**Methodology:** Ion Selective Electrode (ISE)  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine or other bodily fluid into a red top tube or clean, dry container.  
- **Minimum Volume:** 1.0 mL of urine/fluid  
- **Transport/Stability:** Stable for 72 hours refrigerated.  
**Reference Interval:** See report  
**powerchart orderable:** Lytes - Fluid

**Eosinophil Count**

**Methodology:** Flow Cytometry  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one lavender top tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** 24 hours at room temperature or 36 hours refrigerated. If specimens are going to reach the laboratory more than 8 hours after collection, storage at refrigerated temperatures is recommended.  
**Reference Interval:**  
- 0 - 1 day old: 20 - 850/mm³  
- 2 days - 1 year old: 50 - 700/mm³  
- 1 year - adult: 0 - 450/mm³  
**Powerchart Orderable:** Eosinophil Count

**Epstein-Barr Virus Antibody Panel (EBV)**

**Methodology:** Reference Laboratory  
**Performed:** As ordered. Turn around time is 1-4 days.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** After separation, stable for 2 days at room temperature.  
- **Remarks:** Separate serum from cells as soon as possible after collection. Acute and convalescent samples must be labeled a such; parallel testing is preferred and convalescent samples must be received within 30 days from receipt of acute samples.  
**Reference Interval:** See report  
**Powerchart Orderable:** Epstein-Barr Evaluation
**Erythrocyte Sedimentation Rate**

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<th>Manual</th>
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<td>Synonyms:</td>
<td>Erythrocyte Sedimentation Rate; Sedimentation Rate; Sed Rate; ESR; Westergren Sed Rate</td>
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<tr>
<td>Performed:</td>
<td>As ordered. Turn around time is 2 hours.</td>
</tr>
<tr>
<td>Specimen Required:</td>
<td>Collect: one lavender top tube. Minimum Volume: 2.0 mL of blood Transport/Stability: 2 hours at room temperature and 12 hours refrigerated.</td>
</tr>
<tr>
<td>Reference Interval:</td>
<td>Female (12 years to adult): 0 - 20 mm/hr Male (12 years to adult): 0 - 15 mm/hr Children less than 12 years: 0 - 10 mm/hr</td>
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<tr>
<td>Powerchart Orderable:</td>
<td>Sed Rate</td>
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**Estradiol**

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<th>Chemiluminescence</th>
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<td>Estradiol; E2</td>
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<tr>
<td>Performed:</td>
<td>Monday - Saturday. Turn around time is 24 hours.</td>
</tr>
<tr>
<td>Specimen Required:</td>
<td>Collect: one SST/gel tube Minimum Volume: 2.0 mL of blood Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.</td>
</tr>
<tr>
<td>Reference Interval:</td>
<td>See report</td>
</tr>
<tr>
<td>Powerchart Orderable:</td>
<td>Estradiol</td>
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**Estrogen/Progesterone Receptor Assay**

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<td>Synonyms:</td>
<td>Estrogen/Progesterone Receptor Assay; ERA/PRA; ER/PR</td>
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<tr>
<td>Performed:</td>
<td>Monday - Friday. Turn around time is 2 days.</td>
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<tr>
<td>Specimen Required:</td>
<td>Collect: Tissue in a clean, dry container Minimum Volume: 1.0 mL Transport/Stability:</td>
</tr>
<tr>
<td>Reference Interval:</td>
<td>See report</td>
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<tr>
<td>Powerchart Orderable:</td>
<td>Estrogen/Progesterone/DNA</td>
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**Eye Culture**

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<th>Culture</th>
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<td>Synonyms:</td>
<td>Eye Culture</td>
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<tr>
<td>Performed:</td>
<td>7 a.m. - 9 p.m.. Turn around time is 2 days.</td>
</tr>
<tr>
<td>Specimen Required:</td>
<td>Collect: Culturette swab of the conjunctiva or drainage aspirate in a clean sterile leakproof container. Collect corneal scrapings directly on to microbiology media (blood and chocolate agar plates). Minimum Volume: 1 swab or minitip swab or 1 mL of aspirate Transport/Stability: Transport at room temperature. Culturette swabs are stable for up to 48 hours after collection. Aspirates and plated material must be received within 2 hours of collection.</td>
</tr>
<tr>
<td>Remarks:</td>
<td>Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain) on swabs and aspirates. Susceptibility testing is performed if appropriate, for the isolates recovered. NOTE: Eye culture should be ordered for external specimens only. Aspirates of the inner eye (vitreous or aqueous fluids) should be ordered as an aspirate/tissue culture.</td>
</tr>
<tr>
<td>Reference Interval:</td>
<td></td>
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<tr>
<td>Powerchart Orderable:</td>
<td>Microbiology Culture Request</td>
</tr>
</tbody>
</table>
**Factor V Leiden**

**Methodology:** Reference Laboratory  
**Synonyms:** Factor V Leiden; Factor V Mutation (Leiden)  
**Performed:** As ordered. Turn around time is 2-6 days.  
**Specimen Required:**  
Collect: one 5 mL lavender top tube  
**Minimum Volume:** 1.0 mL of blood  
**Transport/Stability:** Stable for 24 hours at room temperature.  
**Remarks:**  
**Reference Interval:** Negative  
**Powerchart Orderable:** Factor V Mutation (Leiden)

**Factor VIII Activity**

**Methodology:** Clot Detection  
**Synonyms:** Factor VIII Activity; Factor VIII; Factor 8 Activity  
**Performed:** Thursdays (day shift). Turn around time is 1-7 days.  
**Specimen Required:**  
Collect: One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.  
**Minimum Volume:** 4.5 mL of blood  
**Transport/Stability:** Specimen is stable for 4 hours, if it is not centrifuged or refrigerated (2 hours if the patient is receiving unfractionated heparin). Otherwise the specimen should be centrifuged, the plasma removed, and the plasma frozen at -20 degrees C.  
**Remarks:**  
**Reference Interval:** 60 - 150 % activity  
**Powerchart Orderable:** Factor VIII Activity

**Fecal Leukocyte**

**Methodology:** Manual  
**Synonyms:** Fecal Leukocyte; Fecal WBC; Stool for WBC; Leukocyte - Stool  
**Performed:** As ordered. Turn around time is 1 hour.  
**Specimen Required:**  
Collect: stool specimen in a clean, dry container and deliver to the Laboratory within 1 hour of collection. Also acceptable are stool specimens that have been transferred into a parasite (O&P) transport kit (PVA vial only) within one hour of collection.  
**Minimum Volume:**  
**Transport/Stability:** Specimen may be rejected if not delivered to the Laboratory within one hour, unless submitted in a PVA vial.  
**Remarks:**  
**Reference Interval:** None seen  
**Powerchart Orderable:** Fecal WBC

**Ferritin**

**Methodology:** Chemiluminescence  
**Synonyms:** Ferritin  
**Performed:** Monday - Saturday. Turn around time is 24 hours.  
**Specimen Required:**  
Collect: one SST/gel tube  
**Minimum Volume:** 2.0 mL of blood  
**Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.  
**Remarks:**  
**Reference Interval:** Male: 26 - 388 ng/mL  
Female: 8 - 252 ng/mL  
**Powerchart Orderable:** Ferritin
### Fetal Cell Screen

**Methodology:** Agglutination  
**Synonyms:** Fetal Cell Screen  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one 7 mL lavender top tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Stable for 12 hours at room temperature.  
- **Remarks:** Positive fetal cell screens will have fetal cell stains performed automatically to determine the correct dosage of Rhogam.

**Reference Interval:** Negative  
**Powerchart Orderable:** Fetal Cell Screen

### Fetal Cell Stain

**Methodology:** Reference Laboratory  
**Synonyms:** Fetal Cell Stain; Kleihauer-Betke Stain; Fetal Hemoglobin Determination  
**Performed:** as ordered by Albany Medical Center. Turn around time is less than 24 hours.  
**Specimen Required:**  
- **Collect:** one 7 mL lavender top tube  
- **Minimum Volume:** 3.0 mL of blood  
- **Transport/Stability:** Specimen should be refrigerated and sent to Albany Medical Center within 24 hours.

- **Remarks:** This test should only be used to detect and quantify the extent of fetomaternal hemorrhage, in pregnant or post-partum women who need to be assessed for Rhogam or fetomaternal bleeds. For all other testing, including routine post-partum assessments for Rhogam, please order fetal cell screen. If the fetal cell screen is positive, the fetal cell stain will automatically be performed to determine the correct dosage of rhogam.

**Reference Interval:** Negative  
**Powerchart Orderable:** Fetal Cell Stain

### Fetal Fibronectin

**Methodology:** Solid phase immunochromatography  
**Synonyms:** Fetal Fibronectin  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** Vaginal Swab immersed in buffer solution contained in the Specimen Collection Kit.  
- **Minimum Volume:** One swab in buffer solution.  
- **Transport/Stability:** Transport specimens at 2° to 25°C, or frozen. Specimens that are not transported to the Laboratory within eight (8) hours of collection must be stored refrigerated at 2° to 8°C and assayed within three (3) days of collection, or frozen and assayed within three (3) months.

- **Remarks:** Specimens will be rejected for the following reasons:  
  1. Specimens collected in or by any sample device other than the Adeza Biomedical Specimen Collection Kit.  
  2. Specimens received with wooden applicator stick.  
  3. Specimens with insufficient buffer volume for testing.  
  4. Specimens received unlabeled or mislabeled.  
  5. Specimens which were not frozen and received > 3 days after the sampling date.  
  6. Specimen not tested within 8 hours of collection and not stored refrigerated (2°-8°C).  
  7. Frozen specimens older than 3 months from the sampling date.  
  8. Specimens received at temperatures >25°C.  
  9. Specimens subjected to more than one freeze-thaw cycle.

**Reference Interval:** Detection of fetal fibronectin in cervicovaginal secretions is associated with preterm delivery in symptomatic pregnant women between 24 weeks and 34 weeks and in asymptomatic pregnant women between 22 weeks and 30 weeks.

**Powerchart Orderable:** Fetal Fibronectin
Fetal Lung Maturity

Methodology: Reference Laboratory
Synonyms: Fetal Lung Maturity; L/S Ratio; LS Ratio
Performed: As ordered by Albany Medical Center. Turn around time is less than 24 hours.
Specimen Required:
  Collect: amniotic fluid in a clean, dry container. Protect from light.
  Minimum Volume: 1.0 mL of amniotic fluid
  Transport/Stability: Transport to Laboratory immediately.
  Remarks: Notify Laboratory immediately.
Reference Interval: greater than or equal to 75 is consistent with L/S ratio of 2.0 or greater
Powerchart Orderable: Fetal Lung Maturity Eval

Fibrin Degradation Products

Methodology: Latex Agglutination
Synonyms: Fibrin Degradation Products; FDP; Fibrin Split Products; FSP
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
  Collect: 2 mL of blood into a thrombin/soybean trypsin inhibitor tube (available from the Laboratory).
  Minimum Volume: 2.0 mL of blood
  Transport/Stability: Specimen is stable for 2 hours at room temperature.
  Remarks: None
Reference Interval: Negative
Powerchart Orderable: FDP

Fibrinogen

Methodology: Mechanical Clot Detection
Synonyms: Fibrinogen
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
  Collect: One full 4.5 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.
  Minimum Volume: 4.5 mL of blood
  Transport/Stability: Specimen is stable for 4 hours, if it is not centrifuged or refrigerated.
  Otherwise the specimen should be centrifuged, the plasma removed, and the plasma frozen at -20 degrees C.
  Remarks: None
Reference Interval: 249 - 410 mg/dL
Powerchart Orderable: Fibrinogen
**Fine Needle Aspiration**

**Methodology:** Cytology  
**Synonyms:** Fine Needle Aspiration; FNA; Lymph Node; Salivary Gland Masses; Breast Cyst; Masses

**Performed:** Monday-Friday (8a-4p). Turn around time is 2-3 days.

**Specimen Required:**
- **Collect:** Cellular specimens obtained by superficial fine needle aspiration and immediately express into a 50 cc blue capped plastic tube containing CytoLyt fixative (supplied by the Cytology section of the Laboratory). Be sure to label the tube/container with the full name of the patient and appropriate identification as to the source of the specimen.
- **Specimens may be rejected if:**
  - they are improperly labeled
  - they leak during transport
  - an improperly completed requisition is received

**Minimum Volume:**

**Transport/Stability:** Transport in 50 cc blue capped plastic tube containing CytoLyt fixative.

**Remarks:** Expressed material is collected in the CytoLyt fixative. Repeatedly rinse the syringe in the CytoLyt fixative to recover as much material as possible. DO NOT reuse the needle to collect another sample once it has been rinsed with the CytoLyt fixative. When aspirating paired organs, be sure to indicate left or right on the sample.

**Reference Interval:**

**Powerchart Orderable:** Fine Needle Biopsy

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**Fluid Culture**

**Methodology:** Culture  
**Synonyms:** Fluid Culture; Sterile Body Fluid Culture

**Performed:** 7 a.m. - 9 p.m.. Turn around time is 5 days.

**Specimen Required:**
- **Collect:** In clean sterile leakproof container and/or Port a Cul Vial or Culture Bottles. (Aspiration of sterile body fluid. Includes the following: Amniotic, Ascitic, Biliary, Joint/Synovial, Paracentesis, Pericardial, Peritoneal/PD, Pleural, Thoracentesis.

**Minimum Volume:** 1 mL

**Transport/Stability:** Transport at room temperature. Specimens must be received within 2 hours of collection unless received in Port a Cul vials or Culture bottles. These specimens are stable for 48 hours. The Port -a-Cul medium must remain clear below the surface. If the medium turns blue, it indicates oxygen saturation and the specimen is no longer suitable for anaerobic recovery.

**Remarks:** Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain), anaerobic workup and susceptibility testing if applicable, for the isolate(s) recovered. All aspiration sites for the collection of culture material must be disinfected before the specimen is aspirated (see blood culture collection information). NOTE: specimens received in culture bottles are not suitable for direct smears. Specimen types not listed above should be ordered as an Aspirate/Tissue Culture

**Reference Interval:**

**Powerchart Orderable:** Microbiology Culture Request
**Fluid for Cytology**

**Methodology:** Cytology  
**Performed:** Monday-Friday (8a-4p). Turn around time is 2-3 days.

**Specimen Required:**  
**Collect:** Body fluids obtained by needle aspiration of fluid filled cavities and preserved in 50% ethyl alcohol with equal parts of fluid and fixative. Minute quantities and amounts up to 500 cc may be submitted for evaluation, but they must be immediately preserved with equal parts of 50% ethyl alcohol. Appropriate containers include: 500 cc vacutainer, 16 oz plastic container, 50 cc conical centrifuge tube, and 15 cc conical centrifuge tube. Containers and fixative are supplied by the Cytology section of the Laboratory. Be sure to label the tube/container with the full name of the patient and appropriate identification as to the source of the specimen. Specimen may be rejected if:  
- improper preservative is used  
- unequal parts of fluid and preservative are used  
- improper labeling of container  
- incomplete requisition slip is submitted

**Minimum Volume:**  
**Transport/Stability:** Transport in appropriate container with equal parts fluid and 50% ethyl alcohol.

**Remarks:** Body fluid samples are collected in the appropriate container and 50% ethyl alcohol is added to the container immediately. Sufficient ethyl alcohol should be added as to double the original volume of the fluid that was placed in the container. The container must be quickly capped and the solution must be well mixed to insure preservation of the cells. It is very important the fixative be added to the specimen, not the other way around. Immediate addition of the 50% ethyl alcohol fixative to the body fluid specimen and mixing is essential for preservation of cellular material contained in the fluid. If the proper fixative is not available, immediately place the unfixed specimen in the refrigerator located in Cytology.

**Reference Interval:**

**Powerchart Orderable:** Cytology - Non GYN

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**Folate, Serum**

**Methodology:** Chemiluminescence  
**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**  
**Collect:** one SST/gel tube

**Minimum Volume:** 2.0 mL of blood  
**Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:** Hemolyzed specimens cannot be tested.

**Reference Interval:**  
Normal: > 5.4 ng/mL  
Indeterminate: 3.4 - 5.4 ng/mL  
Deficient: < 3.4 ng/mL

**Powerchart Orderable:** Folate - Serum

---

**Follicle Stimulating Hormone**

**Methodology:** Chemiluminescence  
**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**  
**Collect:** one SST/gel tube

**Minimum Volume:** 2.0 mL of blood  
**Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:**

**Reference Interval:** See report

**Powerchart Orderable:** FSH
**Foreign Bodies for Surgical Path. Identification**

**Methodology:** Histology  
**Performed:** Monday - Saturday. Turn around time is 24 hours.  
**Specimen Required:**  
Collect: All foreign bodies which have been separated from tissue samples or which have unusual adherent tissue, should be submitted in a properly labeled, dry container (see remarks).  
Minimum Volume:  
Transport/Stability:  
Remarks: The label must state the nature of the foreign body (e.g. glass, needle, plastic wire, etc.), its approximate size and specific source or origin. If it is difficult to see the object, it should be identified with a supravital dye or folded into a filter paper envelope.  
Reference Interval:  
**Powerchart Orderable:** Surgical Pathology (A request slip must also accompany the specimen)

**Free Thyroid Index**

**Methodology:** Calculation  
**Performed:** Monday - Saturday. Turn around time is 24 hours.  
**Specimen Required:**  
Collect: one SST/gel tube  
Minimum Volume: 0.5 mL of blood  
Transport/Stability:  
Remarks: Free Thyroid Index (FTI) is a calculation based on the total T4 and T-uptake values. FTI estimates Free T4 levels.  
Reference Interval: 1.1 - 3.3  
**Powerchart Orderable:** FTI

**Frozen Section**

**Methodology:** Histology  
**Performed:** As ordered. Turn around time is 15 minutes.  
**Specimen Required:**  
Collect: Fresh tissue  
Minimum Volume:  
Transport/Stability: Specimen must be delivered immediately to the Histology section of the Laboratory  
Remarks: The Histology section of the Laboratory must be notified that the specimen is being sent (extension 38). After  
Reference Interval:  
**Powerchart Orderable:** Surgical Pathology
**Fungal Blood Culture**

**Methodology:** Culture  
**Synonyms:** Fungal Blood Culture; Blood - Fungus; Blood Culture for Fungus; Fungal Bone Marrow

**Performed:** 7 a.m. - 9 p.m.  Turn around time is 4 weeks.

**Specimen Required:**  
Collect: Blood or bone marrow in one heparin (green top) tube. Do NOT collect in culture bottles.  
Minimum Volume: 1.0 mL

**Transport/Stability:** Transport at room temperature. Specimen should be received within 2 hours of collection.

**Remarks:** Exam includes direct smear (Giemsa stain). Requests for fungal susceptibility testing require submittal of the isolate(s) to a reference laboratory. The physician must specify the antifungal agents to be tested.

Collection protocol:  
Carefully disinfect the skin in the area to be sampled, as you would for a routine blood culture collection, using both an alcohol scrub and iodine disinfection (see blood culture collection protocols). Carefully disinfect the top of the Vacutainer tube using the same procedure as for disinfecting the skin. Either collect the specimen directly into the Vacutainer tube or collect the specimen with a sterile disposable needle and syringe and aseptically transfer the specimen to the Vacutainer tube. Specimens are held for a 4-week incubation period.

**Reference Interval:**

**Powerchart Orderable:** Fungal Blood Culture

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**Fungal CSF Culture**

**Methodology:** Culture  
**Synonyms:** Fungal CSF Culture; CSF - Fungus; CSF Culture for Fungus

**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 weeks.

**Specimen Required:**  
Collect: CSF in a sterile conical CSF collection tube. The skin must be disinfected with iodine solution and/or alcohol, in the area to be sampled  
Minimum Volume: 1.0 mL

**Transport/Stability:** Transport at room temperature. Specimen must be received within 2 hours of collection.

**Remarks:** Exam includes direct smear (gram stain and/or Giemsa stain). India Ink preparations are NOT performed. If the specimen is being submitted to rule out Cryptococcal Meningitis, a Cryptococcal Antigen should be ordered. (See Serology Testing Section). Specimens are held for a 2-week incubation period. Requests for fungal susceptibility testing require submittal of the isolate(s) to a reference laboratory. The physician must specify the antifungal agents to be tested.

**Reference Interval:**

**Powerchart Orderable:** Fungal CSF Culture
### Fungus Culture - Comprehensive

**Methodology:** Culture  
**Synonyms:** Fungus Culture - Comprehensive; Fungus Smear and Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 4 weeks.

#### Specimen Required:
- **Collect:** Aspirates and respiratory specimens in a clean, sterile, leakproof container. Tissue should be submitted in a clean, sterile, leakproof container with some sterile saline added for hydration. Swabs should be submitted in Culturettes.
- **Minimum Volume:** 1 mL or 1 swab
- **Transport/Stability:** Transport at room temperature. Aspirates, tissue and respiratory specimens must be received within 2 hours of collection. Culturette swabs are stable for 48 hours after collection.
- **Remarks:** Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain and/or Giemsa stain). Specimens are held for a 4 week incubation period and are screened for all types of fungal growth. Requests for fungal susceptibility testing require submittal of the isolate(s) to a reference laboratory. The physician must specify the antifungal agents to be tested. NOTE: Urine, urogenital specimens and upper respiratory specimens (mouth, nose & throat) are screened for growth of yeast only, unless specially requested to look for other fungi, and should be ordered as Fungus Culture - Yeast Screen. Specimens collected to rule out Dermatophytes (Ringworm (skin/hair/nails)) should be ordered as Dermatophyte Screening Culture. Stool/rectal specimens are NOT accepted for fungal culture.

#### Reference Interval:

**Powerchart Orderable:** Fungus Culture Comprehensive

### Fungus Culture (Skin-Hair-Nails)

**Methodology:** Culture  
**Synonyms:** Fungus Culture (Skin-Hair-Nails); Dermatophyte Screen; Fungus Derm; Fungus Culture - DTM Slant; Fungus/Skin-

**Performed:** 7 a.m. - 9 p.m. Turn around time is 4 weeks.

#### Specimen Required:
- **Collect:** Skin scrapings, hair clippings or nail clippings in a clean, sealable container or inoculate directly onto DTM culture media.
- **Minimum Volume:**
- **Transport/Stability:** Transport at room temperature. Specimens may be received up to 72 hours after collection.
- **Remarks:** Specimens must be labeled with complete source and body site information. Exam includes direct smear (KOH Prep). Specimens are held for a 4-week incubation period. Cultures are primarily screened for the growth of Dermatophytes only (Trichophyton/Microsporum/Epidermophyton). The presence of other saprophytic molds and yeasts will be reported but these isolates will not be extensively identified. Requests for fungal susceptibility testing require submittal of the isolate(s) to a reference laboratory. The physician must specify the antifungal agents to be tested. Collection Note: Small pieces of nail material (small clippings and shavings) yield much better smear and culture results than large, thick pieces.

#### Reference Interval:

**Powerchart Orderable:** Fungus Culture Dermatophyte Screen
**Fungus Culture, Yeast Screen**

**Methodology:** Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 2 weeks.  
**Specimen Required:**
- Collect: Urogenital specimens (vaginal/urethral) and upper respiratory specimens (mouth/nose/throat) using a culturette swab. Collect urine in a vacutainer urine transport tube (gray top).
- **Minimum Volume:** 1 swab or 1 mL of urine
- **Transport/Stability:** Transport at room temperature. Culturette swabs are stable for 48 hours after collection. Urine transport tubes are stable for 24 hours after collection.
- **Remarks:** Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain). Cultures are primarily screened for the growth of yeast; however, any growth of filamentous fungi will also be reported. Cultures are held for a 2-week incubation period. Requests for fungal susceptibility testing require submittal of the isolate(s) to a reference laboratory. The physician must specify the antifungal agents to be tested. Yeast Screening Cultures may be ordered for Urine, Urogenital and Upper Respiratory specimens only. Any other body sites must be ordered under “Fungus Culture – Comprehensive”.
- **NOTE:** Urine specimens not submitted in Vacutainer transport tubes are NOT optimal for culture as contaminants may overgrow and/or pathogens may die off. These specimens require refrigerated transport and storage and are only stable for 24 hours after collection.

**Reference Interval:**
**Powerchart Orderable:** Fungus Culture Yeast Screen

**Fungus, Smear Only**

**Methodology:** Stain  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 24 hours.  
**Specimen Required:**
- Collect: Culturette swab or clean, sterile, leakproof container
- **Minimum Volume:** 1 swab or 1 mL of specimen
- **Transport/Stability:** Transport at room temperature. Swabs are stable for 48 hours after collection. Other specimens must be received within 2 hours of collection.
- **Remarks:** Specimens must be labeled with complete source and body site information. Exam may include gram stain, Giemsa stain and/or KOH prep. Exam does not include culture and is designed for a quick evaluation of the specimen for the presence of fungal elements only. Smears alone are often insufficient to rule out fungal infection.

**Reference Interval:**
**Powerchart Orderable:** Fungus Smear Only

**Gamma Glutamyl Transferase**

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- Collect: one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:**
- **Reference Interval:** 5 - 85 U/L
- **Powerchart Orderable:** GGT
**Gastric Aspirate, Wright Stain/Gram Stain**

Methodology: Manual

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: gastric aspirate in a clean, dry, container.
- Minimum Volume: 0.5 mL of aspirate

Transport/Stability:
- Remarks: Deliver immediately to the Laboratory and notify Laboratory staff when you arrive with the specimen.

Reference Interval: See report

Powerchart Orderable: Gastric Aspirate - Wright Stain

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**GC Culture**

Methodology: Culture

Performed: 7 a.m. - 9 p.m. Turn around time is 3 days.

Specimen Required:
- Collect: Plated directly onto "In Tray" GC culture system. Pull back the lower right corner adjacent to the clear window of the InTray lid until protective seal over the medium is completely visible. Remove the seal by pulling the tab and discard the seal. Inoculate the specimen on to the surface of the medium using customary inoculation methods.
- Minimum Volume:
- Transport/Stability: Puncture the seal over the chamber containing the CO2 generator tablet with a pointed object. Firmly reseal the InTray by pressing together the edges of the lid against the plastic tray. Do not press the window against the agar. Maintain the InTray at 35-37 degrees C (in incubator) and transport to the laboratory as soon as possible.
- Remarks: GC are extremely fragile organisms and will rapidly die off if proper transport conditions are not maintained. DNA probe is a more stable and sensitive method for the detection of GC in Urogenital specimens. See Chlamydia/GC DNA Probe specimen collection information.

Reference Interval:

Powerchart Orderable: GC Culture

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**Gentamicin**

Methodology: Petinia

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood

Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.

Remarks: Draw the peak sample 60 minutes after IM injection; 30 minutes after a 30 minute IV infusion; or within 15 minutes of a 60 minute IV infusion. Draw the trough sample one hour prior to the dose. Clearly label the tubes as "Peak" or "Trough".

Reference Interval:
- Trough: < 2.0 ug/mL
- Peak: 4.0 - 8.0 ug/mL

Powerchart Orderable: Gentamicin - Peak; Gentamicin - Trough; Gentamicin - Random
Giardia/Cryptosporidium Screen

Methodology: IFA

Performed: Tuesday/Thursday/Sunday. Turn around time is 3 days.

Synonyms: Giardia/Cryptosporidium Screen; Giardia Antigen Screen; Cryptosporidium Screen by IFA; Giardia/Crypt; O&P

Specimen Required:
- Collect: Stool specimen in 10% formalin O&P collection container
- Minimum Volume: Add specimen to fill line on container
- Transport/Stability: Transport at room temperature. Specimens are stable for up to 1 week after collection
- Remarks: Due to the increased sensitivity of the IFA over tradition O&P exam, only one specimen will be tested per week. Multiple specimen collections are not necessary. Specimens from inpatients developing diarrhea after 3 days of admission are not acceptable.

NOTE: Giardia/Cryptosporidium screening has replaced the traditional O&P examination for routine O&P requests. If medical or travel history indicates that the possible presence of other ova or parasites be ruled out, a comprehensive O&P exam should be ordered. Pertinent patient history must accompany these requests.

Reference Interval:

Powerchart Orderable: Giardia/Cryptosporidium Screen

Gliadin Antibodies, IgA & IgG

Methodology: Reference Laboratory

Performed: As ordered. Turn around time is 1-4 days.

Synonyms: Gliadin Antibodies, IgA & IgG; Anti-Gliadin Antibody; Gliadin Ab

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 2.0 mL of blood
- Transport/Stability: After separation from clot, stable for 2 days at room temperature.
- Remarks:

Reference Interval: See report

Powerchart Orderable: Anti-Gliadin Antibody
Glucose Tolerance Test

Methodology: Colormetric  
Synonyms: Glucose Tolerance Test; GTT

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: Depending on the length of the test, one gray top tube is drawn at the following intervals (for inpatients, please notify the Laboratory in advance of the collection times):
1/2 hour after beginning to drink the glucose solution
1 hour after beginning to drink the glucose solution
2 hours after beginning to drink the glucose solution
3 hours after beginning to drink the glucose solution
4 hours after beginning to drink the glucose solution
5 hours after beginning to drink the glucose solution

Minimum Volume: 1.0 mL of blood for each collection tube

Transport/Stability: Stable for 24 hours at room temperature.

Remarks: PRIOR TO THE TEST:
- The patient should have had 3 days of unrestricted diet and physical activity, and be fasting for 10 hours but no more than 16 hours prior to the test.
- The patient must not be on any intravenous solutions.
- A one touch glucose should be used to obtain the fasting level. A venous specimen should also be collected at the same time in a SST/corvac tube. Please call the one touch glucose level to the Chemistry department (x3806) and await the technologists instructions before administering the drink.
- The recommended dose of glucose solution (Trutol) is 75 grams for non-pregnant adults and 100 grams for pregnant females. If the patient weighs less than 100 pounds, give 1 oz of glucose solution for every 4.3 kg of body weight.
- The patient must drink the entire contents of the glucose solution within 5 minutes.

DURING THE TEST
- the patient must remain at rest in bed or in a chair
- the patient may drink small quantities of water
- the patient cannot smoke or chew gum
- the patient must not eat
- notify the Laboratory if the patient vomits, is unusually drowsy, or if there are any other unusual occurrences.

Reference Interval: See report

Powerchart Orderable: Send requisition to the Laboratory

Glucose, Fluid

Methodology: Colormetric  
Synonyms: Glucose, Fluid

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: one plain red top tube

Minimum Volume: 0.5 mL of fluid

Transport/Stability: Stable for 48 hours refrigerated.

Remarks: Most any fluid can be tested for glucose. Submit CSF in the tube supplied with the lumbar puncture kit instead of a red top tube.

Reference Interval: See report. Reference ranges will be printed when available.

Powerchart Orderable: Glucose - Fluid
**Glucose, Maternal Screen**

**Methodology:** Colormetric  
**Synonyms:** Glucose, Maternal Screen; MDS  
**Performed:** 7 a.m. - 4 p.m.  Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one gray top tube or one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.  
- **Remarks:** The patient does not need to be fasting. The patient is given a 50 gram glucose solution to drink and the blood specimen is drawn exactly 1 hour later. The patient should remain inactive and receive nothing by mouth (including tobacco) during the test period.  
**Reference Interval:** < 140 mg/dL at one hour after the dose  
**Powerchart Orderable:** Glucose - MDS

**Glucose, Serum**

**Methodology:** Colormetric  
**Synonyms:** Glucose, Serum; Glucose, Blood  
**Performed:** As ordered.  Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel or gray top tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.  
- **Remarks:** A fasting specimen is preferred. Using a SST/corvac tube is preferred in emergency situations, because additional tests may be added to this type of specimen. Routine tests for glucose only should be drawn in a gray top tube.  
**Reference Interval:** 74 - 106 mg/dL  
**Powerchart Orderable:** Glucose - Blood

**Glucose, Urine 24 hour**

**Methodology:** Colormetric  
**Synonyms:** Glucose, Urine 24 hour  
**Performed:** 7 a.m. - 8 p.m.  Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine in a 24 urine container  
- **Minimum Volume:** Submit entire collection  
- **Transport/Stability:** Stable for 5 days refrigerated.  
- **Remarks:** Collecting a 24 hours urine sample:  
  1. To start the collection, empty bladder and discard this specimen. This will be the start of the collection period. Write the date and time on the collection container.  
  2. DO NOT VOID directly into the container. Void into a clean container and then pour the specimen into the 24 container. Keep the container refrigerated during the collection period.  
  3. At precisely the same time that the collection was started 24 hours earlier, empty bladder one final time and add this specimen to the 24 hour collection container.  
  4. Deliver container to the Laboratory.  
**Reference Interval:** 0 - 500 mg/24 hours  
**Powerchart Orderable:** Glucose-24hr Urine
### Gram Stain

**Methodology:** Stain  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 24 hours.  
**Synonyms:** Gram Stain; Direct Smear - Bacteriology; Gram Stain - Smear Only  
**Specimen Required:**  
- **Collect:** Swab specimens on culturette swab. Collect tissue and aspirates in clean, sterile, leakproof container.  
- **Minimum Volume:** 1 swab or 1mL  
- **Transport/Stability:** Exam is designed for stat smears and material should be transported as soon as possible. Swabs are stable for 48 hours, other specimens must be received within 2 hours of collection. Transport at room temperature.  
- **Remarks:** Exam includes smear only, and is designed for a quick preliminary interpretation of the flora contained in a specimen. It should not be used as a replacement for culture, as smears are much less sensitive and may not detect all pathogens present. Most culture requests include a direct smear and do not require a gram stain to be ordered separately.  

**Reference Interval:**  
**Powerchart Orderable:** Gram Stain

### Haptoglobin

**Methodology:** Nephelometry  
**Performed:** Monday - Friday. Turn around time is 24 hours.  
**Synonyms:** Haptoglobin  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 0.5 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 1 week refrigerated.  
- **Remarks:**  
- **Reference Interval:** 30 - 200 mg/dL  
- **Powerchart Orderable:** Haptoglobin

### Hardware Culture

**Methodology:** Culture  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 3 days.  
**Synonyms:** Hardware Culture; Medical Device Implant Culture; Foreign Body Culture  
**Specimen Required:**  
- **Collect:** In clean sterile container.  
- **Minimum Volume:**  
- **Transport/Stability:** Transport at room temperature. Should be received within 2 hours of collection.  
- **Remarks:** Specimens must be labeled with complete source and body site information. Exam includes susceptibility testing, when relevant for the isolates recovered. Direct smears cannot be performed on hard solid objects. Objects cannot be plated to solid media, and are inoculated into broth medium only. Quantitation of bacterial growth is therefore not possible.  

**Reference Interval:**  
**Powerchart Orderable:** Microbiology Culture Request

### Helicobacter pylori Antibodies, IgG & IgA

**Methodology:** Reference Laboratory  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Synonyms:** Helicobacter pylori Antibodies, IgG & IgA; H. pylori evaluation; H. pylori Ab  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** After separation from cells, stable for 2 days at room temperature.  
- **Remarks:**  
- **Reference Interval:** See report  
- **Powerchart Orderable:** H. pylori Ab
## Helminth Identification

**Methodology:** Reference Laboratory  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 24 hours.  

**Specimen Required:**  
- **Collect:** Suspected parasitic worm in a clean, closed container. Formalin or alcohol may be added but is not necessary.  

**Minimum Volume:**  
**Transport/Stability:** Transport to the laboratory as soon as possible. Specimens delayed in transport should be refrigerated. Specimens should be received within 72 hours of collection.  

**Remarks:** Identification services are limited to the most commonly found macroscopic parasitic worms, primarily Ascarids and Tapeworms. Identification may be attempted on other Helminths but may be beyond the expertise of this laboratory to identify. NOTE: For the identification of Pinworm - refer to Pinworm Examination. For the identification of Filarial worms - refer to Blood Parasite Examination.  

**Reference Interval:**  
**Powerchart Orderable:** Helminth Identification

## Hemoglobin A1C

**Methodology:** High Performance Liquid Chromatography  
**Performed:** Monday - Friday. Turn around time is 24 hours.  

**Specimen Required:**  
- **Collect:** one lavender top tube  

**Minimum Volume:** 3.0 mL of blood  
**Transport/Stability:** Stable for up to 5 days - keep refrigerated.  
**Remarks:**  
**Reference Interval:** 4.0 - 6.2 % of Total Hemoglobin  
**Powerchart Orderable:** Hemoglobin A1C

## Hepatic Panel

**Methodology:** Synonyms: Hepatic Panel; AMA Hepatic Function Panel; LFT; Liver Profile  
**Performed:** As ordered. Turn around time is 4 hours.  

**Specimen Required:**  
- **Collect:** One SST/gel tube  

**Minimum Volume:** 4.0 mL of blood  
**Transport/Stability:** Centrifuged specimen stable for 24 hours refrigerated.  

**Remarks:** Includes: Albumin, Total Bilirubin, Direct Bilirubin, Alkaline Phosphatase, Total Protein, ALT (SGPT), and AST (SGOT).  
**Reference Interval:** See report  
**Powerchart Orderable:** AMA Hepatic Function Panel

## Hepatitis A IgM Antibody

**Methodology:** Chemiluminescence  
**Performed:** As ordered. Turn around time is 24 hours.  

**Specimen Required:**  
- **Collect:** one SST/gel tube  

**Minimum Volume:** 2 mL of blood  
**Transport/Stability:** Stable for 48 hours refrigerated.  

**Remarks:** Reactive specimens will be sent to the reference laboratory for confirmation. Equivocal specimens should be redrawn after a suitable interval as indicated by the clinical history of the patient. The performance of the Bayer Advia Centaur hepatitis assays has not been established with cord blood, neonatal specimens, children, or body fluids other than serum. The performance of the assays has not been established for populations of immunocompromised or immunosuppressed patients. Results from these individuals must be interpreted with caution.  
**Reference Interval:** Non-reactive  
**Powerchart Orderable:** Hepatitis A IgM Antibody
### Hepatitis B Core IgM Antibody

**Methodology:** Chemiluminescence  
**Synonyms:** Hepatitis B Core IgM Antibody; Hepatitis B Core Antibody  
**Performed:** As ordered. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2 mL of blood  
- **Transport/Stability:** Stable for 48 hours refrigerated.  
- **Remarks:** Reactive specimens will be sent to the reference laboratory for confirmation. Equivocal specimens should be redrawn after a suitable interval as indicated by the clinical history of the patient. The performance of the Bayer Advia Centaur hepatitis assays has not been established with cord blood, neonatal specimens, children, or body fluids other than serum. The performance of the assays has not been established for populations of immunocompromised or immunosuppressed patients. Results from these individuals must be interpreted with caution.  
**Reference Interval:** Non-reactive  
**Powerchart Orderable:** Hepatitis A IgM Antibody

### Hepatitis B Surface Antibody

**Methodology:** Reference Laboratory  
**Synonyms:** Hepatitis B Surface Antibody; HBSAb  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Stable for 7 days at room temperature.  
- **Remarks:** Any result greater than 10 IU/L implies immunity. For post-hepatitis B vaccine antibody testing guidelines, refer to MMWR 39(S2): 1-23, Feb 9, 1990.  
**Reference Interval:** See report  
**Powerchart Orderable:** Hepatitis B Surface Ab

### Hepatitis B Surface Antigen

**Methodology:** Chemiluminescence  
**Synonyms:** Hepatitis B Surface Antigen; HBSAg  
**Performed:** As ordered. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2 mL of blood  
- **Transport/Stability:** Stable for 48 hours refrigerated.  
- **Remarks:** Reactive specimens will be sent to the reference laboratory for confirmation. Equivocal specimens should be redrawn after a suitable interval as indicated by the clinical history of the patient. The performance of the Bayer Advia Centaur hepatitis assays has not been established with cord blood, neonatal specimens, children, or body fluids other than serum. The performance of the assays has not been established for populations of immunocompromised or immunosuppressed patients. Results from these individuals must be interpreted with caution.  
**Reference Interval:** Non-reactive  
**Powerchart Orderable:** Hepatitis B Surface Ag
### Hepatitis C Virus Antibody

**Methodology:** Chemiluminescence  
**Synonyms:** Hepatitis C Virus Antibody; HCV Antibody; Hepatitis C Ab; HCV Ab  
**Performed:** As ordered. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Stable for 48 hours refrigerated.  
- **Remarks:** Reactive specimens will be sent to the reference laboratory for confirmation. Equivocal specimens should be redrawn after a suitable interval as indicated by the clinical history of the patient. The performance of the Bayer Advia Centaur hepatitis assays has not been established with cord blood, neonatal specimens, children, or body fluids other than serum. The performance of the assays has not been established for populations of immunocompromised or immunosuppressed patients. Results from these individuals must be interpreted with caution.  
**Reference Interval:** Non-reactive  
**Powerchart Orderable:** Hepatitis C Ab

### Hepatitis C Virus RNA Quantitative by PCR

**Methodology:** Reference Laboratory  
**Synonyms:** Hepatitis C Virus RNA Quantitative by PCR; HCV Quant - PCR  
**Performed:** As ordered. Turn around time is 3-6 days.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Stable for 30 minutes at room temperature. Must be separated from cells within 2 hours. After separation, stable for 12 hours refrigerated or 4 months frozen.  
- **Remarks:**  
**Reference Interval:** Less than 200 IU/mL  
Less than log 2.3 IU/mL  
**Powerchart Orderable:** Hepatitis C Virus RNA Quantitative by PCR

### Hepatitis Panel, Acute

**Methodology:** Chemiluminescence  
**Synonyms:** Hepatitis Panel, Acute; AMA Acute  
**Performed:** As ordered. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 4 mL of blood  
- **Transport/Stability:** Stable for 48 hours refrigerated.  
- **Remarks:** Reactive specimens will be sent to the reference laboratory for confirmation. Equivocal specimens should be redrawn after a suitable interval as indicated by the clinical history of the patient. The performance of the Bayer Advia Centaur hepatitis assays has not been established with cord blood, neonatal specimens, children, or body fluids other than serum. The performance of the assays has not been established for populations of immunocompromised or immunosuppressed patients. Results from these individuals must be interpreted with caution.  
**Reference Interval:** Negative  
**Powerchart Orderable:** AMA Acute Hepatitis Panel
Herpes Culture
Methodology: Reference Laboratory
Performed: As ordered. Turn around time is 1-7 days.
Specimen Required:
Collect: mouth swab or washing, vesicle swab or fluid, or cervical or genital lesion swab. Immediately place vesicle fluid, swab, or tissue in viral transport media or whole blood or bone marrow in one 5 mL lavender top tube. Source of specimen is required.
Minimum Volume: 
Transport/Stability: Stable for 2 hours at room temperature and 3 days refrigerated.
Remarks:
Reference Interval: No virus isolated.
Powerchart Orderable: Herpes Culture

Herpes Simplex Virus Type 1 and 2 Antibodies
Methodology: Reference Laboratory
Performed: As ordered. Turn around time is 2-5 days.
Specimen Required:
Collect: one SST/gel tube
Minimum Volume: 1.0 mL of blood
Transport/Stability: After separation from clot, stable for 2 days at room temperature.
Remarks:
Reference Interval: See report
Powerchart Orderable: Herpes I&II Ab IgG/M

Heterophile Antibody
Methodology: Latex Agglutination
Performed: Daily. Turn around time is 24 hours.
Specimen Required:
Collect: one SST/gel tube
Minimum Volume: 1.0 mL of blood
Transport/Stability: Separated serum is stable for 48 hours at 2 - 8°C. Freeze for extended storage.
Remarks: The testing of hemolyzed specimens is not recommended.
Reference Interval: Negative
Powerchart Orderable: Heterophile, Mono

High Density Lipoprotein (HDL)
Methodology: Colormetric
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
Collect: one SST/gel tube
Minimum Volume: 2.0 mL of blood
Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.
Remarks: Fasting specimen preferred
Reference Interval: See report
Powerchart Orderable: HDL
**HIV-1/2 Antibody**

**Methodology:** Qualitative Immunoassay  
**Performed:** As Ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one EDTA lavender top tube and one SST/gel tube.
- **Minimum Volume:** 1 mL EDTA whole blood
- **Transport/Stability:** Deliver immediately to the Laboratory. Specimen stable for 5 days at 2-30 degrees C.
- **Remarks:** Testing is limited to:
  - Maternity patients and their newborns
  - COH Exposure protocol

All positive/reactive results will be sent for confirmatory analysis.

**Reference Interval:** Negative/Non-reactive

**Powerchart Orderable:** HIV-1 Ab RapidSCREEN

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**Hold Clot**

**Methodology:** None  
**Performed:** As ordered. No testing performed.

**Specimen Required:**
- Collect: one 7 mL lavender top tube. All patients having a hold clot must have a yellow armband label applied to their wrist and the tube. Specimens received without a yellow armband will be rejected.
- **Minimum Volume:** 4.0 mL of blood
- **Transport/Stability:** Stable at room temperature for 24 hours.
- **Remarks:** No testing is performed on a hold clot. Testing may be added at any time within 72 hours of collection by calling the Blood Bank at extension 3816.

Collection of a properly labeled blood sample from the intended recipient of blood is critical to safe blood transfusion. Most hemolytic transfusion reactions result from errors in patient or sample identification. Clerical errors such as improper identification of the patient at the time the specimen is drawn, transcription errors, mislabeling of the blood product or misidentification of the patient at the time of transfusion accounts for 73% of the preventable occurrences of transfusion associated fatalities. The person drawing the blood sample must identify the intended recipient in a positive manner, most effectively done by comparing the information on the request form (or computer labels) with the information on the patient’s identification band. The phlebotomist must not rely on a bed tag or on charts or records placed nearby. After positive identification, the sample is drawn and the patient is armbanded with a yellow typenex armband.

**Reference Interval:**

**Powerchart Orderable:** Hold Clot

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**Homocysteine, Total**

**Methodology:** Chemiluminescence  
**Performed:** As ordered. Turn around time is 24 hours.

**Specimen Required:**
- Collect: one SST/gel tube. Fasting specimen is preferred.
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Must be separated immediately after collection. Stable for 7 days refrigerated.
- **Remarks:** Plasma total homocysteine is a graded risk factor for cardiovascular disease. The risk increases progressively with homocysteine concentration. Maintenance of homocysteine levels below 15 umol/L is recommended. False elevation of plasma or serum homocysteine may occur if the plasma or serum is not promptly separated from the cells at the time of collection. Total homocysteine levels will increase with age, smoking, and many drugs.

**Reference Interval:** 5.0 - 13.9 umol/L

**Powerchart Orderable:** Homocysteine - Blood
### Human Chorionic Gonadotropin, Serum Qualitative

**Methodology:** ELISA  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- Minimum Volume: 1.0 mL of blood  
- Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.  
**Remarks:**  
- Reference Interval: Negative  
- Powerchart Orderable: HCG - Qualitative Blood

### Human Chorionic Gonadotropin, Serum Quantitative

**Methodology:** ELISA  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- Minimum Volume: 1.0 mL of blood  
- Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.  
**Remarks:**  
- Not to be used as a tumor marker. If testing for tumor marker is desired, order HCG - tumor marker.  
- Reference Interval:  
  - Males: < 5mIU/mL  
  - Non-pregnant Females: < 5mIU/mL  
  - Pregnant Females: See report  
- Powerchart Orderable: HCG Quantitative - Blood

### Human Immunodeficiency Virus 1 Antibody

**Methodology:** Reference Laboratory  
**Performed:** As ordered. Turn around time is 1-4 days.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- Minimum Volume: 4.0 mL of blood  
- Transport/Stability: Stable for 1 week refrigerated.  
**Remarks:** All repeatedly reactive EIA results will be confirmed by Western blot.  
**Reference Interval:** Negative  
**Powerchart Orderable:** Immuno I Panel
### Human Papillomavirus (HPV) DNA Probe

**Methodology:** Thin Prep  
**Synonyms:** Human Papillomavirus; HPV  
**Performed:** Monday - Friday (8a-4p). Turn around time is 3-4 days.

**Specimen Required:**
- **Collect:** Pap Smear at any time and preserve in Thin Prep "PreservCyt" vial. For evaluation of patients of child bearing age, a mid-cycle FAST SMEAR is recommended. Thinprep vials with incorrect or missing information may be rejected.

**Minimum Volume:**
**Transport/Stability:** Specimens should be preserved in Thinprep preservative.

**Remarks:**
- FAST SMEAR: combines the vaginal pool smear and the Cervical scraping smear on one slide. It is the smear recommended for routine cancer detection.
- VAGINAL POOL SMEAR: Is made by placing a drop of fluid from the posterior fornix on the glass slide and then spreading the fluid evenly with the gloved finger. This material may be obtained by the use of a glass pipetted, a tongue blade, a cervical scraper, or the posterior lip of the speculum.
- CERVICAL SCRAPING SMEAR: Is made by placing the small end of the cervical scraper through the external os and high into the canal, rotating the spatula a 360 degree thoroughly scraping the squamocolumnar junction and obtaining a good endocervical component. This material dries very rapidly and must be spread onto the slide and fixed immediately.
- CERVICAL BRUSH SAMPLE: Is obtained by inserting the cytobrush into the os so that the last row of bristles is still visible, rotating the brush one quarter turn and removing.
- CERVICAL BROOM SAMPLE: Insert the narrow end of broom into os, press wide part against the endocervix, rotate five full turns and withdraw the broom.
- THINPREP SAMPLES: Are preserved by pressing cervical brush/broom against the side of the vial and running it around the edge ten times or pressing the cervical broom against the bottom of the vial ten times forcing the bristles apart.
- HORMONAL EVALUATION: Can only be made on smears taken from the lateral vaginal wall and immediately fixed as above. All slides must be labeled in pencil with the patient name. A completed Cytology request slip must show the source of the specimen.

**Reference Interval:**

**Powerchart Orderable:**

### Immunoelectrophoresis, Serum

**Methodology:** Electrophoresis  
**Synonyms:** Immunoelectrophoresis, Serum; Immunofixation Electrophoresis; IEP  
**Performed:** Monday - Friday. Turn around time is 48 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.

**Remarks:** Results include quantitative values for IgA, IgG, and IgM.

**Reference Interval:** See report  

**Powerchart Orderable:** Immunoelectrophoresis - Blood

### Immunoelectrophoresis, Urine

**Methodology:** Electrophoresis  
**Synonyms:** Immunoelectrophoresis, Urine; Bence Jones Protein; BJ Protein  
**Performed:** Monday - Thursday. Turn around time is 72 hours.

**Specimen Required:**
- **Collect:** urine in clean, dry container  
- **Minimum Volume:** 30.0 mL of urine  
- **Transport/Stability:** Specimen stable for 72 hours refrigerated.

**Remarks:** First voided specimen in the morning is recommended.

**Reference Interval:** See report  

**Powerchart Orderable:** Bence Jones Protein
**Influenza Virus A&B Antigen**

**Methodology:** Optical Immunoassay  
**Synonyms:** Influenza Virus A&B Antigen

**Performed:** once per shift. Turn around time is 8-12 hours.

**Specimen Required:**
- **Collect:** nasal-pharyngeal swab or throat swab using 1 rayon or dacron swab. Collect nasal aspirate or sputum in a clean, leak proof container.
- **Minimum Volume:** 1 swab or 0.5 ml of specimen
- **Transport/Stability:** Store at 2 - 8°C. Specimen must be tested within 24 hours of collection.
- **Remarks:** Proper collection technique is critical for the identification of influenza A or B in clinical specimens. Swabs with wooden shafts, calcium alginate swabs, Culturette EZ swabs (sponge), cotton swabs, or swabs in transport devices containing charcoal or semi-solid or liquid media, may interfere with the test results and should not be used for specimen collection. Swabs should not be placed in Viral Transport Media, as this will dilute the specimen. Recommended procedures for specimen collection follow:
  1. Throat swabs - Vigorously rub a rayon or dacron swab on both tonsillar surfaces and/or the posterior pharynx. Remove swab from mouth and insert, tip down, into culturette device for transport.
  2. Nasopharyngeal swabs - Insert a dacron nasopharyngeal (minitip) swab beneath the inferior turbinate of either nare and vigorously rub and roll against the mucosal surface. Remove swab from nose and insert, tip down, into culturette device for transport.
  3. Nasal aspirates - Insert a depressed bulb syringe deeply into either nare and suction while withdrawing. Expel collected specimen into a sterile specimen container for transport.
  4. Sputum - Obtain sputum by deep cough either spontaneously or via mechanical induction. Collect specimen in a sterile container for transport.

**Reference Interval:** Negative

**Powerchart Orderable:** Influenza Virus A & B

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**Insulin, Random**

**Methodology:** Reference Laboratory  
**Synonyms:** Insulin, Random; Insulin Level

**Performed:** As ordered. Turn around time is 1-3 days.

**Specimen Required:**
- **Collect:** one SST/gel tube.
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 8 hours at room temperature or 1 week refrigerated.
- **Remarks:** Separate serum from cells as soon as possible after collection.

**Reference Interval:** Not established. The reference interval for a fasting insulin level is 5 - 27 uIU/mL.

**Powerchart Orderable:** Insulin Level

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**Iron, Total**

**Methodology:** Colormetric  
**Synonyms:** Iron, Total; Fe

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:** If a % transferrin saturation is needed, an order for TIBC must also be placed.

**Reference Interval:** 50 - 175 ug/dL

**Powerchart Orderable:** Iron (Fe)
IV Device Culture, Quantitative

Methodology: Synonyms: IV Device Culture, Quantitative; IVD Culture; Catheter Tip Culture - Quantitative; Cath Tip Culture
Performed: 7 a.m. - 9 p.m.. Turn around time is 3 days.
Specimen Required:
  Collect: A piece of the indwelling portion of an IV device in a clean, sterile container.
  Minimum Volume: A piece of catheter between 1 and 2 inches long
  Transport/Stability: Transport at room temperature. Specimen must be received within 2 hours of collection.
  Remarks: Specimens must be labeled with complete source and body site information, including the type of catheter submitted. Exam includes quantitation of microbial growth and susceptibility testing, when relevant for the isolates recovered. Direct smears (gram stain) cannot be performed from IV tubing.
  NOTE: The IV site must be properly disinfected (see Blood Culture requirements) before removal of the catheter, to prevent the introduction of cutaneous contaminants.

Reference Interval:
Powerchart Orderable: Microbiology Culture Request

Lactate Dehydrogenase

Methodology: Synonyms: Lactate Dehydrogenase; LD; LDH
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
  Collect: one SST/gel tube
  Minimum Volume: 1.0 mL of blood
  Transport/Stability: Centrifuged specimen stable for 48 hours at room temperature.
  Remarks:
Reference Interval: 100 - 190 U/L
Powerchart Orderable: LDH

Lactate Dehydrogenase Isoenzymes

Methodology: Reference Laboratory Synonyms: Lactate Dehydrogenase Isoenzymes; LD Isoenzymes; LDH Isoenzymes
Performed: Within 3 days of collection. Turn around time is 48 hours.
Specimen Required:
  Collect: one SST/gel tube
  Minimum Volume: 1.0 mL of blood
  Transport/Stability: Centrifuged specimen stable for 72 hours at room temperature.
  Remarks: Report includes Total Lactate Dehydrogenase.
Reference Interval: See report
Powerchart Orderable: LDH Isoenzymes

Lactic Acid

Methodology: Synonyms: Lactic Acid; Lactate
Performed: As ordered. Turn around time is 4 hours.
Specimen Required:
  Collect: one gray top tube
  Minimum Volume: 2.0 mL of blood
  Transport/Stability: Centrifuge specimen within 15 minutes of collection, remove the plasma, and store refrigerated. Plasma must be tested within 24 hours of collection.
  Remarks: Place the gray top tube on ice and deliver to the Laboratory immediately.
Reference Interval: 0.4 - 2.0 mmol/L
Powerchart Orderable: Lactic Acid
**Lead, Blood Capillary**

Methodology: Reference Laboratory  
Synonyms: Lead, Blood Capillary  
Performed: As ordered. Turn around time is 2-4 days.  
Specimen Required:  
- Collect: one lavender microtainer tube  
- Minimum Volume: 0.5 mL of blood  
- Transport/Stability:  
- Remarks: This test should only be ordered for specimens obtained using skin puncture. Venous specimens should be ordered as Lead, Blood Venous.  
Reference Interval: See report  
Powerchart Orderable: Lead/Capillary

**Lead, Blood Venous**

Methodology: Reference Laboratory  
Synonyms: Lead, Blood Venous  
Performed: As ordered. Turn around time is 2-4 days.  
Specimen Required:  
- Collect: one tan EDTA tube or one lavender tube.  
- Minimum Volume: 1.0 mL of blood  
- Transport/Stability:  
- Remarks: This test is for venous collection only. For specimens obtained using skin puncture, see Lead, Blood Capillary.  
Reference Interval: See report  
Powerchart Orderable: Lead/Venous

**Leukocyte Alkaline Phosphatase**

Methodology: Manual  
Synonyms: Leukocyte Alkaline Phosphatase; LAP  
Performed: Monday - Friday. Turn around time is 1-7 days.  
Specimen Required:  
- Collect: one green top tube and 7-8 thin smears on glass slides. Smears made from a fingerstick are preferred.  
- Minimum Volume: 3.0 mL of blood  
- Transport/Stability: Deliver to the Laboratory with 12 hours of collection.  
- Remarks:  
- Reference Interval: 13 - 130  
Powerchart Orderable: LAP

**Lipase**

Methodology: Colormetric  
Synonyms: Lipase  
Performed: As ordered. Turn around time is 4 hours.  
Specimen Required:  
- Collect: one SST/gel tube  
- Minimum Volume: 1.0 mL of blood  
- Transport/Stability: Centrifuged specimen stable for 1 week refrigerated.  
- Remarks:  
- Reference Interval: 73 - 393 U/L  
Powerchart Orderable: Lipase
### Lipid Profile

**Methodology:** Synonyms: Lipid Profile; AMA Lipid Panel; Lipid Panel; Cardio Eval; Cardiovascular/Lipid Evaluation  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** One SST/gel tube  
- **Minimum Volume:** 4.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.  
- **Remarks:** Fasting specimen preferred. Includes: Total Cholesterol, HDL Cholesterol, and Tryglycerides.  
**Reference Interval:** See individual tests  
**Powerchart Orderable:** AMA Lipid Panel

### Lithium

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Lithium  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.  
- **Remarks:** Patient should be in a "steady state" concentration. Draw specimen at least 12 hours after last dose.  
**Reference Interval:** Less than 1.6 mEq/L  
- Toxic: > 1.6 mEq/L  
**Powerchart Orderable:** Lithium

### Low Density Lipoprotein

**Methodology:** Calculation  
**Synonyms:** Low Density Lipoprotein; LDL  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 4.0 mL of blood  
- **Transport/Stability:**  
- **Remarks:** Please order a Cardiovascular Evaluation. LDL is a calculated result based on the Cholesterol, HDL, and Triglyceride results.  
**Reference Interval:** See report  
**Powerchart Orderable:** AMA Lipid Panel

### Low Molecular Weight Heparin Level

**Methodology:** Chromogenic/Inhibition of Factor  
**Synonyms:** Low Molecular Weight Heparin Level; Heparin Level; LMWH; Lovenox Level; Enoxaparin Level; Anti-Xa(LMWH)  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** One full 2.7 mL blue top tube (3.2% sodium citrate). Specimen may be rejected if the tube is not full.  
- **Minimum Volume:** 4.5 mL of blood  
- **Transport/Stability:** Specimen is stable for 2 hours at room temperature. Stability can be extended to 1 week if platelet poor plasma is frozen at -20 degrees C.  
- **Remarks:**  
**Reference Interval:** Therapeutic Range = 0.5 - 1.2 IU/mL  
**Powerchart Orderable:** Heparin Level (Low Molecular Weight)
**Lupus Anticoagulant Panel**

**Methodology:** Reference Laboratory  
**Synonyms:** Lupus Anticoagulant Panel  
**Performed:** As ordered. Turn around time is 1-4 days.  
**Specimen Required:**  
- **Collect:** one light blue top tube  
- **Minimum Volume:** one full blue top tube  
- **Transport/Stability:** Stable refrigerated for 24 hours.  
- **Remarks:** If the Partial Thromboplastin Time-D and the Dilute Russell Viper Venom Time are normal no further testing is performed.  
**Reference Interval:** See report  
**Powerchart Orderable:** Lupus Anticoagulant

**Luteinizing Hormone**

**Methodology:** Chemiluminescence  
**Synonyms:** Luteinizing Hormone; LH  
**Performed:** Monday - Friday. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 4.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.  
**Remarks:**  
**Reference Interval:** See report  
**Powerchart Orderable:** LH

**Lyme Antibody, IgG and IgM Screen**

**Methodology:**  
**Synonyms:** Lyme Antibody, IgG and IgM Screen; Lyme Disease Antibody Screen; Lyme Ab Screen; Lyme Ab IgG/M; Borrelia  
**Performed:** Monday/Wednesday/Friday. Turn around time is 3 days.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Separated serum is stable for 5 days at 2 - 8°C. Freeze for extended storage.  
- **Remarks:** Positive or equivocal specimens are sent to a reference laboratory for confirmation.  
**Reference Interval:** Negative  
**Powerchart Orderable:** Lyme Ab IgG/M Screen - GFH

**Lymph Node Studies**

**Methodology:** Histology  
**Synonyms:** Lymph Node Studies; Surgical Pathology; Histology  
**Performed:** Monday - Thursday (before 1 p.m.). Turn around time is 2 days.  
**Specimen Required:**  
- **Collect:** Lymph node specimens should be submitted in a dry, sterile container along with a completed request slip.  
- **Minimum Volume:**  
- **Transport/Stability:** Transport immediately to the Laboratory.  
- **Remarks:** These studies require that the tissue to be handled promptly as it is sent to a reference laboratory for additional studies. It is preferred that these specimens be received from Monday through Thursday to avoid the tissue from remaining unprocessed on weekends. Please notify the Histology section of the Laboratory (extension 3832) prior to sending the specimen as this will help to prevent misplacement, delays, or other adverse events. On the evening shift, night shift, and on weekends, the Pathologist-on-call should be notified prior to sending the specimen to the Laboratory. The Pathologist-on-call beeper number can be obtained from the Hospital operator or by calling the Laboratory.  
**Reference Interval:**  
**Powerchart Orderable:** Surgical Pathology
### Magnesium

**Methodology:** Colormetric  
**Synonyms:** Magnesium, Mg  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.  
**Remarks:**  
- **Reference Interval:** 1.8 - 2.4 mg/dL  
- **Powerchart Orderable:** Magnesium - Blood

### Methemoglobin

**Methodology:** Spectrophotometry  
**Synonyms:** Methemoglobin; Met Hgb  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one lavender top tube. (Green top tube - venous and blood gas sample - arterial are also acceptable for testing)  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Coordinate with Respiratory Therapy.  
**Remarks:** Do not expose specimen to the air. Specimen is drawn by the Laboratory and tested by Respiratory Therapy.  
- **Reference Interval:** 0.4 - 1.5 %  
- **Powerchart Orderable:** Met - Hemoglobin

### Microalbumin, Urine

**Methodology:** Petinia  
**Synonyms:** Microalbumin, Urine; Microalbumin - 24hr Urine  
**Performed:** as ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine in a clean dry container for a random specimen, or a 24 urine container for a 24 hour specimen.  
- **Minimum Volume:** entire 24 hour specimen or 5 mL random urine  
- **Transport/Stability:** Keep refrigerated.  
**Remarks:** Random urines will have a creatinine performed and the results will be reported as a microalbumin/creatinine ratio.  
- **Reference Interval:** < 30 mg/24 hours  
- **Powerchart Orderable:** Microalbumin - 24hr Urn/GFH

### Mitochondrial Antibody, IgG

**Methodology:** Reference Laboratory  
**Synonyms:** Mitochondrial Antibody, IgG; Anti-Mitochondrial Antibody  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** After separation from clot, stable for 2 days at room temperature.  
**Remarks:**  
- **Reference Interval:**  
  - < 1.0 Units: No antibody detected  
  - 1.0 - 1.3 Units: Inconclusive  
  - > 1.3 Units: Positive  
- **Powerchart Orderable:** Anti-Mitochondrial Antibody
Mixing Study, aPTT

**Methodology:** Clot Detection

**Synonyms:** Mixing Study, aPTT; Correction Study, aPTT

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.
- **Minimum Volume:** 4.5 mL of blood
- **Transport/Stability:** Specimen is stable for 4 hours at room temperature or 2 hours if the patient is receiving unfractionated heparin. Stability can be extended to 1 week if platelet poor plasma is frozen.

**Remarks:**
- Reference Interval: 23 - 32 seconds
- **Powerchart Orderable:** Correction Study APTT Screen

Mixing Study, PT

**Methodology:** Clot Detection

**Synonyms:** Mixing Study, PT; Correction Study, PT

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.
- **Minimum Volume:** 4.5 mL of blood
- **Transport/Stability:** Specimen is stable for 24 hours (centrifuged or uncentrifuged; refrigerated or room temperature)

**Remarks:**
- Reference Interval: 11.5 - 15.1 seconds
- **Powerchart Orderable:** Correction Study PT Screen

MRSA Screen

**Methodology:** Culture

**Synonyms:** MRSA Screen; MRSA Screening Culture; MRSA C&S; Methicilin Resistant Staphylococcus aureus

**Performed:** 7 a.m. - 9 p.m. Turn around time is 2 days.

**Specimen Required:**
- **Collect:** Swabs of cutaneous surfaces, mouth, nares, throat or wounds in culturette, urine in gray top vacutainer transport tube, and sputum in a sterile, leakproof container.
- **Minimum Volume:** 1 swab or 1 mL of urine or sputum
- **Transport/Stability:** Transport at room temperature. Sputum specimens must be received within 2 hours of collection. Urine specimens are stable for 24 hours. Swab specimens are stable for 48 hours after collection.

**Remarks:** Specimens must be labeled with complete source and body site information. Exam is designed to screen for continued colonization with MRSA on known or suspected patients. Susceptibility testing is not routinely performed. Isolates are saved and additional testing may be performed upon Physician request.

**Reference Interval:**

**Powerchart Orderable:** Microbiology Culture Request
**Muscle Biopsy**

**Methodology:** Histology  
**Performed:** Monday - Saturday. Turn around time is 2-3 weeks.

**Synonyms:** Muscle Biopsy; Surgical Pathology; Histology

**Specimen Required:**  
**Collect:** See remarks  
**Minimum Volume:**  
**Transport/Stability:** Prior arrangements must be made at least 3 days in advance with the Surgical Pathology office (extension 3838 or 3839). A Pathologist must be present to accept the specimen and the specimen must be accompanied by a completed request slip. Special arrangements need to be made so that the specimen can be frozen, placed in a special fixative, and shipped on dry ice to the reference Laboratory.

**Reference Interval:**  
**Powerchart Orderable:** Surgical Pathology

**Nasal Smear for Eosinophils**

**Methodology:** Wright Stain/Microscopy  
**Performed:** Weekdays (7a.m. - 3p.m.). Turn around time is 24 hours.

**Synonyms:** Nasal Smear for Eosinophils; Nasal Smear for Wrights Stain

**Specimen Required:**  
**Collect:** Nasopharyngeal Swab or nasal secretions smeared on a glass slide (air dried).  
**Minimum Volume:**  
**Transport/Stability:** Nasopharyngeal swab - 24 hours at room temperature. Smeared slide - 1 week.

**Remarks:** All nasal smears for eosinophils are reviewed by the Pathologist.

**Reference Interval:** Negative  
**Powerchart Orderable:** Nasal Smear for Polys/Eos

**Neutrophil Cytoplasmic Antibody, IgG**

**Methodology:** Reference Laboratory  
**Performed:** As ordered. Turn around time is 2-5 days.

**Synonyms:** Neutrophil Cytoplasmic Antibody, IgG; ANCA; Anti Neutrophil Cytoplasmic Ab

**Specimen Required:**  
**Collect:** one SST/gel tube  
**Minimum Volume:** 1.0 mL of blood  
**Transport/Stability:** After separation from the clot, stable for 2 days at room temperature.

**Remarks:**  
**Reference Interval:** < 1:16: Not significant  
**Powerchart Orderable:** Anti Neutrophil Cytoplasmic Ab

**N-Telopeptide**

**Methodology:** Reference Laboratory  
**Performed:** As ordered. Turn around time is 1-4 days.

**Synonyms:** N-Telopeptide

**Specimen Required:**  
**Collect:** second morning void or 24 hour urine specimen. Sample should be refrigerated during collection. No preservative required.  
**Minimum Volume:**  
**Transport/Stability:** Refrigerate during collection.

**Remarks:** A decrease of 30-40% from the NTx baseline after three months of therapy is a typical response to anti-resorptive therapy.

**Reference Interval:** Normal adult female:  
Premenopausal: 17-94 nM BCE/mM creatinine  
Postmenopausal: 26-124 nM BCE/mM creatinine  
Normal adult male: 21-83 nM BCE/mM creatinine

**Powerchart Orderable:** N-Telopeptide
### Occult Blood

**Methodology:** Guiac  
**Synonyms:** Occult Blood; Hemoccult; Guiac; Fecal Occult Blood  
**Performed:** Monday - Friday. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** stool in a clean, dry container or on a Hemoccult card  
- **Minimum Volume:** 5 cc of stool in a clean, dry container  
- **Transport/Stability:** Stable for 48 hours refrigerated.  
- **Remarks:** External iron sources will give a false positive result. The patient should not be taking iron medication and be on a low red meat diet for 3 days prior to testing.  
**Reference Interval:** None detected  
**Powerchart Orderable:** Occult Blood  

### Osmolality, Serum

**Methodology:** Freezing Point Depression  
**Synonyms:** Osmolality, Serum; Osmolarity  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 24 hours refrigerated.  
**Reference Interval:** Male: 280 - 300 mOsm/kg  
Female: 275 - 295 mOsm/kg  
**Powerchart Orderable:** Osmolarity - Blood  

### Osmolality, Urine

**Methodology:** Freezing Point Depression  
**Synonyms:** Osmolality, Urine; Osmolarity - Random Urine  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine in a clean, dry container  
- **Minimum Volume:** 1.0 mL of urine  
- **Transport/Stability:** Specimen stable for 24 hours refrigerated.  
- **Remarks:** Osmolality will vary with dietary intake.  
**Reference Interval:** Male: 390 - 1090 mOsm/kg  
Female: 300 - 1090 mOsm/kg  
Hospitalized patient's random urine range: 280 - 900 mOsm/kg  
**Powerchart Orderable:** Osmolarity - Random Urine  

### Osmolality, Urine 24 hour

**Methodology:** Freezing Point Depression  
**Synonyms:** Osmolality, 24 hour Urine; Osmolarity  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** urine in a 24 hour urine container (available from the Laboratory)  
- **Minimum Volume:** submit entire collection  
- **Transport/Stability:** Keep refrigerated during collection.  
- **Remarks:** Urine osmolality will vary with dietary intake.  
**Reference Interval:** Male: 770 - 1630 mOsm/kg  
Female: 430 - 1150 mOsm/kg  
**Powerchart Orderable:** Osmolarity - 24hr Urine
**Ova & Parasite Examination, Comprehensive**

**Methodology:** Reference Laboratory  
**Performed:** 7 a.m. - 9 p.m. Turn around time is 4 days.

**Specimen Required:**
- Collect: Stool specimen in O&P collection containers (1 10% Formalin vial & 1 PVA vial). Collect urine and aspirates in a clean, leakproof container. Stool specimens from inpatients developing diarrhea after 3 days of admission are not acceptable.
- Minimum Volume: To fill line on collection containers
- Transport/Stability: Transport at room temperature. O&P collection containers are stable for 72 hours. Unpreserved specimens must be received within 2 hours of collection.
- Remarks: Exam includes Giardia/Cryptosporidium screen, wet prep of concentrated specimen and permanent stained smears. NOTE: Comprehensive O&P Examination on Stool Specimens is performed only when clinical or travel history indicates the likelihood of a Parasitemia other than Giardiasis or Cryptosporidiosis. Pertinent history should be included with the examination request. All other stool specimens submitted for O&P exam will be screened for Giardia & Cryptosporidium only.

**Reference Interval:**

**Powerchart Orderable:** Ova & Parasite Examination

---

**PAP Smear**

**Methodology:** Thin Prep  
**Performed:** Monday-Friday (8a-4p). Turn around time is 7-14 days.

**Specimen Required:**
- Collect: Smears at anytime and preserve in plastic thin prep "PreservCyt" vial. For evaluation of patients of child bearing age, a mid-cycle FAST SMEAR is recommended.
  - Smears may be rejected if they have been allowed to dry before fixation or are received without fixation or in an improper fixative.
  - Smears may also be rejected if they are received without the patients name written on vial or are not accompanied by a completed Cytology request form.
  - Thinprep vials with incorrect or missing patient information may also be rejected.
- Minimum Volume: Specimens should be preserved in 95% ethyl alcohol or Thinprep preservative.
- Transport/Stability: Specimens should be preserved in 95% ethyl alcohol or Thinprep preservative.
- Remarks: FAST SMEAR: combines the vaginal pool smear and the Cervical scraping smear on one slide. It is the smear recommended for routine cancer detection. VAGINAL POOL SMEAR: Is made by placing a drop of fluid from the posterior fornix on the glass slide and then spreading the fluid evenly with the gloved finger. This material may be obtained by the use of a glass pipetted, a tongue blade, a cervical scraper, or the posterior lip of the speculum. CERVICAL SCRAPING SMEAR: Is made by placing the small end of the cervical scraper through the external os and high into the canal, rotating the spatula a 360 degree thoroughly scraping the squamocolumnar junction and obtaining a good endocervical component. This material dries very rapidly and must be spread onto the slide and fixed immediately. CERVICAL BRUSH SAMPLE: Is obtained by inserting the cytobrush into the os so that the last row of bristles is still visible, rotating the brush one quarter turn and removing. CERVICAL BROOM SAMPLE: Insert the narrow end of broom into os, press wide part against the endocervix, rotate five full turns and withdraw the broom. THINPREP SAMPLES: Are preserved by pressing cervical brush/broom against the side of the vial and running it around the edge ten times or pressing the cervical broom against the bottom of the vial ten times forcing the bristles apart. HORMONAL EVALUATION: Can only be made on smears taken from the lateral vaginal wall and immediately fixed as above. All slides must be labeled in pencil with the patient name. A completed Cytology request slip must show the source of the specimen.

**Reference Interval:**

**Powerchart Orderable:** Cytology - PAP Smear
**Parathyroid Hormone, Intact**

**Methodology:** Reference Laboratory  
**Synonyms:** Parathyroid Hormone, Intact; PTH-Intact  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** After separation from cells, specimen is stable for 8 hours at room temperature and 2 days refrigerated.  
**Remarks:**  
**Reference Interval:** See report  
**Powerchart Orderable:** Parathyroid Hormone - Intact

**Parvovirus B19 Antibodies, IgG & IgM**

**Methodology:** Reference Laboratory  
**Synonyms:** Parvovirus B19 Antibodies, IgG & IgM  
**Performed:** As ordered. Turn around time is 1-4 days.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Transport to the Laboratory immediately after collection.  
- **Remarks:** Separate serum from cells as soon as possible. Acute and convalescent samples must be labeled as such.  
**Reference Interval:** See report  
**Powerchart Orderable:** Parvovirus B-19 Abs

**Pertussis Culture**

**Methodology:** Reference Laboratory  
**Synonyms:** Pertussis Culture; Bordetella pertussis; Pertussis DNA by PCR  
**Performed:** As ordered. Turn around time is 2 weeks.  
**Specimen Required:**  
- Collect: Swab of nasopharynx and directly inoculate onto Pertussis Culture Media (slant). Label slant with patient name and date of collection (computer generated label may be used).  
- **Minimum Volume:**  
- **Transport/Stability:** Transport at room temperature. Specimen should be received by the laboratory as soon as possible.  
- **Remarks:** Both the culture and DNA by PCR testing is performed by the reference laboratory, who supply collection kits. Follow the instructions included in the kit. Do not discard any of the packing materials provided. Return the sample to the lab in the mailing tube provided. A complete patient history form (included) must accompany the specimen.  
**Reference Interval:**  
**Powerchart Orderable:** Pertussis Culture

**pH by Meter, Fluid**

**Methodology:** Manual  
**Synonyms:** pH by Meter, Fluid pH  
**Performed:** Daily (8 a.m - 11 p.m.). Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: fluid in a clean, dry container  
- **Minimum Volume:** 2.0 mL of fluid  
- **Transport/Stability:** Stable for 24 hours refrigerated.  
**Remarks:**  
**Reference Interval:** See report  
**Powerchart Orderable:** pH by Meter
**Phenobarbital**

Methodology: Petinia  
Synonyms: Phenobarbital; Luminal Level

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:  
Collect: one SST/gel tube  
Minimum Volume: 2.0 mL of blood  
Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.  
Remarks: Draw specimen prior to next dose.

Reference Interval: 15 - 40 ug/mL

Powerchart Orderable: Phenobarbital Level

**Phosphorus**

Methodology: Colormetric  
Synonyms: Phosphorus; PO4

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:  
Collect: one SST/gel tube  
Minimum Volume: 2.0 mL of blood  
Transport/Stability: Stable for 24 hours at room temperature.  
Remarks: Fasting recommended

Reference Interval: 2.5 - 4.9 mg/dL

Powerchart Orderable: Phosphorus - Blood

**Phosphorus, Urine**

Methodology: Colormetric  
Synonyms: Phosphorus, Urine

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:  
Collect: urine in a clean, dry container for a random specimen and in a 24 urine container for a 24 hour collection  
Minimum Volume: 10 mL for a random specimen  
Transport/Stability: Keep refrigerated during collection  
Remarks: 24 hour urine containers can be obtained from the Laboratory. Requires 25 mL of 6N Hydrochloric Acid as a preservative. CAUTION: Hydrochloric acid can cause severe burns. Do not get in eyes, on skin or on clothing. Avoid breathing vapor. Collecting a 24 hours urine sample:  
1. To start the collection, empty bladder and discard this specimen. This will be the start of the collection period. Write the date and time on the collection container.  
2. DO NOT VOID directly into the container. Void into a clean container and then pour the specimen into the 24 container. Keep the container refrigerated during the collection period.  
3. At precisely the same time that the collection was started 24 hours earlier, empty bladder one final time and add this specimen to the 24 hour collection container.  
4. Deliver container to the Laboratory.

Reference Interval: 24 hour: 400 - 1300 mg/24 hours  
No reference range available for random urines.

Powerchart Orderable: Phosphorus - 24hr Urine; Phosphorus - Random Urine

**Pinworm Examination**

Methodology: Parasitology Exam  
Synonyms: Pinworm Examination; Pinworm Exam; Pinworm Paddle

Performed: 7 a.m. - 9 p.m. Turn around time is 24 hours.

Specimen Required:  
Collect: Material from perianal area (external skin folds) on sticky Pinworm Paddle.  
Minimum Volume:  
Transport/Stability: Transport at room temperature. Specimen is stable for 72 hours.  
Remarks: Collect specimen in early am, before arising from bed. Collect by applying the sticky side of the paddle to the external skin folds of the perianal region.

Reference Interval:

Powerchart Orderable: Pinworm Examination
<table>
<thead>
<tr>
<th><strong>Placenta</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong></td>
<td>Histology</td>
</tr>
<tr>
<td><strong>Performed:</strong></td>
<td>Monday - Friday (7 a.m. - 3 p.m.)</td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** placenta and place in double, clear plastic ziplock bags. The bag must be labeled with the patient's name, age, and attending physician. The Pathology slip must also contain the above information as well as the diagnosis. If the physician is one of a group, the specific physician must be indicated.

- **Minimum Volume:**

- **Transport/Stability:** Placetas should be kept refrigerated and delivered to the Laboratory during the times listed in the performed section.

- **Remarks:** All specimens must be labeled with the patient's name, age, attending surgeon, type and location of specimen. The request slip must contain the information listed above as well as the pre-op diagnosis and date/time of collection. All placenta's must be accompanied with a history form completed in its entirety. If the attending surgeon is one of a group, a specific surgeon must be indicated. If the above information is not on both the request form and the specimen container, the specimen will not be accepted without further follow-up initiated by the Laboratory.

**Reference Interval:**

**Powerchart Orderable:** Surgical Pathology

<table>
<thead>
<tr>
<th><strong>Platelet Count</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong></td>
<td>Flow Cytometry</td>
</tr>
<tr>
<td><strong>Performed:</strong></td>
<td>As ordered. Turn around time is 4 hours.</td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** one lavender top tube

- **Minimum Volume:** 1.0 mL of blood

- **Transport/Stability:** 24 hours at room temperature or 36 hours refrigerated. If specimens are going to reach the laboratory more than 8 hours after collection, storage at refrigerated temperatures is recommended

- **Remarks:**

**Reference Interval:** 130 - 440 x10^3/uL

**Powerchart Orderable:** Platelet Count

<table>
<thead>
<tr>
<th><strong>Potassium, Fluid</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong></td>
<td>Ion Selective Electrode (ISE)</td>
</tr>
<tr>
<td><strong>Performed:</strong></td>
<td>As ordered. Turn around time is 4 hours.</td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** one plain red top tube

- **Minimum Volume:** 1.0 mL of fluid

- **Transport/Stability:** Specimen stable for 48 hours refrigerated.

- **Remarks:** A potassium level can be performed on any fluid collection. Reference ranges, if available, will be reported with the results.

- **Reference Interval:** See report

**Powerchart Orderable:** Potassium - Fluid

<table>
<thead>
<tr>
<th><strong>Potassium, Serum</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Methodology:</strong></td>
<td>Ion Selective Electrode (ISE)</td>
</tr>
<tr>
<td><strong>Performed:</strong></td>
<td>As ordered. Turn around time is 4 hours.</td>
</tr>
</tbody>
</table>

**Specimen Required:**

- **Collect:** on SST/gel tube

- **Minimum Volume:** 1.0 mL of blood

- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.

- **Remarks:** Separate serum from cells as soon as possible

- **Reference Interval:** 3.5 - 5.1 mmol/L

**Powerchart Orderable:** Potassium - Blood

*Specimen Requirements Manual*  
Revised: March 2009  
Section II - Page 66
### Potassium, Urine

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Potassium, Urine; K Urine  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
Collect: urine in a clean, dry container for a random specimen or in a 24 urine container for a 24 hour collection  
Minimum Volume: 10 mL of urine for random specimen  
Transport/Stability: Refrigerate during collection.  
Remarks: No preservative is necessary.  
**Reference Interval:** 26 - 123 mEq/24 hours  
Reference range for random specimens not available.  
**Powerchart Orderable:** Potassium - 24hr Urine; Potassium - Random Urine

### Prealbumin

**Methodology:** Nephelometry  
**Synonyms:** Prealbumin  
**Performed:** Monday - Friday. Turn around time is 24 hours.  
**Specimen Required:**  
Collect: one SST/gel tube  
Minimum Volume: 1.0 mL of blood  
Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.  
Remarks: Fasting specimen is preferred.  
**Reference Interval:** 20.0 - 40.0 mg/dL  
**Powerchart Orderable:** Prealbumin

### Pregnancy Test, Urine

**Methodology:** Qualitative immunoassay  
**Synonyms:** Pregnancy Test, Urine; Urine Pregnancy Screen; Urine HCG  
**Performed:** As ordered. Turn around time is 2 hours.  
**Specimen Required:**  
Collect: urine in clean, dry plastic or glass container. First void specimen is preferred since it contains the highest concentration of hormone.  
Minimum Volume: 1.0 mL of urine  
Transport/Stability: 72 hours refrigerated  
Remarks:  
**Reference Interval:** Negative  
**Powerchart Orderable:** Pregnancy Screen - Urine

### Prenatal Profile

**Methodology:** Various  
**Synonyms:** Prenatal Profile; Obstetric Profile; AMA Obstetric/Prenatal Panel  
**Performed:** As ordered. Turn around time is 24 hours.  
**Specimen Required:**  
Collect: One lavender top tube, two SST/gel tubes, and one Blood Bank lavender tube (7 mL).  
Minimum Volume:  
Transport/Stability:  
Remarks: Includes: CBC w/auto diff, RPR, Rubella, ABO/Rh type, Antibody Screen, and Hepatitis B Surface Antigen.  
**Reference Interval:** See individual tests  
**Powerchart Orderable:** AMA Obstetric (Prenatal) Panel
### Progesterone, Serum

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Chemiluminescence</th>
<th>Synonyms: Progesterone, Serum; P4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed</td>
<td>Monday - Saturday. Turn around time is 24 hours.</td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:**

**Reference Interval:** See report

**Powerchart Orderable:** Progesterone Level

### Prolactin

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Chemiluminescence</th>
<th>Synonyms: Prolactin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed</td>
<td>Monday - Saturday. Turn around time is 24 hours.</td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:**

**Reference Interval:** See report

**Powerchart Orderable:** Prolactin Level

### Prostate Specific Antigen (PSA)

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Colormetric</th>
<th>Synonyms: Prostate Specific Antigen; PSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed</td>
<td>Monday - Saturday. Turn around time is 24 hours.</td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:** The PSA assay should never be used as a screening test. PSA levels should not be interpreted as absolute evidence of the presence or absence of disease; instead, they should be used in conjunction with other established diagnostic procedures.

**Reference Interval:** 0.0 - 4.0 ng/mL

**Powerchart Orderable:** PSA

### Prostate Specific Antigen, Free

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Reference Laboratory</th>
<th>Synonyms: Prostate Specific Antigen, Free; PSA Free; FPSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed</td>
<td>As ordered. Turn around time is 1-3 days.</td>
<td></td>
</tr>
</tbody>
</table>

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Stable for 3 hours at room temperature or 24 hours refrigerated.

**Remarks:**

**Reference Interval:** See report

**Powerchart Orderable:** PSA - Free
## Protein Electrophoresis

**Methodology:** Electrophoresis  
**Synonyms:** Protein Electrophoresis; Serum Protein Electrophoresis; SPEP; CSF Protein Electrophoresis  
**Performed:** Monday - Friday. Turn around time is 48 hours.  
**Specimen Required:** Collect: one SST/gel tube for serum, or submit CSF and urine in a clean, dry container  
Minimum Volume: 1.0 mL of blood or other fluid  
Transport/Stability: Specimen stable for 72 hours refrigerated.  
**Reference Interval:** See report  
**Remarks:**  
**Powerchart Orderable:** Protein Electrophoresis - Blood; Protein Electrophoresis - CSF

## Protein, Total, Fluid

**Methodology:** Colormetric  
**Synonyms:** Protein, Total, Fluid; Protein, CSF  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:** Collect: fluid in a clean, dry container  
Minimum Volume: 1.0 mL of fluid  
Transport/Stability: Specimen stable for 72 hours refrigerated.  
**Reference Interval:** CSF: 15 - 45 mg/dL  
See report for other fluids  
**Remarks:**  
**Powerchart Orderable:** Protein, Total - Fluid

## Protein, Total, Serum

**Methodology:** Colormetric  
**Synonyms:** Protein, Total, Serum  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:** Collect: one SST/gel tube  
Minimum Volume: 1.0 mL of blood  
Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.  
**Reference Interval:** 6.4 - 8.2 g/dL  
**Remarks:**  
**Powerchart Orderable:** Protein, Total - Blood

## Protein, Total, Urine

**Methodology:** Colormetric  
**Synonyms:** Protein, Total, Urine; 24 hour Urine Total Protein  
**Performed:** 7 a.m. - 11 p.m. Turn around time is 4 hours.  
**Specimen Required:** Collect: urine in a clean, dry container for a random specimen or in a 24 hour urine container for a 24 hour specimen  
Minimum Volume: 10 mL of urine for random collection  
Transport/Stability: Keep refrigerated during collection.  
**Reference Interval:** 0 - 149 mg/24 hours  
No reference range available for random specimens.  
**Remarks:** No preservative required.  
**Powerchart Orderable:** Protein - 24hr Urine; Protein - Random Urine
### Prothrombin Time (PT)

**Methodology:** Clot Detection  

**Synonyms:** Prothrombin Time; Protime; PT; INR

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.
- **Minimum Volume:** 4.5 mL of blood
- **Transport/Stability:** Specimen is stable for 24 hours (centrifuged or uncentrifuged; refrigerated or room temperature)

**Remarks:**
- **Reference Interval:** 12.0 - 15.4 seconds
- **Powerchart Orderable:** Protime

### Pyramid Test

**Methodology:** Reference Laboratory  

**Synonyms:** Pyramid Test, Triple Test

**Performed:** As ordered. Turn around time is 3-7 days.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 4.0 mL of blood
- **Transport/Stability:**
- **Remarks:** A form specific for this test needs to be completed and submitted with the specimen. Testing includes AFP, hCG, and uE3 (if Inhibin A is also desired, see Quad Screen).

**Reference Interval:** See report

**Powerchart Orderable:** Pyramid Test

### Quad Screen

**Methodology:** Reference Laboratory  

**Synonyms:** Quad Screen

**Performed:** As ordered. Turn around time is 3-7 days.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 4.0 mL of blood
- **Transport/Stability:**
- **Remarks:** A form specific for this test needs to be completed and submitted with the specimen. Testing includes AFP, hCG, uE3, and Inhibin A.

**Reference Interval:** See report

**Powerchart Orderable:** Quad Screen

### Quantitative Immunoglobulins

**Methodology:** Nephelometry  

**Synonyms:** Quantitative Immunoglobulins; IgG; IgA; IgM

**Performed:** Monday - Friday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 3.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:** May be ordered separately or as a group

**Reference Interval:** See report

**Powerchart Orderable:** IgA/G/M
## Rapid Plasma Reagin (RPR)

**Methodology:** Agglutination  
**Synonyms:** Rapid Plasma Reagin (RPR); VDRL; Treponema pallidum; Syphilis Serology

**Performed:** Tuesday and Thursday. Turn around time is 5 days.

**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Separated serum is stable for 5 days at 2 - 8°C. Freeze for extended storage.  
- **Remarks:** Test includes titration of reactive samples. All reactive patients are reported to the NYS Dept. of Health and serum is sent to the NYSDOH laboratories for confirmation.

**Reference Interval:** Nonreactive

**Powerchart Orderable:** RPR

## Reducing Substance, Stool

**Methodology:** Dipstix  
**Synonyms:** Reducing Substance, Stool

**Performed:** Monday - Friday. Turn around time is 24 hours.

**Specimen Required:**  
- **Collect:** stool into a clean, dry container  
- **Minimum Volume:** 5 cc of stool  
- **Transport/Stability:**  
- **Remarks:**  
- **Reference Interval:** Normal: $< 0.25$ g/dL  
  Suspicious: $0.25 - 0.5$ g/dL  
  Abnormal: $> 0.5$ g/dL

**Powerchart Orderable:** Reducing Substance - Stool

## Reducing Substance, Urine

**Methodology:** Colormetric  
**Synonyms:** Reducing Substance, Urine;  

**Performed:** As ordered. Turn around time is 2 hours.

**Specimen Required:**  
- **Collect:** urine in a clean, dry container  
- **Minimum Volume:** 1.0 mL of urine  
- **Transport/Stability:** Specimen is stable for 2 hours at room temperature and 24 hours if the specimen is refrigerated.  
- **Remarks:** This test is automatically performed on all urine samples from children 1 year old or less.

**Reference Interval:** Negative

**Powerchart Orderable:** Reducing Substance - Urine

## Renal Biopsy

**Methodology:** Histology  
**Synonyms:** Renal Biopsy; Surgical Pathology; Histology

**Performed:** Monday - Friday. Turn around time is 24 hours.

**Specimen Required:**  
- **Collect:** See remarks  
- **Minimum Volume:**  
- **Transport/Stability:**  
- **Remarks:** For this procedure, special arrangements must be made with the Pathology department prior to surgery. A Pathologist or Technologist must be present to accept the specimen. A request slip with patient history must accompany the specimen.

**Reference Interval:**

**Powerchart Orderable:** Surgical Pathology
### Renin Activity

**Methodology:** Reference Laboratory  
**Synonyms:** Renin Activity  
**Performed:** As ordered. Turn around time is 1-3 days.

**Specimen Required:**
- **Collect:** (2) lavender top tubes  
- **Minimum Volume:** 4.0 mL of blood in each tube  
- **Transport/ Stability:** Specimen is stable after separation from the cells for 6 hours at room temperature or 1 month if frozen.
- **Remarks:** Do not refrigerate or collect in refrigerated tubes. Refrigerated specimens are not acceptable.

**Reference Interval:** See report  
**Powerchart Orderable:** Renin activity

### Reptilase Time

**Methodology:** Mechanical clot detection  
**Synonyms:** Reptilase Time; Venom Time  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.  
- **Minimum Volume:** 4.5 mL of blood  
- **Transport/ Stability:** Specimen is stable for 4 hours, if it is not centrifuged or refrigerated. Otherwise the specimen should be centrifuged, the plasma removed, and the plasma frozen at -20 degrees C.

**Remarks:**
- Reference Interval: 13.4 - 18.7 seconds

**Powerchart Orderable:** Reptilase Time

### Respiratory Syncitial Virus Antigen

**Methodology:** Optical Immunoassay  
**Synonyms:** Respiratory Syncitial Virus Antigen; RSV  
**Performed:** once per shift. Turn around time is 8-12 hours.

**Specimen Required:**
- **Collect:** nasal washing in a clean, leak proof container  
- **Minimum Volume:** 0.5 mL  
- **Transport/ Stability:** Specimens must reach the laboratory within 2 hours of collection. Specimens may be kept refrigerated or frozen until tested and must be tested within 24 hours of collection.

**Remarks:** Proper specimen collection for the detection of RSV infection is dependent on proper technique. Patient samples containing blood or azide should be avoided. The recommended procedure for nasal wash collection is as follows:
- Instill up to 1mL of sterile saline into the patient’s nose. Then suction with a soft rubber bulb as follows. The bulb is introduced into the back of the nostril and slowly withdrawn after suction is applied.
- Perform wash procedure on one or both nostrils.
- Transfer the specimen into a sterile disposable leakproof container for transport to the laboratory. Viral transport medium will dilute the specimen and should not be used.

**Reference Interval:** Negative  
**Powerchart Orderable:** Respiratory Syncitial Virus Antigen
**Reticulin Antibody, IgG**

**Methodology:** Reference Laboratory  
**Synonyms:** Reticulin Antibody, IgG  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Specimen Required:**  
- Collect: one plain red top tube.  
- Minimum Volume: 1.0 mL of blood  
- Transport/Stability: Stable for 2 days at room temperature.  
**Remarks:**  
**Reference Interval:** See report  
**Powerchart Orderable:** Reticulin Antibodies

---

**Reticulocyte Count**

**Methodology:** Flow Cytometry  
**Synonyms:** Reticulocyte Count; Retic Count  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one lavender top tube.  
- Minimum Volume: 1.0 mL of blood  
- Transport/Stability: 24 hours at room temperature or 72 hours refrigerated  
**Remarks:**  
**Reference Interval:** Newborn - 3 months old: 2.6 - 6.1 %  
3 months old - adult: 0.7 - 2.1 %  
**Powerchart Orderable:** Reticulocyte - Auto

---

**Rheumatoid Factor**

**Methodology:** Nephelometry  
**Synonyms:** Rheumatoid Factor; RF  
**Performed:** As ordered. Turn around time is 8 hours.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- Minimum Volume: 0.5 mL of blood  
- Transport/Stability: Separated serum is stable for 72 hours at 2 - 8°C.  
**Remarks:** Test includes titration of reactive samples.  
**Reference Interval:** < 15 IU/mL  
**Powerchart Orderable:** Rheumatoid Factor - Blood

---

**Rhogam**

**Methodology:** Agglutination  
**Synonyms:** Rhogam  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one 7 mL lavender top tube  
- Minimum Volume: 3.0 mL of blood  
- Transport/Stability: Stable at room temperature for 24 hours.  
**Remarks:** Type and screen and Fetalscreen/Fetalstain will be performed as needed.  
**Reference Interval:**  
**Powerchart Orderable:** Rhogam
Rubella IgG Antibody - Qualitative

**Methodology:** Enzyme Immunoassay (EIA)  
**Performed:** Monday/Wednesday/Friday. Turn around time is 3 days.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- **Transport/Stability:** Separated serum is stable for up to 5 days at 2 - 8°C. Freeze for extended storage.
- **Remarks:** Lipemic, hemolyzed or icteric serum may interfere with the assay.

**Reference Interval:** Detected

**Powerchart Orderable:** Rubella IgG Ab - Qualitative

Rubeola IgG Antibody - Qualitative

**Methodology:** Enzyme Immunoassay (EIA)  
**Performed:** Thursday. Turn around time is 7 days.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 0.5 mL of blood
- **Transport/Stability:** Separated serum is stable for up to 5 days at 2 - 8°C. Freeze for extended storage.
- **Remarks:** Lipemic, hemolyzed or icteric serum may interfere with the assay.

**Reference Interval:** Detected

**Powerchart Orderable:** Rubeola IgG Ab - Qualitative

Salicylate

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.
- **Remarks:** For therapeutic monitoring, the patient should be at a "steady state" concentration.

**Reference Interval:**
- Therapeutic: 3 - 20 mg/dL
- Toxic: > 30 mg/dL

**Powerchart Orderable:** Salicylate Level
Semen Analysis

Methodology: Manual  
Synonyms: Semen Analysis  
Performed: Monday - Friday. Turn around time is 4 hours.

Specimen Required:
- Collect: semen in a clean, dry container
- Minimum Volume: submit entire collection
- Transport/Stability: Must be delivered to the laboratory within 1 hour and protected from temperature extremes. (See remarks)

Remarks:
- It is important that all of the following steps be followed to ensure that accurate and reliable results are obtained.
- It is suggested that the semen sample be collected after 2 - 3 days of abstinence.
- It is preferred that specimens be dropped off between the hours of 7 a.m. and 3 p.m. on Monday through Friday.
- Masturbation is the preferred method of collection.
- Warm the specimen collection container to body temperature before collection by placing it under the armpit or other warm body area.
- Collect the entire specimen into the clean, dry container provided.
- Try to maintain the specimen near body temperature, but no colder than room temperature, from the time of collection until delivery to the Laboratory. Avoid temperature extremes.
- Label the container with: Patient name and date and time of collection
- Deliver the specimen to the Laboratory within 1 hour of collection.
- Please call Ready Registration before arriving at the hospital to expedite the processing of your specimen.

Reference Interval: See report

Powerchart Orderable: Semen Analysis

Semen Count

Methodology: Manual  
Synonyms: Semen Count; Post-vasectomy Semen Count  
Performed: Monday - Friday. Turn around time is 4 hours.

Specimen Required:
- Collect: semen in a clean, dry container
- Minimum Volume: submit entire collection
- Transport/Stability: Must be delivered to the laboratory within 1 hour and protected from temperature extremes. (See remarks)

Remarks:
- It is important that all of the following steps be followed to ensure that accurate and reliable results are obtained.
- It is suggested that the semen sample be collected after 2 - 3 days of abstinence.
- It is preferred that specimens be dropped off between the hours of 7 a.m. and 3 p.m. on Monday through Friday.
- Masturbation is the preferred method of collection.
- Warm the specimen collection container to body temperature before collection by placing it under the armpit or other warm body area.
- Collect the entire specimen into the clean, dry container provided.
- Try to maintain the specimen near body temperature, but no colder than room temperature, from the time of collection until delivery to the Laboratory. Avoid temperature extremes.
- Label the container with: Patient name and date and time of collection
- Deliver the specimen to the Laboratory within 1 hour of collection.
- Please call Ready Registration before arriving at the hospital to expedite the processing of your specimen.

Reference Interval: See report

Powerchart Orderable: Semen - Post Vasectomy
### Sickle Cell Screen

**Methodology:** Hemoglobin Solubility  
**Synonyms:** Sickle Cell Screen, Sickle Test  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one lavender top tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** 24 hours at room temperature or 36 hours refrigerated  
**Remarks:**  
- **Reference Interval:** Negative  
- **Powerchart Orderable:** Sickle Cell Screen

### Smooth Muscle Antibody, IgG

**Methodology:** Reference Laboratory  
**Synonyms:** Smooth Muscle Antibody, IgG; Anti-Smooth Muscle Antibody  
**Performed:** As ordered. Turn around time is 1-3 days.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** After separation from clot, stable for 2 days at room temperature.  
**Remarks:**  
- **Reference Interval:**  
  - < 1:20: Normal  
  - 1:20 - 1:80: Positive- suggestive of liver disease. Suggest repeat in two to three weeks with fresh specimen.  
  - >= 1:160: Suggestive of chronic active hepatitis.  
- **Powerchart Orderable:** Anti-Smooth Muscle Antibody

### Sodium, Fluid

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Sodium Fluid; Na  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: fluid in a plain red top tube  
- **Minimum Volume:** 1.0 mL of fluid  
- **Transport/Stability:** Stable for 24 hours refrigerated.  
**Remarks:** A sodium level can be performed on any fluid collection. Reference ranges, if available, will be reported with the results.  
**Reference Interval:** See report  
**Powerchart Orderable:** Sodium - fluid

### Sodium, Serum

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Sodium, Serum; Na  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- Collect: one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.  
**Remarks:**  
- **Reference Interval:** 136 - 145 mmol/L  
- **Powerchart Orderable:** Sodium - Blood
**Sodium, Urine**

**Methodology:** Ion Selective Electrode (ISE)  
**Synonyms:** Sodium, Urine; Na

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** urine in a clean, dry container for a random sample or in a 24 hour urine container for a 24 hour collection
- **Minimum Volume:** 10 mL of urine for random sample
- **Transport/Stability:** Keep refrigerated during collection.
- **Remarks:** No preservative is necessary.

**Reference Interval:** 24 hour collection: 27 - 287 mEq/24 hours

**Powerchart Orderable:** Sodium - 24hr Urine; Sodium - Random Urine

---

**Sputum Culture**

**Methodology:** Culture  
**Synonyms:** Sputum Culture; Lower Respiratory Culture; Sputum C&S

**Performed:** 7 a.m. - 9 p.m. Turn around time is 2 days.

**Specimen Required:**
- **Collect:** Expectorated or suctioned (luki) sputum, bronchial washings, transtracheal aspirates in a clean, sterile, leakproof container.
- **Minimum Volume:** 1.0 mL of sputum
- **Transport/Stability:** Transport at room temperature. Specimen must be received within 2 hours of collection.
- **Remarks:** Exam includes direct smear (gram stain) and susceptibility testing when appropriate for the isolates recovered. Sputum specimens are evaluated for quality based on gram stain findings. Specimens found to be consistent with saliva will not be accepted for culture. The nursing unit will be notified and a new collection will be requested. 
  NOTE: Current literature suggests that the gram stain findings are generally more accurate for the diagnosis of Pneumonia than growth on culture. The submission of sputum for smear only, is the recommended screening procedure. (See Gram Stain)

**Reference Interval:**

**Powerchart Orderable:** Sputum Culture
**Sputum for Cytology**

**Methodology:** Cytology  
**Synonyms:** Sputum for Cytology  
**Performed:** Monday-Friday (8a-4p). Turn around time is 2-3 days.

**Specimen Required:**
- **Collect:** Sputum specimen in the early morning for 3 consecutive days. Collection of post bronchoscopy specimens as soon as possible following bronchoscopy is essential. Sputum samples are collected directly in 4 oz plastic containers with screw top caps containing approximately 45 cc of cytology fixative. The proper container is labeled "Sputum Fixative Cytology Only" and is supplied by the Cytology section of the Laboratory. Specimens may be rejected if:
  - specimens are not collected in cytology fixative
  - the specimen is improperly labeled
  - the requisition slip is incomplete

**Minimum Volume:**
- **Transport/Stability:** Transport in 4 oz container with cytology fixative.

**Remarks:**
- Sputum is the result of a spontaneous deep cough bringing up material from the smaller bronchi. The patient is instructed to do the following:
  1. Have the patient rinse mouth and gargle to remove particulate matter and local secretions.
  2. Inhale air to the full capacity of the lung.
  3. Exhale the air with an explosive cough. Encourage the patient to cough deeply from the diaphragm and to expectorate deep sputum and not saliva into the container.
  4. Deposit the sample directly into the sputum collection container.
  5. Cap the specimen container and agitate specimen and fixative to insure optimum preservation.

For post bronchoscopy sputum samples it is recommended whenever possible to give the patient the sputum container before the bronchoscope is withdrawn. The collection procedure is the same as above. There is only one post bronchoscopy sputum and it may be the most valuable specimen collected; that which is collected immediately following bronchoscopy. Sputum samples collected following the post bronchoscopy sputum should be labeled as a routine series. The patients full name and date of collection must appear on the container. Sputum samples collected for three consecutive days is required to insure maximum diagnostic accuracy. CytoLyt fixative is the only preservative recognized by the laboratory for the proper collection of sputum. If the proper fixative is not available, immediately place the specimen in the refrigerator located in the Cytology section of the Laboratory.

**Reference Interval:**
- **Powerchart Orderable:** Cytology - Sputum

---

**Sterility Culture**

**Methodology:** Culture  
**Synonyms:** Sterility Culture; Sterility Check  
**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 days.

**Specimen Required:**
- **Collect:** Items used in medical procedures, requiring sterility check collected in a clean, sterile container.

**Minimum Volume:**
- **Transport/Stability:** Transport at room temperature.

**Remarks:**
- This exam is a screen for common bacterial or fungal contaminants only and may not detect all possible contaminants. Culture is held for 7 days.

**Reference Interval:**
- **Powerchart Orderable:** Microbiology Culture Request
## Stool Culture

**Methodology:** Culture  
**Synonyms:** Stool Culture; Stool for Enteric pathogens; Stool C&S  
**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 days.  
**Specimen Required:**  
**Collect:** Stool in Cary Blair stool culture transport container. Specimens in which the transport medium has turned yellow (indicating acid conditions) are not acceptable. One specimen per day and no more than 3 specimens per week will be accepted for culture. Specimens from inpatients developing diarrhea after 3 days of admission are not acceptable for culture.  
**Minimum Volume:** To the fill line on the container  
**Transport/Stability:** Transport at room temperature. Specimen is stable in transport medium for 72 hours. Specimens in Cary Blair medium over 72 hours old and unpreserved specimens over 2 hours old are not acceptable for culture.  
**Remarks:** This exam screens for the following enteric pathogens: Salmonella, Shigella, Campylobacter, Aeromonas/Pleisiomonas, Yersinia and Enteropathogenic E. coli (E. coli O157). In addition, the absence of normal intestinal flora is noted along with any predominance of Yeast or Pseudomonas. Susceptibility testing is contraindicated and therefore not routinely performed on stool culture isolates. Direct smears (gram stains) are not performed on stool specimens. Instructions for the submission of stool for fecal WBC’s, fecal fat or other microscopic exams are listed as separate tests.  
NOTE: Rectal swabs are not acceptable for culture.  
**Reference Interval:**  
**Powerchart Orderable:** Stool Culture

## Strep A Antigen Screen & Culture

**Methodology:** Enzyme Immunoassay (EIA) and  
**Synonyms:** Strep A Antigen Screen & Culture; Throat Culture - BSA Screen  
**Performed:** As ordered. Turn around time is 2 hours.  
**Specimen Required:**  
**Collect:** 2 swabs from the throat: 1 for the Strep A antigen screen and 1 for culture in Culturette (dual swab).  
**Minimum Volume:** 1 swab  
**Transport/Stability:** Transport at room temperature. Culturette swabs are stable for 48 hours after collection.  
**Remarks:** Specimens are screened for Group A Streptococcus by EIA. Specimens with a negative screen receive a follow up culture. To collect, a swab should be passed to the posterior of the throat, taking care to avoid the oral mucosa and tongue. One tonsillar area should be swabbed and the swab then drawn to the other tonsillar area across the posterior pharyngeal wall. NOTE: If submitting specimen for other than Group A Strep, see Upper Respiratory Culture. Diagnosis and/or suspected pathogen(s) should be noted on the request.  
**Reference Interval:**  
**Powerchart Orderable:** Strep A Antigen Screen & Culture

## Strep B Screening Culture

**Methodology:** Culture  
**Synonyms:** Strep B Screening Culture  
**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 days.  
**Specimen Required:**  
**Collect:** vaginal and/or perirectal culturette swab  
**Minimum Volume:** 1 swab  
**Transport/Stability:** Transport at room temperature. Culturette swabs are stable for 48 hours after collection.  
**Remarks:** This test is performed on pregnant women at 35-37 weeks gestation to rule out colonization with Group B Strep. This test screens for the presence of Group B Streptococcus only. A predominance of Staph aureus or yeast will also be noted. Susceptibility testing is not performed unless the order indicates that the patient has a penicillin allergy.  
**Reference Interval:**  
**Powerchart Orderable:** Strep B Screening Culture
Streptolysin O Antibody

Methodology: Reference Laboratory

Performed: As ordered. Turn around time is 1-3 days.

Specimen Required:
- Collect: one SST/gel tube
- Minimum Volume: 1.0 mL of blood
- Transport/Stability: Stable for 8 hours at room temperature or 8 days refrigerated.

Remarks:

Reference Interval:
- 0-1 year: 0 - 200 IU/mL
- 2-12 years: 0 - 240 IU/mL
- 13 years and older: 0 - 330 IU/mL

Powerchart Orderable: Anti-streptolysin Antibody

Surgical Specimens

Methodology: Histology

Performed: Monday - Saturday. Turn around time is 2 days.

Specimen Required:
- Collect: Most surgical tissue is submitted in a 10% solution of formalin (available from the Histology section of the Laboratory). Exceptions to this specimen requirement can be found under the following listings: lymph node studies, placentas, chromosome studies, frozen sections, and cold cone biopsies.

Minimum Volume:

Transport/Stability:

Remarks: All specimens must be labeled with the patient's name, age, attending surgeon, type and location of specimen. The request slip must contain the information listed above as well as the pre-op diagnosis and date/time of collection. All placentas must be accompanied with a history form completed in its entirety. If the attending surgeon is one of a group, a specific surgeon must be indicated. If the above information is not on both the request form and the specimen container, the specimen will not be accepted without further follow-up initiated by the Laboratory.

Reference Interval:

Powerchart Orderable: Surgical Pathology

Surgical Swab Culture

Methodology: Culture

Performed: 7 a.m. - 9 p.m. Turn around time is 2 days.

Specimen Required:
- Collect: Culturette swabs for gram stain and aerobic culture. Collect port-a-cul swab for anaerobic culture. Swabs of surgical wound, internal body cavities or fluids, paranasal sinuses, abscess material, or surgically delivered placenta are acceptable.

Minimum Volume: 1 swab for each exam desired

Transport/Stability: Transport at room temperature. Culturette and port-a-cul swabs are stable for 48 hours after collection. The port-a-cul medium must remain clear below the surface. If the medium turns blue, it indicates oxygen saturation and the specimen is no longer suitable for anaerobic recovery.

Remarks: Specimens must be labeled with the complete source and body site information. This test includes direct smear (gram stain) and anaerobic culture if specimen is received in anaerobic transport (Port-a-Cul). Susceptibility testing is performed when appropriate for the isolates recovered.

NOTE: While swabs may be easily collected, they are not the specimen of choice for bacterial culture. Tissue, biopsies or fluid aspirations yield much higher recovery of pathogenic organisms with much less cutaneous contamination.

Reference Interval:

Powerchart Orderable: Microbiology Culture Request
**T Uptake**

**Methodology:** Chemiluminescence  
**Synonyms:** T Uptake; T3 Uptake

**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:** Always ordered with a Total T4

**Reference Interval:** 23 - 38 %

**Powerchart Orderable:** T3 Uptake

---

**T3, Free**

**Methodology:** Chemiluminescence  
**Synonyms:** T3, Free; FT3; Triiodothyronine, Free

**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:**

**Reference Interval:** 2.3 - 4.2 pg/mL

**Powerchart Orderable:** T3 - Free

---

**T3, Total**

**Methodology:** Chemiluminescence  
**Synonyms:** T3, Total; Triiodothyronine

**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:**

**Reference Interval:** 0.7 - 1.8 ng/dL

**Powerchart Orderable:** T3 - Total

---

**T4, Free**

**Methodology:** Chemiluminescence  
**Synonyms:** T4, Free; FT4; Thyroxine, Free

**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Remarks:**

**Reference Interval:** 0.76 - 1.46 ng/dL

**Powerchart Orderable:** T4 - Free
### T4, Total

<table>
<thead>
<tr>
<th>Methodology:</th>
<th>Chemiluminescence</th>
<th>Synonyms:</th>
<th>T4, Total; Thyroxine</th>
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</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>Monday - Saturday. Turn around time is 24 hours.</td>
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</tr>
<tr>
<td>Specimen Required:</td>
<td>Collect: one SST/gel tube</td>
<td>Minimum Volume: 2.0 mL of blood</td>
<td>Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.</td>
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### Tacrolimus

<table>
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<tr>
<th>Methodology:</th>
<th>Reference Laboratory</th>
<th>Synonyms:</th>
<th>Tacrolimus; FK506</th>
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<tbody>
<tr>
<td>Performed:</td>
<td>As ordered. Turn around time is 1-3 days.</td>
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<tr>
<td>Specimen Required:</td>
<td>Collect: one 5 mL lavender top tube</td>
<td>Minimum Volume: 1.0 mL of blood</td>
<td>Transport/Stability: Stable for 1 week at room temperature.</td>
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### Testosterone Fractionation

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<thead>
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<th>Methodology:</th>
<th>Reference Laboratory</th>
<th>Synonyms:</th>
<th>Testosterone Fractionation; Testosterone Weakly Bound; Testosterone Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>As ordered. Turn around time is 2-5 days.</td>
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</tr>
<tr>
<td>Specimen Required:</td>
<td>Collect: one SST/gel tube</td>
<td>Minimum Volume: 3.0 mL of blood</td>
<td>Transport/Stability: Stable for 2 days at room temperature.</td>
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### Testosterone, Total

<table>
<thead>
<tr>
<th>Methodology:</th>
<th>Chemiluminescence</th>
<th>Synonyms:</th>
<th>Testosterone, Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed:</td>
<td>Monday - Saturday. Turn around time is 24 hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen Required:</td>
<td>Collect: one SST/gel tube</td>
<td>Minimum Volume: 2.0 mL of blood</td>
<td>Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.</td>
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Theophylline

Methodology: Petinia

Synonyms: Theophylline; Aminophylline Level; Elixophyllin

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: one SST/gel tube. Draw specimen prior to next dose. Peak sample is approximately 2 hours after oral dose.

Minimum Volume: 1.0 mL of blood

Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.

Remarks: Patient should be at a "steady state" concentration.

Reference Interval: 10 - 20 ug/mL

Powerchart Orderable: Theophylline Level

Thrombin Time

Methodology: Mechanical clot detection

Synonyms: Thrombin Time

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.

Minimum Volume: 4.5 mL of blood

Transport/Stability: Specimen is stable for 4 hours, if it is not centrifuged or refrigerated. Otherwise the specimen should be centrifuged, the plasma removed, and the plasma frozen at -20 degrees C.

Remarks: If patient is on heparin, order Reptilase Time

Reference Interval: 14.7 - 18.7 seconds

Powerchart Orderable: Thrombin Time

Thyroglobulin Antibody

Methodology: Reference Laboratory

Synonyms: Thyroglobulin Antibody; Anti-Thyroglobulin Antibody

Performed: As ordered. Turn around time is 1-3 days.

Specimen Required:

Collect: one SST/gel tube

Minimum Volume: 1.0 mL of blood

Transport/Stability: Stable for 2 days at room temperature.

Remarks:

Reference Interval: 0.0 - 2.0 IU/mL

Powerchart Orderable: Anti-Thyroglobulin Antibody

Thyroid Peroxidase Antibody

Methodology: Reference Laboratory

Synonyms: Thyroid Peroxidase Antibody; TPO Antibody; Anti-Microsomal Antibody

Performed: As ordered. Turn around time is 1-3 days.

Specimen Required:

Collect: one SST/gel tube

Minimum Volume: 1.0 mL of blood

Transport/Stability: Stable for 2 days at room temperature.

Remarks: The thyroid microsomal antigen has been shown to be the same as Thyroid Peroxidase (TPO). This assay detects anti-TPO autoantibodies.

Reference Interval: 0.0 - 2.0 IU/mL

Powerchart Orderable: Thyroid Peroxidase Antibody
**TIBC**

**Methodology:** Colormetric  
**Synonyms:** TIBC; Total Iron Binding Capacity

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:** If a % transferrin saturation is needed, an order for Iron, Total must also be placed.

**Reference Interval:** 250 - 450 ug/dL

**Powerchart Orderable:** TIBC

---

**Tissue Transglutaminase Antibody, IgA**

**Methodology:** Reference Laboratory  
**Synonyms:** Tissue Transglutaminase Antibody, IgA; Endomysial Antibody

**Performed:** As ordered. Turn around time is 1-3 days.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** After separation from the clot, stable for 2 days at room temperature.
- **Remarks:** The endomysial antigen has been identified as the protein cross-linking enzyme known as tissue transglutaminase. Detection of tissue transglutaminase antibodies is an aid in the diagnosis of certain gluten-sensitive enteropathies, such as celiac disease and dermatitis.

**Reference Interval:**
- < 20 EU: None detected
- 20-30 EU: Weakly positive
- > 30 EU: Positive

**Powerchart Orderable:** Endomysial Antibody

---

**Tobramycin**

**Methodology:** Petinia  
**Synonyms:** Tobramycin

**Performed:** As ordered. Turn around time is 4 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 1.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:** Patient should be at a "steady state" concentration. Peak should be drawn 60 minutes after IM injection; 30 minutes after 30 minute IV infusion; 15 minutes after a 60 minute IV infusion; and the trough should be drawn one hour prior to the dose. Clearly label tubes as "Peak" or "Trough".

**Reference Interval:**
- Trough: < 2.0 ug/mL
- Peak: 4.0 - 10.0 ug/mL
- Random: 4.0 - 10.0 ug/mL

**Powerchart Orderable:** Tobramycin - Peak; Tobramycin - Trough; Tobramycin - Random

---

**Transferrin**

**Methodology:** Nephelometry  
**Synonyms:** Transferrin

**Performed:** Monday - Friday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 72 hours refrigerated.
- **Remarks:**

**Reference Interval:** 200 - 360 mg/dL

**Powerchart Orderable:** Transferrin
### Trichomonas Exam

**Methodology:** Parasitology Exam  
**Synonyms:** Trichomonas Exam  
**Performed:** as ordered. Turn around time is 8-12 hours.  
**Specimen Required:**  
- **Collect:** Vaginal or cervix culturette swab (preferred) or in tube with a small amount of sterile saline.  
- **Minimum Volume:** 1 swab  
- **Transport/Stability:** Transport at room temperature. Culturette swabs are stable for 48 hours after collection. Specimens in saline must be received within 2 hours of collection.  
- **Remarks:** Exam includes wet mount for the presence of Trichomonas only. To rule out other vaginal pathogens, submit a swab for female urogenital culture and/or fungus culture - yeast screen.  

**Reference Interval:**  
**Powerchart Orderable:** Trichomonas Examination

### Triglyceride

**Methodology:** Colormetric  
**Synonyms:** Triglyceride  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 1.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.  
- **Remarks:** Fasting specimen preferred.  

**Reference Interval:** NIH guideline for triglyceride is less than 150 mg/dL  
**Powerchart Orderable:** Triglyceride

### Troponin I

**Methodology:** Enzyme Immunoassay (EIA)  
**Synonyms:** Troponin I; CTNI  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 5 days refrigerated.  
- **Remarks:** Recommended draw: Baseline and 6 hours later.  

**Reference Interval:** 0.0 - 0.04 ng/mL  
**Powerchart Orderable:** Troponin I

### TSH, Sensitive

**Methodology:** Chemiluminescence  
**Synonyms:** TSH, Sensitive; Thyroid Stimulating Hormone - Sensitive  
**Performed:** Monday - Saturday. Turn around time is 24 hours.  
**Specimen Required:**  
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.  
- **Remarks:** The detection limit is 0.01 uIU/mL.  

**Reference Interval:** 0.358 - 3.74 uIU/mL  
**Powerchart Orderable:** TSH - Sensitive
**Type and Screen**

**Methodology:** Tube and Gel  
**Synonyms:** Type and Screen; Type and Crossmatch  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** one 7 mL lavender top tube. All patients having a type and screen must have a yellow armband label applied to their wrist and the tube. Specimens received without a yellow armband will be rejected. See special instructions for collection and labeling policy.
- **Minimum Volume:** 4.0 mL of blood  
- **Transport/Stability:** Stable at room temperature for 24 hours.  
- **Remarks:** Collection of a properly labeled blood sample from the intended recipient of blood is critical to safe blood transfusion. Most hemolytic transfusion reactions result from errors in patient or sample identification. Clerical errors such as improper identification of the patient at the time the specimen is drawn, transcription errors, mislabeling of the blood product or misidentification of the patient at the time of transfusion accounts for 73% of the preventable occurrences of transfusion associated fatalities. The person drawing the blood sample must identify the intended recipient in a positive manner, most effectively done by comparing the information on the request form (or computer labels) with the information on the patient’s identification band. The phlebotomist must not rely on a bed tag or on charts or records placed nearby. After positive identification, the sample is drawn and the patient is armbanded with a yellow typenex armband.

**Reference Interval:** See report  
**Powerchart Orderable:** Type and Screen

**Unfractionated Heparin Level**

**Methodology:** Chromogenic/Inhibition of Factor  
**Synonyms:** Unfractionated Heparin Level; Heparin Level; UFH; Anti-Xa (UFH)  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** One full 2.7 mL blue top tube (3.2% sodium citrate). Specimen may be rejected if the tube is not full.
- **Minimum Volume:** 4.5 mL of blood  
- **Transport/Stability:** Specimen is stable for 2 hours at room temperature. Stability can be extended to 1 week if platelet poor plasma is frozen at -20 degrees C.  
- **Remarks:**

**Reference Interval:** Therapeutic Range = 0.3 - 0.7 IU/mL  
**Powerchart Orderable:** Heparin Level (Unfractionated)

**Upper Respiratory Culture**

**Methodology:** Culture  
**Synonyms:** Upper Respiratory Culture; Throat Culture - Comprehensive  
**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 days.  
**Specimen Required:**
- **Collect:** Culturette swab of throat, nasopharynx, paranasal sinuses, mouth or nares (dual swab preferred) or minitip culturette swab.  
- **Minimum Volume:** 1 Swab (2 preferred)  
- **Transport/Stability:** Transport at room temperature. Culturette swabs are stable for 48 hour after collection.  
- **Remarks:** Specimens must be labeled with complete source and body site information. Upper respiratory specimens, which include the nares, mouth, oropharynx (throat) and nasopharynx, are generally obtained to determine the etiology of a pharyngitis, diagnose oral yeast infection, detect the carrier state of a pathogen or detect shifts in pathogenic flora in immunosuppressed patients. Direct smears and susceptibility testing are not routinely performed.

**Reference Interval:**
**Powerchart Orderable:** Microbiology Culture Request
### Urea Nitrogen, Urine

**Methodology:** Colormetric  
**Performed:** Daily. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** urine in a clean, dry container for a random specimen or in a 24 hour urine container for a 24 hour collection  
- **Minimum Volume:** 10 mL of urine for random collection  
- **Transport/ Stability:** Keep refrigerated at all times.  
**Reference Interval:**
- 24 hour specimen: 7 - 20 g/24 hours  
- Random urine: See report  
**Powerchart Orderable:** Urea Nitrogen - Random Urine; Urea Nitrogen - 24hr Urine

### Uric Acid, Serum

**Methodology:** Colormetric  
**Performed:** As ordered. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** one SST/gel tube  
- **Minimum Volume:** 2.0 mL of blood  
- **Transport/ Stability:** Centrifuged specimen stable for 72 hours refrigerated.  
**Remarks:** Fasting specimen recommended  
**Reference Interval:**
- Male: 3.5 - 7.2 mg/dL  
- Female: 2.6 - 6.0 mg/dL  
**Powerchart Orderable:** Uric Acid - Blood

### Uric Acid, Urine

**Methodology:** Colormetric  
**Performed:** Daily. Turn around time is 4 hours.  
**Specimen Required:**
- **Collect:** urine in a clean, dry container for a random specimen or in a 24 urine container for a 24 hour collection  
- **Minimum Volume:** 10 mL of urine for random specimen  
- **Transport/ Stability:** Stable for 4 days at room temperature.  
**Remarks:** Other timed collections can be performed.  
**Reference Interval:**
- 24 hour collection: 150 - 990 mg/24 hours  
- Random specimen: See report  
**Powerchart Orderable:** Uric Acid - 24hr Urine

### Urinalysis

**Methodology:** Reflective spectroscopy  
**Performed:** As ordered. Turn around time is 2 hours.  
**Specimen Required:**
- **Collect:** urine in a clean, dry container or kova tube.  
- **Minimum Volume:** 3.0 mL of urine  
- **Transport/ Stability:** Specimen is stable for 2 hours at room temperature and 24 hours if the specimen is refrigerated.  
**Remarks:** Microscopic examination of the urine sediment is automatically performed if the protein, blood, leukocyte, or nitrate is positive.  
**Reference Interval:** See report  
**Powerchart Orderable:** Urinalysis Biochem
**Urine Culture**

**Methodology:**

Synonyms: Urine Culture; Urine C&S

**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 days.

**Specimen Required:**

Collect: Clean voided, catheterized, or surgically collected (suprapubic or cystoscopic) urine in a vacutainer urine transport tube (Gray Top). See remarks.

Minimum Volume: 1 - 2 mL of urine

Transport/Stability: Transport at room temperature. Specimen is stable for 24 hours in a vacutainer transport tube.

Remarks: Collect all specimens prior to the administration of antibiotics, as most antibiotics tend to concentrate in the urine and will affect culture results. For females, cleanse the vulva with cleansing prep, using a front to back motion, before collecting. For males, cleanse the head of the penis with cleansing prep before collecting. Specimens must be labeled with complete source and body site information.

- Clean voided specimens - use the clean catch midstream technique for urine collection. Collect voided urine directly into a clean wide mouth collection container. Do not use a urinal or bedpan for collection. Immediately transfer the specimen from the collection container to a BD Vacutainer transport tube using the Vacutainer needle and straw contained in the collection kit.
- Indwelling catheter specimens - avoid urine that has remained stagnant in the catheter tubing for any length of time. Do not collect urine from the catheter bag. As indwelling catheters increase the risk of urinary tract infections, specimens should not be taken from catheters that have been in place for an extended period (greater than 5 days). Avoid contamination during urine collection. Immediately transfer the specimen to a Vacutainer transport tube as indicated above.
- Straight catheter specimens - collection should be performed by a physician or trained practitioner. Specimens are obtained directly from the bladder. This procedure is not recommended because there is a risk of introducing microorganisms into the bladder. External surfaces should be cleansed prior to collection, as for clean voided specimens. Immediately transfer the specimen to a Vacutainer transport tube or refrigerate.
- Specimens from ileal conduits, nephrostomy tubes or stents - collect after removal of the external device, by insertion of a catheter into the cleansed stoma. Immediately transfer the specimen to a Vacutainer transport tube or refrigerate.
- Cytoscopy specimens - collection is performed by the physician via insertion of the cystoscope. The midstream portion of the collection should be submitted for culture. Immediately transfer the specimen to a Vacutainer transport tube or transport the specimen immediately and refrigerate.
- Suprapubic aspiration - collection is performed by the physician using a needle and syringe to directly tap the bladder via suprapubic puncture. This method avoids the contamination associated with voided specimens and is the preferred method for infants and for patients for whom the interpretation of results of voided urine is difficult. Immediately transfer the specimen to a Vacutainer transport tube or transport the specimen immediately and refrigerate.
- U-bag collection - the external genital area of the infant should be cleansed before placement of the U-bag. The bag should be removed as soon as a specimen is obtained. Because of the high degree of contact of the urine specimen with the skin, U-bag collections are generally very poor specimens. Immediately transfer the specimen to a Vacutainer transport tube or transport the specimen immediately and refrigerate. Scant amounts (less than 1ml) of specimen may be submitted for culture in a clean sterile, leakproof container, such as a sterile conical 15 ml centrifuge tube. However, these specimens must be maintained at refrigerator temperature and transported to the laboratory as soon as possible. Testing includes colony count and susceptibility testing when appropriate for the isolates recovered.

**Reference Interval:**

**Powerchart Orderable:** Urine Culture
Urine for Cytology

Methodology: Cytology  
Synonyms: Urine for Cytology; Urine for Eosinophils

Performed: Monday-Friday (8a-4p). Turn around time is 2-3 days.

Specimen Required:

Collect: Voided or catheterized urine into a 180 mL plastic container with approximately 60 mL of CytoLyt fixative. For normally voided urine samples, best results are obtained by hydrating the patient (3 glasses of water over a period of 3 hours is suggested) and by light exercise such as jumping up and down just prior to voiding. The patient should be instructed to void directly into the bottle containing the fixative. In the case of female patients, the specimen may be collected in a paper cup or other clean container and immediately added to the container with fixative. Cap the bottle tightly and agitate the solution to insure complete mixing of the urine and fixative.

Minimum Volume: 

Transport/Stability: Transport in a 180 mL plastic, screw top container with approximately 60 mL of CytoLyt fixative.

Remarks: Catheterized urine may be dripped directly into the urine cytology container with fixative or in a sterile container and then divided into the cytology container and into the appropriate microbiology container. It is not necessary to measure equal parts of the urine and fixative. Each specimen bottle must be labeled with the patient full name and the date of collection.

Each specimen must be accompanied by a completed cytopathology request form. In addition to the usual information required on the form, it is important to mark the block identifying type of specimen as "URINE" and mark the appropriate blocks identifying the specimen as "VOIDED" or "CATHETERIZED". When appropriate "RIGHT" or "LEFT" should also be identified. Request "FOR EOSINOPHILS" in the Clinical Findings section of the Cytology request slip. It is also necessary that the space labeled Clinical Findings be completed with pertinent information such as hematuria, stone, suspected tumor, recent catheterization, and information as to previous treatment, chemotherapy. If the proper fixative is not available, immediately place the unfixed specimen in the refrigerator located in the Cytology section of the Laboratory.

Reference Interval: 

Powerchart Orderable: Cytology - Non GYN

Urogenital Culture - Female

Methodology: Culture  
Synonyms: Urogenital Culture - Female; Female Genital Culture; Vaginal Culture; Genital Culture - Female

Performed: 7 a.m. - 9 p.m.. Turn around time is 3 days.

Specimen Required:

Collect: Swab of vagina, cervix, urethra, or drainage from these sites. Also, swabs of vaginally delivered placenta or amniotic fluid are acceptable.

Minimum Volume: 1 culturette swab or minitip swab

Transport/Stability: Transport at room temperature. Culturette swabs are stable for 48 hours after collection.

Remarks: Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain). Female genital cultures are collected primarily to screen for the most common vaginal pathogens: Gardnerella vaginalis (bacterial vaginosis) and yeast (Candidiasis or Monillia) and to detect fecal contamination or carriage of Group B strep. Susceptibility testing is, therefore, not routinely performed. NOTE: For specimens submitted to rule out GC (Neisseria gonorrhoeae), please refer to GC Culture requirements or GC-DNA Probe requirements. For Internal Genital Specimens (Uterus, Endometrium, Bartholin etc.), see ASPIRATE/TISSUE CULTURE OR SURGICAL SWAB CULTURE.

Reference Interval: 

Powerchart Orderable: Microbiology Culture Request
Urogenital Culture - Male

Methodology: Culture

Synonyms: Urogenital Culture - Male; Male Genital Culture; Genital Cult -Male

Performed: 7 a.m. - 9 p.m. Turn around time is 3 days.

Specimen Required:

Collect: Swab of urethra or drainage from the urethra or prostate. Semen or drainage aspirates may be submitted in a clean, sterile, leakproof container.

Minimum Volume: 1 swab or 1 mL

Transport/Stability: Transport at room temperature. Culturette swabs are stable for 48 hours. Specimens not in transport media must be received within 2 hours of collection.

Remarks: Specimens must be labeled with complete source and body site information. Exam includes direct smear (gram stain) and susceptibility testing, when appropriate for the isolates recovered.

NOTE: For specimens submitted to rule out GC (Neisseria gonorrhoeae), please refer to GC Culture requirements or GC-DNA Probe requirements.

Reference Interval:

Powerchart Orderable: Microbiology Culture Request

Valproic Acid

Methodology: Petinia

Synonyms: Valproic Acid; Depakene Level; Depakote

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: one SST/gel tube

Minimum Volume: 2.0 mL of blood

Transport/Stability: Centrifuged specimen stable for 72 hours refrigerated.

Remarks: Patient should be in a "steady state" concentration. Draw trough sample prior to dose.

Reference Interval: 50 - 100 ng/L

Powerchart Orderable: Valproic Acid Level

Vancomycin

Methodology: Petinia

Synonyms: Vancomycin

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: one SST/gel tube

Minimum Volume: 2.0 mL of blood

Transport/Stability: Centrifuged specimen stable for 48 hours refrigerated.

Remarks: The Pharmacy & Therapeutics committee has recommended not to draw peaks due to their low clinical utility. Trough samples should be drawn one hour prior to the dose on Day 5 of therapy. Clearly label tubes as "Peak" or "Trough".

Reference Interval: Trough: 5 - 15 ug/mL
Peak: 18 - 40 ug/mL

Powerchart Orderable: Vancomycin - Peak; Vancomycin - Trough; Vancomycin - Random

Venous pH

Methodology: Ion Selective Electrode (ISE)

Synonyms: Venous pH; Cord pH

Performed: As ordered. Turn around time is 4 hours.

Specimen Required:

Collect: one green top tube (contains heparin). Deliver on ice to Respiratory Care.

Minimum Volume: 2.0 mL (tube should be filled)

Transport/Stability: Do not expose blood to room air during collection or transport. Deliver on ice.

Remarks:

Reference Interval: Venous pH: 7.32 - 7.42
Cord pH: 7.25 - 7.35

Powerchart Orderable: Venous/Cord pH
**Viral Infection Smears for Cytology**

**Methodology:** Cytology  
**Performed:** Monday-Friday (8a-4p). Turn around time is 1-2 days.

**Synonyms:** Viral Infection Smears; Cytomegalic Inclusion; Herpes; Varicella; Inclusion Conjunctivitis; Measles; Molluscum

**Specimen Required:**
- **Collect:** Smears on a glass slide and preserve in 95% ethyl alcohol or cells in PreservCyt fixative. Smears may be rejected if:
  - they have been allowed to dry before fixation
  - they are received without fixative or in an improper fixative
  - they are received without the patient's name penciled on the frosted end of the slide
  - specimen is submitted without a complete requisition form

**Minimum Volume:**

**Transport/Stability:** Transport smears on glass slides in 95% ethyl alcohol or PerservCyt fixative.

**Remarks:** Label the slides in pencil with the patient's name on the frosted portion of the slide. Open the coplan jar to facilitate the immediate fixation of the smear. In skin or mucosal infections where vesicles are present, they should be opened, the dome removed, and the margin and bottom of the ulceration scraped. This material should be quickly smeared on a glass microscope slide. The slide must be immediately placed in a Coplan jar containing 95% ethyl alcohol.

Imprint smears can also be made where a lesion is accessible. To make imprint smears, touch the surface of the glass slide firmly and only once to the opened lesion and place immediately into the Coplan jar containing 95% ethyl alcohol. Attempt to obtain more than one slide, preferably 5 or 6. For PreservCyt vial, place collection device into solution and swirl to remove the material.

Urine samples may also be submitted to the Cytology section for detection of Cytomegalic Inclusion disease. These urine samples are submitted in the same manner as routine urine cytology specimens. They must be collected in the 8 ounce urine cytology collection jar containing CytoLyt fixative. The jar must be labeled with the patient's name and date of collection and be accompanied by a completed Cytology request slip indicating the source of the specimen and requesting interpretation for Cytomegalic Inclusion Disease.

**Reference Interval:**

**Powerchart Orderable:** Cytology - Non GYN

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**Vitamin B12**

**Methodology:** Chemiluminescence  
**Synonyms:** Vitamin B12; Cobalamin

**Performed:** Monday - Saturday. Turn around time is 24 hours.

**Specimen Required:**
- **Collect:** one SST/gel tube
- **Minimum Volume:** 2.0 mL of blood
- **Transport/Stability:** Centrifuged specimen stable for 48 hours refrigerated.

**Reference Interval:** 220 - 1000 pg/mL

**Powerchart Orderable:** Vitamin B12
**VonWillebrand Factor Antigen**

**Methodology:** Immunoturbidometric  
**Synonyms:** VonWillebrand Factor Antigen; vWF Ag

**Performed:** Thursdays (day shift). Turn around time is 1-7 days.

**Specimen Required:**
- **Collect:** One full 2.7 mL (3.2% sodium citrate) blue top tube. Specimen may be rejected if the tube is not full.
- **Minimum Volume:** 4.5 mL of blood
- **Transport/Stability:** Specimen is stable for 4 hours, if it is not centrifuged or refrigerated (2 hours if the patient is receiving unfractionated heparin). Otherwise the specimen should be centrifuged, the plasma removed, and the plasma frozen at -20 degrees C.

**Remarks:**
- **Reference Interval:** 50 - 160 %
- **Powerchart Orderable:** VonWillebrand Ag

**VRE Screening Culture**

**Methodology:** Culture  
**Synonyms:** VRE Screening Culture; Vancomycin Resistant Enterococcus; Enterococcus Screening Culture

**Performed:** 7 a.m. - 9 p.m.. Turn around time is 2 days.

**Specimen Required:**
- **Collect:** Cutaneous or perianal culturette swab.
- **Minimum Volume:** 1 swab
- **Transport/Stability:** Transport at room temperature. Culturette swabs are stable for 48 hours after collection.

**Remarks:** Specimens must be labeled with complete source and body site information. This test is designed to screen for known or suspected carrier states of Vancomycin Resistant Enterococcus only. Susceptibility testing is not routinely performed. VRE isolates are saved and the Physician may request additional testing if desired.

**Reference Interval:**
- **Powerchart Orderable:** VRE Screening Culture
SECTION III

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## TABLE OF SYNONYMS

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