CARROLL HOSPITAL
a LifeBridge Health center

CarrollHospitalCenter.org

200 Memorial Avenue • Westminster, Maryland 21157
410-848-3000

Laboratory Services

This manual has been designed to provide you with the necessary information to accurately order laboratory tests that are medically necessary and assist in diagnosing and treating your patient.

The manual is updated on-line throughout the year and can be found electronically on the hospital intranet page (http://www.intra.carrollhospitalcenter.org).

This manual has been reviewed for compliance with federal guidelines by:

Original signed by Christopher Grove, M.D.	1-31-17
Christopher Grove, M.D., Pathology Medical Director	Date
Original signed by Ronald Smith, MT(ASCP)	1-31-17
Ronald Smith, Administrative Director of Laboratories	Date

Revision Dates
1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2011, 2013, 2014, 2015,2016

INTRODUCTION

This manual of laboratory procedures has been prepared for your convenience. Reference to it will enable you to quickly determine the appropriate sample required, patient preparation and other pertinent information. The Clinical Laboratory consists of the following sections:

1. The Anatomic Pathology Section performs gross and microscopic examinations of all surgically removed organs, tissue specimens or material. Processes and microscopically examines cytologic smears and fluids from various body sites for diagnostic purposes. Performs autopsies.

2. The Clinical Chemistry Section provides routine diagnostic chemical analyses; operates the Special Chemistry Section, which includes Arterial Blood Gas Analysis, Toxicology, Therapeutic Drug Monitoring and Immunoassays.

3. The Blood Bank Section provides blood and/or components required for surgical procedures, hemorrhage, trauma and anemias. An adequate inventory of these products is maintained to meet routine and emergency needs. The Blood Bank's ability to maintain its inventory is dependent upon the amount of blood available within our geographic region. This section performs routine therapeutic phlebotomies.

4. The Hematology Section performs qualitative and quantitative studies of the formed elements of the blood; red blood cells, white blood cells and platelets. This section also provides a Serology Unit to perform diagnostic immunologic procedures. Urinalysis and Coagulation are also included in the section.

5. Reference Testing: Many tests are sent out to various Reference labs for analysis. Please note that reference lab requirements, handling, methodology, etc., are subject to change.

6. The Microbiology Section provides a bacteriology laboratory for the identification of aerobic and anaerobic pathogenic bacteria; conducts antibiotic susceptibility studies; provides a mycology/mycobacteriology unit for the identification of pathogenic fungi and mycobacteria; provides a parasitology unit for the identification of ova and parasites in feces, blood and other body sites.

Susceptibility (MIC/disk diffusion) test interpretations are defined as follows:

(S) Susceptible – implies that bacterial isolates are inhibited by the usually achievable concentrations of antimicrobial agent when the recommended dosage is used for the site of infection.

(I) Intermediate – implies clinical efficacy in body sites where the drugs are physiologically concentrated (e.g., quinolones and beta-lactams in urine) or when a higher than normal dosage of a drug can be used. This category also includes a buffer zone, which should prevent small, uncontrolled, technical factors from causing major discrepancies in interpretations, especially for dugs with narrow pharmacotoxicity margins.

(R) Resistant – implies that isolates are not inhibited by the usually achievable concentrations of the agent with normal dosage schedules, and/or that demonstrate zone diameters that fall in the range where specific microbial resistance mechanisms (e.g., beta-lactamases) are likely, and clinical efficacy of the agent against the isolate has not been reliably shown in treatment studies.

These interpretive criteria are taken from CLSI standards based on usual dosage regimens and routes of administration in the United States.

The laboratory personnel are dedicated to the concept of reliable results to assist the physician in the evaluation, management and care of patients. Achievement of this goal is attested by certification by the College of American Pathologists that our laboratory meets established standards. CLIA, JCAHO, AABB and the FDA have also licensed or accredited our laboratory.

LICENSURE INFORMATION

COLLEGE OF AMERICAN PATHOLOGISTS 13511-01

CLIA.....21D0216056

STATE OF MARYLAND 022

TISSUE BANK.....TB022

TELEPHONE DIRECTORY

Listed below are phone numbers and a contact person for each clinical department. If calling from outside the hospital, dial (410) 871 - plus the extension.

Director of Laboratory Services 6789
Ronald Smith, B.S., MT (ASCP)

Medical Director of Laboratory Services..... 6794
Christopher Grove, M.D.

Anatomic Pathology..... 6794
Melissa K. Buick, M.D., Pathologist

Blood Bank..... 6801
Cheryl D'Amario, MT(ASCP)SBB, Blood Bank Supervisor (Ext 6801)

Cytology..... 7190
Melissa Buick, M.D., Pathologist
Lisa Warren, SCT(ASCP), Cytology Coordinator (Ext 7190)

Chemistry 6796
Larry Noblett, MLT(ASCP), Core Lab Manager (Ext 7372)

Hematology, Coagulation, Urinalysis and Reference Lab 6799
Larry Noblett, MLT(ASCP), Core Lab Manager (Ext 7372)

Histology..... 6805
Christopher Grove, M.D., Medical Director of the Laboratory
Michele Arrison, Histology Supervisor (ext. 6805)

Laboratory Information System,..... 7407
Christina Redmond, Manager (7407)

Microbiology 6806
Christine Clements, MT(ASCP), Manager (ext. 6581)

Outpatient Laboratory - Westminster 410-871-6966
- Eldersburg..... 410-549-9285
- Taneytown..... 410-751-1372
- Manchester..... 410-374-0226

Outreach/Marketing 6803
Laboratory Liaison Outreach Services
Christina Redmond, Manager (7407)

Pathologists..... 6794
Christopher Grove, M.D., Medical Director of Laboratory
Melissa Buick, M.D., Pathologist

Phlebotomy
Christina Redmond, Manager of Phlebotomy..... 7407
Emma Eyler, Phlebotomy Supervisor..... 7410
John Brownley..... 7212

Laboratory Quality Coordinator
Susan Geiman, MLT (ASCP), MT (HEW) Quality Coordinator..... 6580

Lab E/N Supervisor, Bobby Echard, MT (ASCP), Supervisor..... 7435

Point of Care Coordinator..... 6580
Susan Geiman, MLT (ASCP), MT (HEW)

Results 6800

GENERAL INFORMATION

I. HOURS OF OPERATION

A. The Hospital Laboratory is open 24 hours daily for inpatient and Emergency Room patient services.

B. The Hospital Laboratory provides phlebotomy services from 5:00am-10:00pm. Nursing is responsible for draws from 10:00pm-8:00am. From 5:00am-8:00am, phlebotomists perform morning draw, but may be available to draw stats if convenient. Routine draws (not morning draw) will be picked up after 8:00am.

The Laboratory Phlebotomy team is responsible for Emergency Department recollections of rejected samples from 8:00am-8:00pm. Between the hours of 8:00pm-10:00pm, phlebotomists are available for redraws if requested by the Emergency Department. From 10:00pm-8:00am, the Emergency Department is responsible for redraws.

C. For outpatient drawing service there are 4 convenient locations:

1. Westminster Med Lab
Charles O. Fisher Medical Building
193 Stoner Ave.
Westminster, MD 21157
Phone: 410-871-6966; Fax: 410-871-7188
Monday through Thursday 7:00 a.m. - 5:00 p.m.
Friday 7:00 a.m. - 4:00 p.m.
Saturday 8:00 a.m. - 12:00 noon

2. North Carroll Med Lab
4174 Hanover Pike, Suite A
Manchester, MD 21102
Phone: 410-374-0226; Fax – 410-374-3225
Monday, Tuesday, Thursday 7:00 a.m. - 3:30 p.m.
Wednesday, Friday 7:00 a.m. - 12:30 noon

3. Eldersburg Med Lab
South Carroll Medical Center
1380 Progress Way, Suite 113
Eldersburg, MD 21784
Phone: 410-549-9285; Fax 410-552-1539
Monday, Wednesday, Friday 8:00 a.m. - 4:00 p.m.
Tuesday and Thursday 8:00 a.m. - 2:00 p.m.

4. Taneytown Med Lab
520 East Baltimore St. Suite 8
Taneytown, MD 21787
Phone: 410-751-1372; Fax 410-751-1348
Monday through Friday 7:00 a.m. – 3:30 p.m.

II. SPECIMEN DELIVERY

A specimen, which has been collected in the doctor's office, can be delivered directly, without registration, if labeled correctly and accompanied by a completed, signed Carroll Hospital Center laboratory request form.

1. The specimen must be delivered in a biohazard bag (provided by the hospital courier).

2. The lab request form must be completed (including two patient identifiers) and signed. Insurance information MUST be included. The form should be placed in the outer pouch of the biohazard bag so the registration information can be read through the bag.

3. Deliver the specimen to the Westminster Med Lab if open or to the ED registrar (or hand carry to the lab). The registrar will send the specimen to the lab or call for the phlebotomist to come pick it up. Lab personnel will be responsible for the registration and sample processing.

4. Once the specimen is received in the lab, it will be processed according to its priority. If it is a STAT, the ordering physician will be faxed/called with the results as soon as they are available.

III REPORT DELIVERY

a. Inpatient Reports will be available on-line upon completion. Daily summary reports and cumulative reports will be sent electronically to McKesson Patient Folder (MPF) and may be viewed via Physician Portal.

b. Outpatient Reports will be delivered by the scheduled courier. They may also be viewed through Webstation for Physicians.

c. Remote Printing is transmitted three times daily to our remote sites at 7:00am, 1:00pm and 2:30 p.m.

d. Called or Faxed Reports will be delivered according to the priority of the test. All critical values are called immediately upon receipt of the values. A critical value is one that may require clinical action to avoid life-threatening conditions. Critical values are defined for specific tests and are updated periodically.

TESTING PRIORITY CATEGORIES

I. GENERAL

The priority categories for the drawing and processing of laboratory specimens include the following:

A. Routine
B. STAT
C. Timed

When no category has been provided, the laboratory will assume that the tests can be routinely performed. Since the afternoon and midnight shifts are staffed with fewer technologists, it is extremely important that they be aware of the priority of a given test.
A routine test will not intentionally be performed before a STAT test; however, this occasionally occurs because the priority of a test is not noted.

II. PRIORITY CATEGORIES

I. Routine
This category is used to request routine procedures, which will be processed in the various sections during day shift hours, seven days a week. Routine tests are batched and analyzed on a schedule.

II. STAT
The STAT category is for tests whose results indicate life-threatening situations. Results are generally studies offer the potential to contribute significantly to the treatment of a patient and are typically available within one hour.

Laboratory technologists have been directed to fax the results of all outpatient STAT tests to the requesting physician, and/or responsible nurse if indicated. In addition technologists will record the time each emergency result was faxed. A follow-up call will be made by our office staff to verify that the fax was received.

III. Timed
This test priority is to be used for specific timed draws and will be run as soon as possible (ASAP). Timed tests are run behind STAT orders and before routine requests.

Requests for tests in this category imply that a reasonable delay will not jeopardize patient care and that a life-threatening condition is not anticipated. ASAP requests will be performed expeditiously and before routine specimens, but without the high priority of emergency (STAT) requests. Results of ASAP tests are generally available two hours after receipt of the specimen.

IV. Pre and Post-Dose TDM
Peak and trough must be drawn at appropriate times and labeled accordingly.

V. Delays in Expected Turn-Around-Time
When test results are delayed beyond expected turn-around-time due to instrument malfunction, computer downtime or other problems that may arise, the floor/client will be notified as soon as possible.

PHYSICIAN INFORMATION

CARROLL
HOSPITAL CENTER
Med Lab
Westminster, Hampstead, Eldersburg,
Manchester, Taneytown

☐ STAT RESULTS TO ________
☐ CALL RESULTS TO ________
☐ FAX RESULTS TO ________

PHYSICIAN AUTHORIZING SIGNATURE | DATE COLLECTED
X

NPI:

COPY TO:

DATE COLLECTED | TIME COLLECTED ☐ AM ☐ PM

PATIENT NAME LAST | FIRST | MIDDLE | DATE OF BIRTH | SEX ☐ M ☐ F

ADDRESS | PATIENT'S SS NO.

CITY | STATE | ZIP | TELEPHONE NO.

PRIMARY POLICY HOLDER'S NAME | SUBMIT INSURANCE CARD COPY | SEX ☐ M ☐ F

POLICY HOLDER'S EMPLOYER | RELATIONSHIP TO POLICY HOLDER | POLICY HOLDER'S S.S. NO.

INSURANCE COMPANY | ADDRESS

POLICY NUMBER | GROUP NUMBER | GROUP NAME

I HEREBY AUTHORIZE THE PAYMENT OF ALL [illegible] ... RELEASE OF INFORMATION NECESSARY TO PROCESS THE CLAIM [illegible]

PATIENT / AUTHORIZED PERSON'S SIGNATURE

DIAGNOSIS / ICD 9 CODE REQUIRED

PROFILES

4086	CHOLESTEROL FRACTIONATION (FASTING)	S	501	HEPATIC PROF.	
4009	ELECTROLYTE PROFILE	S	4045	ACUTE HEPATITIS PROF.	
4071	BASIC METABOLIC PROF.	S	6004	RENAL FUNCTION PANEL	
4039	COMP METABOLIC PROF.	S			

TESTS THAT REQUIRE MEDICAL NECESSITY DOCUMENTATION

NOTICE: Tests listed in blue as well as Acute Hepatitis Profile and Cholesterol Fractionization above have limited coverage. Physicians must provide medical necessity documentation (ICD-9 codes). The patient may be responsible for payment if documentation is not provided. Medicare patients may be required to sign an ABN for non-covered services.

7082	AFP (TUMOR MARKER) S	4250	DIGOXIN S	4432	NT PRO-BNP	4038	T4 FREE
7085	CA 27.29	5074	FERRITIN S	7200	OCCULT BLD (STOOL) ___	4146	TRIGLYCERIDE (FASTING) 12 hr.
7084	CA 19-9 S	4060	GLUCOSE (FASTING) 12 hr. S	7212	OCCULT BLD (STOOL) X ______	4420	TSH (ULTRASENSITIVE)
5141	CA 125 S		GLUCOSE TOLERANCE S	5001	PSA S	2184	URINE CULTURE CATH *
6032	CBC W/DIFF EXTRA CHARGE IF MANUAL DIFF INDICATED L		[illegible]	5002	PSA (MEDICARE SCREENING) S	2183	URINE CULTURE CLEAN CATCH
6012	CBC no diff	4061	[illegible] S	6142	PTT S	4072	VIT B12
4443	GLA S	5082	HBA1C	6751	[illegible] B	4071	VIT B12/FOLATE
4084	CHOLESTEROL S	6027	HGB & HCT	6734	[illegible] B	6077	VITAMIN D (TOTAL)
7067	CRP S	4175	IRON/TIBC	4416	T3 UPTAKE S		
5148	CRP-HS S	4115	[illegible]	4440	T4 S		

THERAPEUTIC DRUGS

4255	PHENYTOIN (DILANTIN) S	7456	TACROLIMUS L	7025	FREE PSA S	2220	FUNGUS SMEAR & CULTURE ? *
6026	LITHIUM	5071	FOLATE S	6100	RETIC COUNT L		ROUTINE CULTURE ? *
4270	PHENOBARBITAL S	7198	FRUCTOSAMINE S	1062	RHEUMATOID FACTOR S	2070	[illegible] ? *
4280	[illegible] (TEGRETOL) S	4076	GGT S	3077	RPR S	2073	GENITAL CULTURE ? *
4305	THEOPHYLLINE S	4085	GLUCOSE (CHALLENGE) S	7867	[illegible] S	2145	GRAM STAIN ?
		4415	HEPATITIS A ANTIBODY IgM S	5040	[illegible]	2012	MRSA SCREEN ? *
		4402	HEPATITIS B ANTIBODY S	7527	SEMEN ANALYSIS COMPLETE	2031	VRE SCREEN ? *

INDIVIDUAL TESTS

3491	ACETONE F	4918	HEPATITIS B ANTIGEN S	7525	SEMEN ANALYSIS POST-VAS	2050	OVA & PARASITES X ___
4075	ALBUMIN S	4858	HEPATITIS B C ANTIBODY IgM S	4240	SODIUM S	2056	RAPID STREP TEST - if neg. BHS culture will be performed at an additional charge
4130	ALKALINE PHOSPHATASE S	4410	HEPATITIS C ANTIBODY S	7288	T3 FREE S		? SOURCE REQUIRED:
4135	ALT (SGPT) S	7469	IMMUNOFIXATION, SERUM INCLUDES IgG, IgA, IgM, SPEP	4139	T3 TOTAL S		* ID & SENSITIVITY IF INDICATED
4140	AMYLASE S	7173	IgG, IgM, IgA S	5142	TES US ERONE TOTAL S		◆ ID IF INDICATED
6870	ANA (IF POS., TITERED AT ADDT'L CHARGE) S	7567	LEAD (BLOOD)	7278	TESTOSTERONE FREE S		(✓) TEST COMPONENT DECLINE
3413	ANTIBODY SCREEN P	7290	LH S	727	[illegible] S		CHARGE [illegible] Decline
7411	ASO S	4165	LIPASE S	7881	TOXOPLASMOSIS IgM, IgG S		ANAEROBIC PLATE Decline
4105	AST (SGOT) S	7083	[illegible] S	7002	URINALYSIS EXTRA CHARGE IF MICRO INDICATED		SENSITIVITY Decline
1457	BETA HCG QUANT S						
4110	BILIRUBIN DIRECT S	4120	MAGNESIUM S				**MISCELLANEOUS TESTS**
4125	BILIRUBIN TOTAL	6027	MICROALBUMIN, RANDOM URINE INCLUDES CREATININE U				
2103	BLOOD CULTURE [illegible]	7289	MONO SCREEN (HETEROPHILE) S				
4185	CALCIUM S	7228	[illegible] S				
7273	CHLAMYDIA AMPLIFIED [illegible]						
7153	[illegible]	4100	PHOSPHORUS S		**MICROBIOLOGY**		
		4067	POTASSIUM S	2311	[illegible]		
4061	CREATININE	5115	PRE-ALBUMIN S	2101	[illegible]		
7188	[illegible]	7015	PROTEIN ELECTROPHORESIS, SERUM (INCLUDED IN TEST 7469)	2093	BETA STREP [illegible]		
4145	CPK S	4115	[illegible]	2102	BLOOD CULT X ______ *		

LABORATORY COPY

REQUISITION FORM

Carroll Hospital Center Lab has a single requisition for ordering tests for Clinical Chemistry, Hematology, Coagulation, Urinalysis and Microbiology. Separate requisitions are provided for Cytology and Surgical Pathology.

The following guidelines provide assistance in completing this requisition:

PHYSICIAN INFORMATION - This area will be pre-printed for your office by the Laboratory. It should contain the physician(s) name or office name, address, phone number and FAX number if available.

PHYSICIAN AUTHORIZED SIGNATURE - This is located in the box on the left of the form beneath the preprinted office information. The law requires original signatures on all orders. An original or stamped physician signature is REQUIRED on each form.

DATE ORDERED - This date is important for the Laboratory to verify that the order is not outdated.

COPY TO__ - If you would like a copy of the report sent to another physician, please indicate his/her name.

DATE COLLECTED/TIME COLLECTED - This information is necessary if the specimen is collected and sent to CHC Laboratory.

PATIENT/AUTHORIZED PERSON'S SIGNATURE - The patient or responsible party should read the statement located above the line and a signature is required to consent to treatment and release of information. A signature is required for courier specimens also.

PATIENT DATA - Please provide requested patient information. It is vital to include the patient's Social Security number.

INSURANCE INFORMATION - This information is necessary to ensure accurate and expedient billing of the patient's insurance; if patient is not accompanying form. Please send a copy of the patient's insurance card with our requisition.

DIAGNOSIS/ICD10 REQUIRED - This is the same code used in the office when generating a bill. Please record the ICD10 code. This area is important to ensure expedient billing of the patient's insurance company. (Only Medically Necessary tests will be reimbursed by Medicare – (See Advanced Beneficiary Notice (ABN) on page 10)

SPECIMEN STATUS - Please check any of these boxes if appropriate for that request. STAT results will be phoned to the requesting physician as soon as they are available. The standing order allows the physician to order the same test(s) multiple times without rewriting the order. A standing order will be good for the maximum length of one year.

MEDICARE PART A: Check this box if a nursing home patient requires skilled care.

TRANSMISSION OF RESULTS - Please check if you would like the results to be faxed to you. The Federal legislation, HIPAA, requires Health Care Providers and their affiliates to maintain the confidentiality of protected health information ("PH"), which includes, among other things, the medical records and billing records relating to medical care provided. CHC maintains the confidentiality of PH, using it only for the purposes for which it was disclosed.

ADVANCED BENEFICIARY NOTICE (ABN)

Medicare will only pay for items and services it determines to be “reasonable and necessary” under section 1862(a) (1) of the Medicare law. If Medicare determines that a particular item or service although it would otherwise be covered, is “not reasonable and necessary” under Medicare program standards, Medicare will deny payment for that item or service. Refer to tests and codes in National Coverage Determination Coding Policy Manual (Medical Necessity) supplied by Carroll Hospital Center.

In the event there is reasonable doubt that Medicare will pay for a specific test, a patient will be asked to sign an Advanced Beneficiary Notice (ABN) to assume financial responsibility. If the specimen has been obtained at a location other than a Carroll Hospital Center Med Lab, the off –site location must complete and obtain a signature on the ABN and forward to the Lab.

To complete the ABN:

1. Print patient’s full legal name
2. Enter patient’s Visit Number or Unit Number.
3. Name of tests not covered by patient’s ICD9 codes
4. “Tests not covered by patient’s diagnosis:
5. The patient should be given the option of having the test done even if he/she is financially responsible. One of the choices must be marked.
6. The date and patient’s signature are mandatory.

A copy should be made and retained at the collecting location. The original must be sent with the requisition to the MedLab.

For more information, see “Be Informed about Signing an ABN?

A. Notifier:

B. Patient Name: C. Identification Number:

Advance Beneficiary Notice of Noncoverage (ABN)

NOTE: If Medicare doesn't pay for **D.** _____ below, you may have to pay. Medicare does not pay for everything, even some care that you or your health care provider have good reason to think you need. We expect Medicare may not pay for the **D.** _____ below.

D.	E. Reason Medicare May Not Pay:	F. Estimated Cost

WHAT YOU NEED TO DO NOW:

- Read this notice, so you can make an informed decision about your care.
- Ask us any questions that you may have after you finish reading.
- Choose an option below about whether to receive the **D.** _____ listed above.

  Note: If you choose Option 1 or 2, we may help you to use any other insurance that you might have, but Medicare cannot require us to do this.

G. OPTIONS: Check only one box. We cannot choose a box for you.

☐ **OPTION 1.** I want the **D.** _____ listed above. You may ask to be paid now, but I also want Medicare billed for an official decision on payment, which is sent to me on a Medicare Summary Notice (MSN). I understand that if Medicare doesn't pay, I am responsible for payment, but **I can appeal to Medicare** by following the directions on the MSN. If Medicare does pay, you will refund any payments I made to you, less co-pays or deductibles.

☐ **OPTION 2.** I want the **D.** _____ listed above, but do not bill Medicare. You may ask to be paid now as I am responsible for payment. **I cannot appeal if Medicare is not billed.**

☐ **OPTION 3.** I don't want the **D.** _____ listed above. I understand with this choice I am **not** responsible for payment, and I **cannot appeal to see if Medicare would pay.**

H. Additional Information:

This notice gives our opinion, not an official Medicare decision. If you have other questions on this notice or Medicare billing, call **1-800-MEDICARE** (1-800-633-4227/**TTY:** 1-877-486-2048). Signing below means that you have received and understand this notice. You also receive a copy.

I. Signature:	J. Date:

7. **Q: Will supplemental insurance pay for the test if Medicare doesn't?**
   A: Maybe. If you have a supplemental insurance policy (sometimes called a "Medigap" policy), let your phlebotomist know that you have a secondary insurance and it will be included on your claim. If Medicare denies the charge, it will be sent to your secondary insurer to see if they will pay.

8. **Q: What can I do to avoid paying for the test?**
   A: Contact your physician TODAY to determine if there is another diagnosis code in your medical record that will be acceptable to Medicare. If there is, have the physician fax the new diagnosis code to the MedLab where you had your specimen collected. New codes must be received before the claim is submitted to Medicare. Codes received after the claim has been sent to Medicare will require an appeal. There is no guarantee that the appeal will be ruled in your favor.

Day of lab test	**Must receive code by**
Monday	Thursday
Tuesday	Friday
Wednesday	Friday
Thursday	Friday
Friday	Monday
Saturday	Tuesday

9. **Q: I've never had to pay for a test before. Is this something new?**
   A: The ABN isn't new – it has been around for more than 10 years. But more labs are using it now because of recent changes in how Medicare pays for lab tests. These changes make it more likely that Medicare won't pay for a lab test. And since labs aren't getting paid by Medicare, they must ask the patients to pay. This explains why ABN's are becoming more common.

10. **Q: You say the ABN isn't new but I've never been asked to sign one before. Why must I sign one today?**
    A: There was no reason to believe Medicare would deny payment for the tests the doctor ordered for you during previous visits. But we think that Medicare won't pay for the test being ordered today. Although you should ask your doctor what the difference is between today and other visits when you didn't have to sign an ABN, here are some likely possibilities:
    - Your doctor ordered different test on previous visits. This is the first time your doctor is ordering this particular test;
    - This is the same test your doctor ordered before but your diagnosis has changed – that is, the doctor is ordering the test for a different reason;
    - This is the same test and the same diagnosis. But since your last test, Medicare changed the rules and no longer pays for the test under the diagnosis.

BE INFORMED ABOUT SIGNING AN ABN

Carroll Hospital Center
200 Memorial Ave.
Westminster, MD 21157
410-871-6800

MEDICARE COVERAGE OF LAB TESTS

Your doctor wants to diagnose a condition you may have or evaluate how well your treatment is working. To do that, the doctor needs to have certain laboratory tests performed. The doctor will tell you what those tests are and why he thinks that they are necessary.

Before a specimen is taken for testing, you may be asked to sign an Advance Beneficiary Notice or "ABN". This brochure will help answer your questions about what an ABN is and why you are being asked to sign it.

1. **Q: What is an ABN?**
   A: An ABN is a form that lets you know that you may have to pay for a test your doctor ordered if Medicare refuses to pay for it. Once you sign the ABN, the lab may bill you for the cost of the test.

2. **Q: Why do you want me to sign the ABN?**
   A: Although the Medicare program pays for most lab tests, it won't pay for some tests under certain circumstances. When that happens, Carroll Hospital Center (CHC) Laboratory must ask the patient to pay. Consequently, we ask patients to sign an ABN whenever Medicare appears likely to deny payment for the specific test the doctor has ordered. The reason you are being asked to sign an ABN now is that this is one of those occasions in which we or your doctor believe Medicare won't pay.

3. **Q: Why don't you think Medicare will pay for this test?**
   A: Medicare pays only for tests that it considers to be "medically necessary". Some tests are never considered medically necessary. Some tests are always considered medically necessary. But most tests fall in the middle. They're medically necessary only under certain circumstances, depending on what the patient's diagnosis is. If the diagnosis the doctor lists isn't one of the diagnoses Medicare will accept for that test (or if the doctor doesn't tell the lab what the diagnosis is), the test won't be considered medically necessary and Medicare won't pay for it. That appears to be the case with the test your doctor has ordered.

4. **Q: If Medicare says the test isn't medically necessary, then why perform it?**
   A: Your doctor has made a medical judgment that you need the test. When your doctor says a test is medically necessary, they consider your personal medical history, any medications you may be taking, and generally accepted medical practices. When Medicare says a test isn't medically necessary, it's not making a medical decision about your health. It's acting like an insurance company deciding what it will and won't pay for. And, just like private insurers, there are occasions when Medicare won't pay for services that doctors think are important to a patient's health.

   But as the ABN says, you have the option not to have the test done. If you have questions about a specific test your doctor has ordered for you and why it's medically necessary, ask your doctor.

5. **Q: Must I sign the ABN?**
   A: No. You have three options:

   Option 1: You may sign the ABN and have the test performed. You can then be billed for the test.

   Option 2: You may refuse to sign the ABN and choose not to have the test performed. However, in not having the test performed, you'll be going against the medical advice of your doctor. So we advise you to consult with your doctor before choosing this option.

   Option 3: You may refuse to sign the ABN and go ahead with the testing. The laboratory will perform the test and you will receive a bill – even though you refused to sign the ABN. A witness will sign the ABN to indicate that you have been advised of the ABN, refused to sign it, but still want the test performed. Under Medicare guidelines, we may then directly bill you for the tests.

6. **Q: Will I be billed automatically?**
   A: No. After the lab performs the test, we'll ask Medicare to pay for it. Of course, if Medicare does pay for it, you won't receive a bill. You'll get a bill only if Medicare denies the claim. Remember that if Medicare denies the claim, you may contest the denial if you think it was wrong. Contact your doctor or Medicare if you want to do that.

BLOOD COLLECTION RESPONSIBILITIES

Routine specimens:
Carroll Hospital Center physicians presently order tests that are collected by the phlebotomy team on demand. Routine orders can be placed at any time, 24 hours a day. The phlebotomist tries to batch these routine orders with any "timed" or "STAT" requests, however most routine orders are usually collected within an hour. Nursing staff is responsible for routine draws from 10:00 p.m. to 8:00am.

AM Routine specimens:
All blood tests ordered with a status of A.M. routine are printed at 4 am each day. Only tests ordered with this status will print on this list and will be drawn as part of the morning draw. Morning draw begins at approximately 5:00 am and, under normal circumstances is completed by 8:00 am.

Timed specimens:
Whenever a test is ordered to be drawn at a particular time, it will be drawn within a window of 15 minutes before and 15 minutes after the test is due unless there are extenuating circumstances. If a test is ordered ASAP, this will print on the label as a timed specimen and will be drawn according to the above criteria. Nursing staff is responsible for timed draws between 10 p.m. and 8 am.

"STAT" specimens:
If multiple "Stat's" are ordered simultaneously, the phlebotomist will attempt to prioritize them, Stats are not collected by the phlebotomy team between 10 p.m. and 8 am.

Heparin PTT:
Due to the need for quick results to monitor heparin therapy, if ordered as an AM routine, these patients will be drawn as soon as possible on morning draw, sent to the lab immediately and results should be completed by 8:00am. Timed heparin PTT after morning draw will be drawn as a timed specimen.

Emergency Department Recollections:
The phlebotomy team will draw Emergency Department recollections between 8:00 am and 8:00 p.m. The Emergency Department is responsible for recollection of rejected specimens between 8:00 p.m. and 8:00 am.

SUMMARY OF COLLECTION RESPONSIBILITIES

	Phlebotomy	Nursing staff
AM Routine	5 am–8 am (no stats, timed or routines)	NA
Routine	8 am – 10 p.m.	10 p.m. – 8 am
Timed (ASAP)	8 am – 10 p.m.	10 p.m. – 8 am
STAT	8 am – 10 p.m.	10 p.m. – 8 am
Heparin APTT	5 am–10 p.m. (5 am-8 am if ordered as am routine)	10 p.m. – 5 am
ED Recollects	8 am – 8 p.m.	ED responsible 8 p.m.–8 am

SPECIMEN COLLECTION (PREPARATION AND HANDLING)

This Reference Manual presents instructions for proper submission of specimens, which assure specimen stability. It is essential that these instructions be followed exactly to assure delivery of a specimen that is adequate for testing.

The Laboratory has established standards for specimen integrity to provide optimal reliability of patient test results. Prior to specimen collection, review the specimen requirements in the alphabetical test listing in this Reference Manual. Please be sure to submit the quantity of sample designated in this manual. Please contact the Laboratory if there are any questions, prior to specimen collection.

I. IDENTIFICATION

All patients must be identified before a specimen is collected.

INPATIENT: All in-patients must be identified utilizing two patient identifiers. Acceptable identifiers at Carroll Hospital Centers are:

- The patient name.
- The medical record/unit number on the patient's wristband.

In the event a patient does not have an ID wristband, the phlebotomist will request that a member of the nursing staff place an identification bracelet on the patient before collection of specimen.

OUTPATIENT: All outpatients must be identified using two patient identifiers. These may include the patient's name, date of birth, social security number.

II COLLECTION

1. Collection of a blood sample is obtained by using the recommended venipuncture technique. New gloves must be worn for each and every venipuncture procedure.
2. Apply a tourniquet to the patient's extended arm and select the best vein. Swab the site with an alcohol prep pad (sterile alcohol 70%). Allow the site to air dry as not to cause hemolysis. Note: Blood culture collection requires special arm prep – refer to "Culture, Blood" Procedure.
3. Retract the skin to "fix" the vein in position and, with the needle at a 15^0 angle and the bevel up, quickly penetrate the skin and vein. Puncture the tube stopper by pushing the tube forward. This initiates the vacuum suction.
4. The tourniquet should be released as soon as possible. Never leave the tourniquet on for more than 1 minute, otherwise, hemoconcentration will occur. Tests such as cholesterol, proteins, and hematology values increase significantly from 3 to 5 minutes of tourniquet application.
5. Allow the tube to fill until the vacuum is exhausted before withdrawing the tube from the holder.
6. If only a single collection tube is required, remove the entire assembly from the arm when the vacuum is exhausted. Place a dry sterile gauze pad over the venipuncture site and withdraw the needle carefully.

7. When multiple specimens are required, follow the proper order of draw. Sterile blood culture specimens are drawn first, followed by coagulation studies (blue top tubes) and finally specimens with additives (e.g., gel barrier, red, green, lavender, pink and gray top tubes). Mix all tubes containing additives by gently inverting the tube 5 to 10 times.

8. All specimens submitted to the Laboratory must be properly identified by indicating the patient's complete name and identification code on every specimen tube, slide or container submitted. The date and time of collection should also be included as well as the collectors ID# or initials. Gentle inversion of the tube five times after venipuncture is essential

9. When serum is the required specimen, use of the barrier tube will provide the most accurate results in most cases. Allow blood to clot for 30 minutes in a vertical position. Centrifuge at full speed (3000 rpms for 5 min). IT IS IMPERATIVE THAT CENTRIFUGATION OCCURS WITHIN 30 MINUTES OF VENIPUNCTURE.

10. Urine specimens for testing must be placed in the proper preservative or transport containers immediately after collection to assure testing viability of the specimen.

11. Complete the requisition according to the instructions on page 10 and complete an ABN if necessary.

12. Place the requisition and specimens, from a single patient, in an individual plastic biohazard specimen bag. To facilitate handling fold the requisition with the patient's name and information showing and place in special pocket provided on the specimen bag.

13. The Laboratory depends on your expertise when preparing the patient and the specimen for testing. A venipuncture fee will be charged whenever blood is drawn by a Carroll Hospital Center phlebotomist on an outreach patient or nursing home resident. **Any questions or concerns call 410-871-6800.**

III BLOOD COLLECTION TUBES

Blood specimens must be collected in the appropriate vacuum tubes. Generally speaking, 40% of whole blood is retrieved as either serum or plasma. Therefore, from the average patient, a completely filled 10 mL tube will give about 4 mL of serum or plasma.

1. Red top (plain) tube: This tube contains only a clot activator, and is used for collecting a clotted blood specimen. After drawing, it is necessary to allow the blood to clot at room temperature for 30 minutes. Centrifuge the specimen and transfer the serum portion into a properly labeled plastic transfer vial. (Prolonged exposure of the serum to the clot will invalidate many test results).
2. SST tube – Gold top tube:
   Invert gently 5 to 10 times and allow to "sit" 30 minutes. Centrifuge the specimen and send to Lab. NOTE: Some chemical analytes cannot be performed from a serum separator as contents of the gel will interfere with the analytical procedure. If in doubt about the type of tube to draw, consult specimen requirements listed for the individual test.
3. Gray top tube: This tube contains oxalate as an anticoagulant and fluoride as a glucose preservative. After the tube is filled, it should be gently inverted 5-10 times to prevent clot formation. The fluoride (glucose preservative) will maintain the glucose level in the blood for several hours).

4. Royal Blue or Tan Top tube: This tube contains EDTA as an anticoagulant and should be

mixed 5-10 times after drawing. It is a specially treated tube for the determination of blood lead levels.

5. Lavender top tube: This tube contains liquid EDTA (ethylenediamine-tetra-acetic acid) anticoagulant, which is present in the appropriate concentration for most hematologic procedures. After the tube is filled, it should be gently inverted 5-10 times to prevent clot formation. The amount of anticoagulant it contains will prevent a full draw from clotting (with proper mixing). If the tube is less than a full draw, the proportion of anticoagulant to blood may be altered enough to give unreliable laboratory test results.
6. Green top tube: This tube contains heparin as the anticoagulant. After the tube has been filled, it should be inverted 5-10 times to prevent clot formation. Use this tube when preparing heparinized plasma specimens.
7. Light blue top tube: This tube contains 3.2% (0.109M) sodium citrate as the anticoagulant. After the tube is filled, it should be inverted 5-10 times to prevent clot formation. Blood drawn in this tube is used specifically for prothrombin times, partial thromboplastin times and other coagulation procedures. It is essential that this tube be filled exactly to its capacity. The vacuum in the tube is calibrated to draw a full volume of blood. An improper blood/anticoagulant ratio will invalidate coagulation test results. If the blood must be drawn through an indwelling catheter, possible heparin contamination should be avoided. The line should be flushed with saline and the first 5-10mL of blood discarded or used for other laboratory tests. In the case of any unexpected abnormal coagulation test results, a new specimen should be obtained from a clean venipuncture.
8. Blood Culture Collection Bottles/Media – Blue Top BacT/Alert SA, purple top BacT/Alert SN, pink top BacT/Alert PF (for children, infants, and short draws).
9. When the requested laboratory tests require multiple types of tubes, the following order-of-draw is recommended:

1. Blood Cultures/Sterile specimen – BacT/Alert media bottles
2. NA Citrate – Blue top
3. Red top (plain) tube or SST – Gold top
4. NA Heparin – Green top
5. EDTA – Lavender top
6. NA Fluoride – Gray top

IV PHLEBOTOMY GUIDELINES

PHLEBOTOMY NEAR AN IV SITE

Preferably, specimens should not be collected from any arm with an intravenous site. However, if circumstances demand that the arm with an intravenous site be used fluid administration, every effort should be made to draw the sample distal to the intravenous site. When drawing distal to the IV site, apply the tourniquet between the IV and the intended venipuncture site. If this is not possible, the specimen may be obtained proximal to the site if certain procedures are followed:

1) The IV must be turned off (by a nurse or physician) for at least three minutes prior to venipuncture, taking care that the flow has been completely discontinued.
2) Discard the first 2 mL of blood (or the volume in the catheter, needle and the vein).
3) Draw tubes for coagulation tests last. It is not necessary to disconnect the IV as long as the flow has completely stopped.

PHLEBOTOMY WHILE PATIENT IS RECEIVING A BLOOD TRANSFUSION

If possible, the phlebotomy should be delayed until after the transfusion is complete, (CBC, PT, PTT, potassium and calcium are definitely affected). If the collection is necessary during the transfusion, blood should be drawn from the opposite arm if access is available. If access is not possible, follow the above technique for phlebotomy from an IV site.

PHLEBOTOMY FROM INDWELLING LINES

Members of the phlebotomy team should never draw blood specimens from indwelling (central) lines. If it is necessary that specimens be obtained from a line or heparin lock, the procedure must be performed by a nurse or physician. The IV must be turned off for at least three minutes prior to specimen collection and a volume equal to twice the catheter volume should be discarded prior to collection of tubes.

If the indwelling line isn't working, the IV team should be contacted to try to clear the line. If this is not successful, the phlebotomy team should try a peripheral phlebotomy.

PHLEBOTOMY FROM ALTERNATIVE SITES

Alternative sites such as ankles or lower extremities must not be used except by a physician or nurse or PA with permission of the physician because of the potential for significant medical complications such as phlebitis, thrombosis, embolism, or tissue necrosis. The phlebotomist should never perform this type of phlebotomy.

PHLEBOTOMY FROM AN ARM PROXIMAL TO MASTECTOMY

A physician must be consulted prior to phlebotomy from the side on which mastectomy or lumpectomy was performed because of the potential for complications of lymphostasis.

FAILED PHLEBOTOMY

If the phlebotomist is unable to obtain a specimen after two attempts, a second phlebotomist will make two attempts. If neither phlebotomist is able to obtain the specimen, the patient's nurse will be informed.

TEST ORDERS ON INPATIENTS THAT ARE INTENDED FOR OUTPATIENTS

All outpatient test orders must be properly documented on a laboratory requisition form or physician's prescription pad. Additionally, there should be contact information for a responsible physician and a valid ICD9 code.

V. URINE COLLECTION

Random Collections: For routine analysis and microscopic evaluation, but not culture, have the patient void into a clean container. The specimen should be capped, labeled and refrigerated until courier pickup time. A clean-catch or midstream specimen is preferred.

The patient should first void a small amount of urine, which is discarded. Some of the urine should then be collected in a clean container before voiding is completed.

If delays are anticipated in sending the sample to the laboratory, refrigerate or aliquot a portion into a urine container for culture. It should be collected in the boric acid tube.

24-Hour Urine Collections: Carroll Hospital Center provides 24-hour urine collection containers with various types of preservatives depending on the test requested. (See list of tests for preservative requirements.)

ALL 24-HOUR COLLECTIONS MUST BE KEPT ON ICE OR REFRIGERATED DURING COLLECTION.

ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050

Use the following procedure for the correct specimen collection and preparation.

- Warn the patient of the presence of potentially hazardous preservatives in the collection containers, (such as strong acid).
- Instruct the patient to discard the first morning specimen and to record the time of voiding.
- The patient should collect all subsequently voided urine or refrigerate for the remainder of the day and night. Keep on ice or refrigerated between voidings.
- Collect the first morning specimen on day two at the same time as noted on day one.

Cytology Urine: Refer to Test Section for Cytology, Urine for collection procedures.

VI. LABELING

All samples submitted to the laboratory for analysis must be legibly labeled with the following information:

- Complete legal patient name
- Second identifier (medical record number, date of birth or social security number)
- Date and time of specimen collection
- Initials of the collector/collector #
- Specific source/site of specimen (for Microbiology specimens)

Specimen labels must be affixed to the primary container (never on the lid).
It is the policy of Carroll Hospital Center Laboratory not to accept specimens from any location (inhouse, outreach, nursing home, home care) unless each specimen has the patient's complete name or an identification code (for needle stick investigation specimens) and a second identifier. It is also our policy not to allow correction of specimen identification unless the specimen is deemed irreplaceable. In each case, if the Pathologist considers the specimen to be irreplaceable, the specimen may be properly labeled and a disclaimer

("specimen improperly labeled") entered into the results for all tests from the specimen.

If the specimen is received from an outreach location (physician's office, nursing home, home care), the requisition must contain the same information that is on the patient specimen.

SEE BLOOD BANK SECTION (page 26) FOR SPECIFIC BLOOD BANK LABELING REQUIREMENTS.

VII. UNACCEPTABLE/INAPPROPRIATE SPECIMENS

A. Hemolysis - occurs when erythrocytes, leukocytes and platelets lyse, releasing their contents into the serum or plasma. The slightest degree of hemolysis will invalidate many test results, particularly potassium and LDH. Hemolysis may occur in vitro with
- difficult phlebotomy
- small lumen needle used to obtain specimen(s)
- obtaining specimens in conjunction with starting an IV.
- vigorous shaking of the anticoagulated specimens
- freezing and thawing a specimen
- hemolysis may also occur in-vivo! Examples are DIC sepsis, microangiopathy, hemolytic anemias, transfusion reaction.

B. Lipemia - describes the specimens that are cloudy or milky due to the presence of excessive amounts of fat. If blood samples are taken too soon after the patient has eaten, lipemic specimens may result. Lipemia will invalidate many test results. Therefore, it is recommended that the general rule of "fasting before sampling" be followed. There are some clinical disorders that present with lipemia that is unrelated to meds.

C. Quantity Not Sufficient (QNS) - is the laboratory's way of saying there was not enough specimen to perform the test(s) requested. Every effort is made to handle and test these specimens accurately. The various sections of this manual that pertain to testing specify what quantities are needed to perform the tests you request.

D. The type of specimen submitted is critically important. Blood tests require specific types of samples. The vacuum tube has a specific additive, so a specimen may be properly preserved and/or treated for a specific test. The individual tests listed on this manual specify tests. Urine tests also require special collection criteria, such as preservatives and storage conditions.

E. SPECIMENS NOT PROPERLY LABELED - Specimens falling into any one of the categories listed below are NOT to be accepted by the laboratory for examination and will be discarded unless the specimen is <u>irreplaceable</u> (e.g. tissue or cytology specimens, CSF). In order to process the specimen, a specimen exception form must be completed. (See Anatomic Pathology section for specifics for Cytology and Histology specimens)
1. Not labeled
2. Wrong label (incorrect patient I.D.)
3. Improperly or inadequately labeled
4. Improperly collected (improper preservative or anticoagulant)
5. Situations that make the identity of the sample or the validity of the result obtained unreliable.
6. Any grossly contaminated or leaking specimen

Laboratory personnel will do the following if labeling is faulty:
For nurse drawn specimens and physician office - collected specimens:
Call the nurse or office responsible and inform them that the specimen will need to be recollected.

F. No specimen will be accepted in a syringe with the needle still attached. (i.e. synovial fluid or aspiration)

G. No specimen will be accepted without a specimen request form, or computer entered ordered.

H. Disposition of Unacceptable Specimens - All specimens that are rejected as unacceptable will be canceled in the computer and the reason will be noted for cancellation.

I. Unacceptable Insurance for Outpatients
On Site Out-Patients - will not be drawn unless the patient or the physician insists. The patient will then be registered as self-pay and will be entirely responsible for payment.
(see p. 10 - p.13). Lab Courier Specimens – will be returned to the physician's office to be sent to another lab.

J. Lack of or unacceptable ICD diagnosis codes for out-patients
On-site outpatients – every effort will be made to obtain an acceptable ICD code prior to drawing the patient. However, if one cannot be obtained at the time of registration the patient will be asked to sign an ABN indicating that they will be financially responsible if the insurance company will not pay.
Lab Courier Specimens – the physician's office will be contacted for an appropriate code.

VIII. HANDLING

A. INFECTION CONTROL CONSIDERATIONS
Specimens of blood and body fluids may transmit hepatitis, HIV or other pathogens. In accordance with hospital Standard Precautions policies, specimens from all patients should be treated as potentially infectious. Distinctive labels for specimens from patients known or suspected of being infectious (such as "Biohazard") are not necessary. Specimens sent to the Lab should be placed in securely closed tubes or containers, which are in turn placed in sealed plastic bags for transport. (Plastic bags must be labeled us "Biohazard" if used to transport specimens to the lab from off-site.)

B. When specimens are collected they should be brought to the lab ASAP.

C. Please refer to individual tests for special handling requirements (e.g. special temperature requirements).

D. Accidental spills must be cleaned and disinfected immediately, and hands and other exposed skin washed with soap.

CRITICAL VALUES

PURPOSE

To identify the mechanism to provide immediate notification of a physician or other clinical personnel responsible for the patient when results of certain tests fall within established "critical" ranges.

POLICY

Whenever a test result lies in the critical ("panic") range, the result will be immediately phoned to the responsible party. The receiving party must verbally "read back" the critical value as well as the patient name and medical record number, or at a minimum, two acceptable identifiers. Critical Values are considered potentially life threatening and are called to the nursing staff or patient's Health Care Provider as soon as possible.

Inpatients

Except for some therapeutic drugs and blood gases (see below), a phone call will be placed to the nurse directly responsible for the patient or the charge nurse on the patient's unit. The patient's full name and medical record number must be used to identify the patient. Room numbers are not an acceptable patient identifier. Results will be given to the nurse/designee/health care provider at the patient's current location. Be certain you say "This is a critical value". As the caller, you must provide your first and last name so that nursing can correctly document the critical value.

Inpatients should be called within 15 minutes of the result becoming available. If after 15 minutes the caller is unable to locate a health care provided, the on-call pathologist will be notified of the critical value. **If there is a refusal to take a critical value, immediately notify either the Shift Coordinator or Charge Nurse of the patient's unit**.

TherapeuticDrugs – Critical results on vancomycin and gentamicin will be phoned to the Pharmacy at all times.

BloodGases – Critical results will be phoned to the Respiratory Care Practitioner who collected the sample.

Based on written orders left by the physician and knowledge of the patient's case, the Nurse, Pharmacist or Respiratory Care Practitioner will appropriately follow-up with the ordering physician.

Outpatients

The ordering physician or the physician on call will be contacted with the critical value. The patient's full name and date of birth must be used to identify the patient. If unable to reach the ordering or on-call physician, the Lab will request the answering service to page the doctor. It is not permissible to set aside a critical value to call when the office opens the following day.

Nursing HomePatients

The nursing home responsible for the patient will be contacted with the critical value. The patient's full name and date of birth must be used to identify the patient. Results are to be given to the nurse in charge of the patient.

In the event that a health care provider is unable to be reached or does not return a call, the pathologist on call is responsible to receive the critical value.

Notification:

For a proper Read-Back to occur, include the following information when calling:

- Your first and last name
- The first and last name of the patient
- The medical record number of the patient (for inpatients) or date of birth (for outpatients)
- The critical test(s) name and result(s)

The person receiving this information will provide their first and last name as well as repeating all of the information regarding the critical value. If any of the information is not communicated during the Read-Back, the caller will ask for the information that was not included.

Documentation:

Documentation of notification is performed via a comment tagged to the critical value within the LIS. Using the abbreviation \C ["Reported to and read back by (date/time)'], add the first and last name of the person taking your call, followed by the date and time the critical value was communicated.

Any previous or failed attempts to reach a health care provider shall also be documented.

All critical values are indicated on the following page; any value listed must be acted upon, as per policy.

CHEMISTRY

TEST	CRITICAL VALUE
Bilirubin	>15 mg/dL
BUN	>100 mg/dL
Calcium	< 6 or >14 mg/dL
CO2	<10 or >40 mmol/L
Glucose	<50 or >400mg/dL
Newborn	<40 or >300mg/dL
Magnesium	<1.0 or >3.0 mg/dL
OB Mg patients	>8.0 mg/dL
Phosphorus	<1.0 or >7.0 mg/dL
0-18 years	<2.0 or > 8.0 mg/dL
Potassium	<2.8 or >6.0 mmol/L
Newborn	<2.8 or >6.5 mmol/L
Sodium	<120 or >160mmol/L
Troponin T	>0.111 ng/ml

THERAPEUTIC DRUG MONITORING

TEST	CRITICAL VALUE
Acetaminophen	>150mcg/mL
Carbamazepine (Tegretol)	>15 mcg/mL
Digoxin	>3.0 ng/mL
Gentamycin (trough)	>2.5 mcg/mL
(peak)	>12 mcg/mL
Lithium	>2.0 mEq/L
Phenobarbital	>60 mcg/mL
Phenytoin (Dilantin)	>30 mcg/mL
Salicylate	>350 mcg/mL
Theophylline	>25 mcg/mL
Valproic Acid	>150 mcg/mL
Vancomycin (trough)	>20.0 mcg/mL
(peak)	>50.0 mcg/mL

PULMONARY FUNCTION

ARTERIAL BLOOD GASES

pH	≤7.20 or ≥7.60
pO_2	≤50 torr
O_2 Sat	≤82%
Lactate	≥ 4.0 mmol/L

CAPILLARY BLOOD GASES

pH	<7.25 or >7.50
pCO_2	≥60 torr
pH - Scalp	<7.25

UMBILICAL BLOOD GASES

Arterial or Venous pH ≤7.00

HEMATOLOGY

TEST	CRITICAL VALUE
WBC	<2.0 or >50.0 x $10^3/mm^3$
Infants <56 days	<4.0 or >50.0 x $10^3/mm^3$
Hemoglobin	<7.0 or >19.0 g/dL
Newborn	<11.0 or >25.0 g/dL
Platelet Count	<10 or >1,000 x $10^3/mm^3$
Absolute Neutrophils	≤0.5 x $10^3/mm^3$
PT INR	>5.0 INR
APTT	>120.0 seconds
Fibrinogen	<60 or > 1200mg/dL
Blood Parasite	Positive

Call any unexpected abnormal differential findings, including blasts in a new patient or a leukemic patient presumed to be in remission.

MICROBIOLOGY

TEST	CRITICAL VALUE
Blood Smear/Culture	Positive
CSF Smear/Culture	Positive
AFB Smear/Culture	Positive
Body Fluid Smear/Culture (Normally sterile site)	Positive

URINALYSIS

Glucose ≥ 500 mg/dL
Up to 10 years

NOTE: Newborn = 0-28 days

The Medical Director of the Laboratory establishes the critical values when emergency notification of the patient's physician is necessary. Requests for a change in any critical value should be submitted to the Laboratory's Medical Director in writing. Any literature reference or supportive information should be attached.

PROFILE DEFINITION

ELECTROLYTE

Sodium
Potassium
Chloride
CO_2

BASIC METABOLIC

Sodium
Potassium
Chloride
CO_2
Glucose
BUN
Creatinine
Calcium

COMP METABOLIC

Sodium
Potassium
Chloride
CO_2
Glucose
BUN
Protein
Total Protein
Albumin
Creatinine
Calcium
Total Bilirubin
AST
Alk Phos
ALT

HEPATIC

Total Bilirubin
AST
ALT
Alk Phos
Direct Bilirubin
Total
Albumin

RENAL FUNCTION

Sodium
Potassium
Chloride
CO_2
Glucose
BUN
Creatinine
Albumin
Calcium
Phosphorus

PRENATAL PROFILE

ABO/Rh
CBC
HBsAg
STS
Rubella

CHOLESTEROL FRACTIONIZATION

Cholesterol
Triglyceride
HDL
LDL
Chol/HDL Ratio

ACUTE HEPATITIS PROFILE

Hepatitis B Surface Antigen (HbsAg)
Hepatitis B Core Antibody (IgM) (Core-M)
Hepatitis C Antibody (HCV)
Hepatitis A Antibody (IgM) (HAVAB-M)

COMMON DRUGS OF ABUSE

Please call the lab for specifics.

BLOOD BANK SECTION

Blood products are available for emergency situations and inventories are maintained to provide adequate supplies to meet routine needs of Carroll Hospital Center patients. All blood or components are supplied through the American Red Cross.

Products available at Carroll Hospital Center

Packed Red Blood Cells, Leukodepleted – indicated for treatment of symptomatic or critical deficit of oxygen-carrying capacity. Each unit contains sufficient hemoglobin to increase the hemoglobin concentration in an average size adult by approximately 1 g/dL.

Plasma Frozen Within 24 Hours After Phlebotomy (PF24) – indicated for management of bleeding patients who require replacement of multiple plasma coagulation factors or patients taking warfarin who require rapid reversal of the warfarin's effects. Most patient who require reversal of warfarin effects do not require PF24 and can improve with vitamin K administration.

Thawed plasma – indicated for coagulopathic patients in the absence of PF24 or when thawing of PF24 cannot be achieved quickly. Storage is 5 days at 4C. Contains approximately 75% of the two labile factors V and VIII.

Cryoprecipitate – indicated for the control of bleeding associated with fibrinogen deficiency and to treat Factor XIII deficiency.

Rh Immune Globulin - used prophylactically to prevent formation of anti-D in Rh(D) negative pregnant and post-partum women. Indicated routinely at 28 weeks and post-partum (if baby is Rh positive) and if the woman undergoes trauma (including amniocentesis) during pregnancy.

Products Available by Special Order (not available on a STAT basis)

Deglycerolized Frozen Red Blood Cells – indicated in patients with multiple or rare antibodies or for IgA deficient patients. Requires 24 hour advance notice.

Aliquoted packed red blood cells - indicated for smaller patients or patients with cardiac complications. Requires 2 hour advance notice.

Apheresis Platelets – indicated in patients with thrombocytopenia, dysfunctional platelet disorders, and active or at serious risk of platelet-related bleeding. One unit of apheresis platelets would be expected to increase the platelet count approximately 5000 – 10,000/ul. Requires 2 hour advance notice. Pooled platelet packs are no longer available.

Granulocytes – typically used in treatment of neutropenic patients with documented infections who are unresponsive to antimicrobial therapy. Use is controversial. Once therapy is initiated, support should continue at least daily until infection is cured or the granulocyte count returns to at least 500/ul. Requires 48 hour advance notice.

HLA Matched Apheresis Platelets – indicated in patients who are minimally responsive to non-matched platelet therapy because of platelet antibodies. Requires HLA typing of patient and 48 hour advance notice.

Ordering Blood and Components

Blood and components must be ordered in the Paragon system and should only be ordered when actual transfusion of the component has been ordered by the physician. If the physician orders units "on hold", a type and screen should be ordered. Blood units can be available within 5 minutes when a type and screen has been completed if no antibodies are detected. (Only crossmatched units are "held" for specific patients.).

When a type and screen is ordered by a physician, an ABO group, Rh type and antibody screen is performed. Units are not crossmatched until products are actually ordered for transfusion. Type and screen specimen are good for 72 hours (NOTE: 72 hours denotes 3 days).

If a patient has an antibody problem, crossmatch compatible units will provided whenever possible. The laboratory will notify the floor of any antibody problems and about the availability of blood. Resolution of the antibody problem may cause delay in transfusion for hours or possibly days.

Collection of A Blood Sample

A pink top tube labeled with a specific Blood Bank label must be used for a type and screen or crossmatch. The phlebotomist must have the following information legibly handwritten on the custom Blood Bank tube label. No other labels may be affixed to the tube (i.e. pre-pinted patient labels):

a) Full name (first and last name) of the patient spelled correctly (copied directly from the armband).
b) Medical record number (copied directly from the armband).
c) Date and time of collection
d) Signature or associate number of individual who identified the patient and obtained sample
e) Signature or associate number of 2nd Health Care worker who verified the patient's ID by comparing labeled sample with the information on the patient's armband. Failure to have all of the above information will result in the rejection of the specimen and a new specimen will have to be obtained. In the case of an acute bleed, emergency release of group O blood will occur until a correctly identified and labeled specimen can be obtained.
f) If the patient does not have an armband or if there is a discrepancy in the verification, immediately notify the nurse of the situation. The nurse should follow the hospital policy for re-identifying the patient prior to placing an armband on the patient. The lab sample collection cannot be initiated until verification of identification is completed. An LQAP should be completed to document and track the occurrence.

g) In the event a patient's name is too long to fit on the armband, the flowsheet that has the complete, accurate and legible name may be used to verify patient identification.
h) The specimen must remain in the patient's room until all of the above requirements are completed.

ABO Recheck

To further safeguard the patient from misdrawn specimens, if the patient has not been previously typed and does not currently type as a Group O, either at CHC or another facility, a second specimen will be obtained and typed prior to transfusion. If the situation does not allow for a second specimen to be obtained, only group O blood will be released until testing on a second specimen can be completed.

f) If the

Issue of Blood and Components

When a product is available, the status will show as available in Paragon or MPV board. A patient label must be brought to the Blood Bank in order to pick up units. BLOOD WILL NOT BE RELEASED WITHOUT PROPER PATIENT IDENTIFICATION.

Only one unit of blood can be signed out at a time unless the patient has two lines and the units can be run simultaneously or the units are issued on ice. One person may be issued blood for only one patient at a time.

The person transporting the unit and Blood Bank Technologists must compare identifiers item by item before leaving the Blood Bank with the unit.

Emergency Release of Blood

If, in the opinion of the attending physician, there is a need for replacement of blood without compatibility testing, the Blood Bank will issue group O units. Rh negative units will be issued to women at or under age 50 and to all children under 18. Rh positive units will be issued to all other patients. Whenever possible, a Blood Bank specimen should be drawn prior to transfusion of any uncrossmatched blood. The physician requesting the blood will be required to sign the "Emergency Release" form indicating that he felt that the patient's condition necessitated the use of uncrossmatched products. All orders will be entered by the Blood Bank

If the situation warrants use of large volumes of blood, the ED or OR nurse or the shift coordinator will indicate the Exsanguination Protocol should be initiated. Type O rbcs and type AB or A PF24 or thawed plasma will be provided until blood has been ABO typed and confirmed then type specific blood will be provided. Crossmatched blood will be provided when the antibody screen is complete. Exsanguination protocol (EP) batches will be prepared according to the table below. When a batch is picked up, the next batch will be packed.

Batch	RBC	PF-24	Pheresis platelets	Cryo
1	3	3	-	-
2	3	3	1	-
3	3	3	-	-
4	3	3	1	-
5	3	3	-	2

*Platelets may not be available

Further batches will follow the same pattern (beginning with batch 1) with 1 unit of PF-24 per 1 unit of blood, 1 unit of platelets per 12 units of blood and 10 units of cryo per 30 units of blood. (protocol based on "A Massive Transfusion Protocol to Decrease Blood Component Use and Costs. Arch Surg. 2008:143(7):686-691)

The Blood Bank will be called by the ED nurse, the shift coordinator or a member of the OR team to STOP the protocol.

Return of Blood Issued by Blood Bank

Any time that blood products are issued from the Blood Bank but can't be infused in a timely fashion, the product must be returned to the Blood Bank within 30 minutes of leaving the Blood Bank. Blood or blood products may not be stored in any other refrigerator than the Blood Bank monitored refrigerator.

Transfusion Procedure and Transfusion Reaction Procedure.

Please refer to "Transfusion, Administration of Blood Products Patient Care Guideline" in Policy and Procedure Manager for the current guidelines. This Patient Care Guideline also includes steps to take for suspected transfusion reactions.

Pediatric Transfusions

Due to the special requirements for blood utilized for pediatric patients (less than 5 days old, CMV negative, attached transfer bags), 24 hours advance notice is required.

References:

O'Keefe, T., Refaai, M.Tchorz,K,Forestner, J. A Massive Transfusion Protocol to Decease Blood Component Use and Costs, Arch. Surg. 2008: 143 (7): 686 – 691.

Related Documents:

Transfusion, Administration of Blood Products Patient Care Guideline.
Laboratory General – Patient Identification and Sample Labeling Policy and Procedure
Laboratory – Sample Requirements for Acceptance of Blood Bank Specimens – BB 6.011

ANATOMIC PATHOLOGY
HISTOLOGY SECTION

I. Handling of Surgical Specimens

A. Hours of Operation:
The Pathology Department is staffed for operation Monday through Friday, 7:00 a.m. to 5:00 p.m. A Pathologist is on-call 24 hours/day.

B. Requisition Form Requirements:
The Tissue Examination Request should be entirely completed. The date obtained must be completed on ALL forms. ICD-10 diagnosis codes should also be used for all outpatients. OR room and number should be listed for all frozen sections.

C. Specimen Requirements/Procedures:

1. Each specimen must be submitted to the laboratory in separate containers, clearly labeled with the patient's name, date, medical record number and specific source/ site of specimen. Ex (leg,left)
2. Histology specimens must be received completely immersed in formalin with the following exceptions:
    a. Frozen Sections - submitted fresh. Call Histology at ext. 6805. The Pathologist will phone the diagnosis to the attending physician. The Pathologist dictates and releases the report.
    b. Needle Localizations (breast cases) are submitted fresh on an x-ray grid.
    c. Extremities (limbs) should be placed in a plastic bag and delivered to the lab from 7:00a.m. - 3:00 p.m. After hours, the specimen should be placed in the morgue refrigerator.
    d. Foreign bodies will be received without preservatives. Requests for the specimens to be returned to the patient should be made on the Tissue Examination Request. No tissue will be returned to the patient except by the approval of the pathologist.
    e. Renal biopsies must be received in saline immediately following collection. Call Pathology Department (Ext 6794) at least 24 hours prior to procedure for advance arrangements to be given to the appropriate reference laboratory.
    f. Muscle/Nerve biopsies must be received fresh from the OR. Call the Pathology Department (Ext 6794) at least 24 hours prior to procedure for advance arrangements to the given to the appropriate reference laboratory.

D. Collection of Specimens from OR

Laboratory Associates will routinely make rounds to transport specimens from the OR Monday - Friday, between 8:00 a.m. to 2:45 p.m.

E. Large Specimen from OR

In the event that a specimen is too large to fit in a prefilled specimen container, the specimen must be brought down to Histology immediately and formalin applied to cover the entire specimen. Specimens are NEVER to be left on the specimen cart or in Histology without formalin or refrigeration. (Placenta refrigerator is located in the lab cold room).

II. CRITERIA FOR UNACCEPTABLE SPECIMENS

a. Specimens will not be accepted for the following reasons:

1. Specimen is not properly labeled. There must be two matching identifiers on the specimen container and requisition.
2. No formalin or insufficient quantity of formalin in the specimen container.
3. Specimen not accompanied by a requisition.
4. If the integrity of the specimen has been compromised beyond repair in transit (i.e. broken slides).
5. Unaccepted insurance.

b. Irreplaceable Specimens

In some instances, a specimen is considered irreplaceable and will be submitted for processing once it is identified approximately. In such instances, a Specimen Exception Form must be completed and signed by both the individual attesting to the identity of the specimen and the physician. (See Laboratory – General – Problem Specimen Procedure in PPM for more details.

III. DEATH POLICY (LAB PROCEDURES):

A. AUTOPSY

1. Autopsies are performed at a physician's/deceased family's/domestic partner's request on inpatients at Carroll Hospital Center. The Autopsy Consent form (#154) must be obtained from the closest surviving consenting party who is legally responsibility for assuming custody of the deceased and providing arrangements for disposition of the body.
2. The clinician is responsible for contacting the pathologist directly to request an autopsy. The clinician is also responsible for completing and submitting an autopsy worksheet. The Shift Coordinator will inform the Pathology Department that an autopsy is requested.
3. The deceased's chart will be forwarded to the Pathology Department along with a completed Autopsy Consent form (#154), Autopsy worksheet, Death Coordination Documentation and Coordination Form (#6010034) and Disposition of Body Form (#116SR).

B. MEDICAL EXAMINER CASES

1. "Medical Examiner case" means any death which is the result, wholly or in part, of a casualty or accident, homicide, poisoning, suicide, criminal abortion, rape, therapeutic misadventure, drowning, or a death of a suspicious or unusual nature, or of an apparently healthy individual, or a case which is dead on arrival at the hospital.

2. Medical examiner case does not mean:

a. A stillbirth or a neonatal death, or accident room or hospital death in which the cause of death has been established by the hospital physician and is due to disease, and free of evidence of criminal or accidental nature.
b. A case which is dead on arrival at the hospital and the physician who pronounces death has been in previous attendance on the patient; or
c. A death which occurs in a hospital within 24 hours of admission nearly because the death occurred within 24 hours.

3. An individual dying in Maryland as a result of a homicide, poisoning, suicide, criminal abortion, rape, drowning, or dying in a suspicious or unusual manner, or death of an apparently healthy individual or a case which is dead on arrival at the hospital shall be examined by the medical examiner in the Office of the Chief Medical Examiner in Baltimore, or in any other place as may be approved by the Chief Medical Examiner.

C. DEATH CERTIFICATES

The certificate of death shall be filled out and signed within 24 hours after death by the physician last in attendance upon the deceased, except in those cases where the medical examiner takes charge of the body, in which case the certificate shall be executed by the medical examiner.

1. Include only the following information on the certificate of death:
   a. Name of the deceased should be written on the left hand margin of the certificate.
   b. Date of death (month, day and year), time of death (pronounced dead) (# 2,3)
   c. Cause of death and medical certification (#23-30)
      i. #23 please give the exact number of days, months, years and approximate interval for each cause listed.
      ii. #26 - place where the death occurred.
      iii. #27 - if the manner of death is accident, complete #28 a-f.
      iv. 28 a-f should only be completed if the manner of death is accident.

2. Death certificates will NOT be accepted under the following circumstances:
   a. If they contain
      WHITEOUTS
      STRIKE OVERS
      BLUE OVERS
      ERASURES
      SCRATCH OUTS
      IMPRINTS FROM CARDS,

CARROLL HOSPITAL CENTER
WESTMINSTER, MARYLAND

TISSUE EXAMINATION REQUEST

PT. NAME

DATE OF BIRTH

SEX

SURGEON

PHYSICIAN ADDITIONAL

DATE OBTAINED _____ **TIME OBTAINED** _____

OUTPATIENT: COMPLETE THE FOLLOWING INFORMATION OR ATTACH OFFICE FACE SHEET

PT. PHONE NO.

PT. ADDRESS

INSUR. NAME POLICY NO. GROUP NO.

ADDRESS

POLICY HOLDER'S NAME/RELATIONSHIP SOC. SEC. NO.

COMPLETE THE FOLLOWING INFORMATION FOR ALL SUBMITTED SPECIMENS

CLINICAL HISTORY

OPERATION

SPECIMEN

Note: For ANY breast tissue specimen, note TIME _____ specimen was placed in formalin.

DIAGNOSES

(FOR OUTPATIENTS PLEASE INCLUDE ICD-9 CODES)

PREOPERATIVE TISSUE DIAGNOSIS

POSTOPERATIVE TISSUE DIAGNOSIS

LAB USE ONLY

SURGICAL CASE NO.

SURGICAL CONSENT FORM SIGNED

☐ YES ☐ NO

O.R. Phone extension # _____

SURGEON

SUBMITTED BY (NURSE)

7310511
REV

CYTOPATHOLOGY SECTION

The Cytopathology Laboratory at Carroll Hospital Center is a full-service department providing screening and diagnostic cytopathology services, including gynecologic and nongynecologic specimens (pulmonary and bronchoalveolar lavage, gastrointestinal, body cavity fluid, cerebrospinal fluid, urologic, fine needle aspiration, Tzanck smears, nipple secretions, and anal cytology). Special studies can also be performed on nongynecologic specimens including special stains flow cytometry, UroVysion FISH, Afirma gene expression classifier. Gynecologic additional testing includes high risk Human Papillomavirus (HPV) DNA and GC and Chlamydia DNA probe.

Laboratory Services

Refer to individual tests in the alphabetical test list for information on collection and transportation requirements. Tests are listed under Cytology, followed by the specific test name.

Specimen Submission

Cytology supplies can be obtained from the Cytology Department. Additional supply order forms may be requested from client services. All orders are reviewed to verify that requested supplies match estimated workload to provide optimal availability of supplies and to minimize costs for all clients. Rotate stock of PreservCyt and use vials with the closest expiration date first. No specimen will be accepted in expired solution.

Specimen Labeling

Label all specimens legibly with the patient's first and last name, date of birth, and any other client-specific identifier on all materials submitted for testing. Glass slides need to be labeled on the frosted end in pencil. Outer shipping container labeling will NOT be acceptable for specimen identification.

Cytology Test Request Form

All in-house cytology test requests must be entered into the computer.
Outreach cytology specimens must be submitted with a completed Cytopathology Request form: GYN Cytology Test (Pap) or NON-GYN Cytology Test. The patient's first and last name and date of birth must be printed on the specimen label or slides, including specimen type for nongynecological specimens. The following information must be included on the test request form for accurate specimen preparation, interpretation, result reporting, record keeping, and billing. Exclusion of any information may result in specimen rejection and/or processing delays.

1. Patient's first and last name, date of birth, and sex.
2. Date specimen collected.
3. Specimen type and source.
4. Test request: Screening or High Risk (gyn only)
5. Complete patient history.
6. Name of referring physician.
7. Insurance information.
8. ICD diagnosis codes.

Specimen Rejection

Specimens to which the following conditions apply will be rejected. All specimens that are rejected as unacceptable will be canceled in the computer and the reason will be noted. The specimen will be returned to the physician's office with a letter addressing the reason for rejection. The specimen will be discarded if cellular viability is compromised during the transportation back to the physician's office.

1. Specimens Not Properly Labeled:
   a. Not labeled
   b. Mislabeled (incorrect patient ID)
   c. Improperly or inadequately labeled (missing 1 of 2 patient identifiers).
2. Improperly collected (improper/expired preservative or anticoagulant or dry).
3. Situations that make the identity of the sample or the validity of the result obtained unreliable.
4. Slide(s) irreparably broken or damaged.
5. A syringe with the needle still attached.
6. Specimen submitted without a test request.
7. Specimen submitted from an unauthorized source.

Result Reporting

Please note that the Pap test is a screening test for cervical cancer and it's precursors with an inherent false-negative rate.

CARROLL HOSPITAL
a LifeBridge Health center

200 Memorial Avenue
Westminster, MD 21157

CYTOPATHOLOGY REQUEST

Patient Information:

Name (Last, First)	Date of Birth (Mo., Day, Yr.)	Patient Soc. Sec. #

Telephone Number (9 a.m. to 5 p.m.) ( )	Patient Address	Apt. #	City	State	Zip

Send Bill To:

☐ Account ☐ Patient ☐ Insurance

Primary Insurance	Primary Insurance Name		Circle:	Self Spouse	Other
☐ Medicare Number	Street				
☐ Medicaid Number	Address Zip	Pol. #		Group #	
Secondary Insurance			Circle:	Self Spouse	Other
	Street				
	Address Zip	Pol. #		Group #	

ICD Diagnosis Codes (Enter All That Apply)	1	2	3	4

One of the Following Must be Checked (Required)

☐ **Pap Smear - NON-Medicare patient** **Medicare patient - Please mark the type of Medicare Pap smear below: (Required)**
☐ **Medicare Patient - SCREENING PAP:** **ROUTINE** (reimbursable once every 2 years).
☐ **Medicare Patient - SCREENING PAP:** **HIGH RISK** of cervical cancer and physician recommends screening more often than every 2 years.
☐ **Medicare Patient - DIAGNOSTIC PAP:** signs or symptoms of medical necessity (appropriate ICD codes must be listed in box above.)

PHYSICIAN'S SIGNATURE	DATE COLLECTED	TIME COLLECTED

Duplicate Report To	Physician's Name	Street	City	State	Zip

GYN SPECIMEN

LMP: _____

SPECIMEN TYPE:
( ) ThinPrep Fluid
( ) Conventional Slide

SOURCE:
( ) Cervical/Endocervical
( ) Vaginal
( ) Other: _____

TEST REQUEST:
( ) **Screening Exam** *(no prior abnormal Pap)*
( ) **High Risk Exam** *(previous abnormal Pap)*
( ) Chlam/GC *(amp,probe)*

( ) HPV, high risk reflex *(if dx. of ASCUS or higher)*
( ) HPV, high risk *(regardless of dx.)*
( ) HPV, high risk testing only *(no Pap test requested)*
( ) Add genotypes 16/18 to above HPV tests

Clinical History
( ) Pregnant
( ) Postpartum
( ) BCP/Hormonal Tx.
( ) IUD
( ) Hysterectomy
( ) Postmenopausal
( ) Abnormal Bleeding
( ) Radiation Tx.
( ) Hx. Gyn Malig
( ) Prev. Cytology Date: _____
Result: _____
( ) Prev. Abn. Pap Date: _____
Result: _____
( ) Prev. Biopsy Date: _____
Result: _____

MEDICAL SPECIMEN

URINARY	☐ URINE VOIDED ☐ URINE CATHETERIZED ☐ URETER ☐ RT ☐ LT ☐ RENAL PELVIS ☐ RT ☐ LT ☐ BLADDER WASH
PULMONARY	☐ SPUTUM ☐ BRONCHIAL WASH _____ ☐ BRONCHIAL BRUSH _____ ☐ LAVAGE ☐ TRANSBRONCHIAL ASP ☐ PNEUMOCYSTIS CARINII
ALIMENTARY	☐ ORAL SMEAR ☐ COLONIC BRUSH ☐ ESOPHAGEAL BRUSH ☐ GASTRIC BRUSH ☐ BILIARY BRUSH ☐ DUODENAL BRUSH
FLUIDS	☐ PERITONEAL ☐ PERICARDIAL ☐ FLUID (OBTAINED AT SURGERY, SITE) _____ ☐ PLEURAL ☐ RT ☐ LT ☐ CEREBROSPINAL ☐ PELVIC WASH
BREAST	☐ RT ☐ LT ☐ CYST ASPIRATE ☐ NIPPLE SMEAR ☐ FNA (SITE) _____
FNA	☐ RADIOLOGIC GUIDED (SITE) _____ ☐ SUPERFICIAL (SITE) _____
MISC.	☐ SMEAR FOR HERPES (SPECIFY SITE) _____

PERTINENT HISTORY:

554A (08/2016)

A. Notifier:

B. Patient Name:

C. Identification Number:

CARROLL HOSPITAL
a LifeBridge Health center
200 Memorial Avenue, Westminster, MD 21157
410-560-6300
TTY: 410-871-7186

Advance Beneficiary Notice of Noncoverage (ABN)

NOTE: If Medicare doesn't pay for **D.** _____ below, you may have to pay. Medicare does not pay for everything, even some care that you or your health care provider have good reason to think you need. We expect Medicare may not pay for the **D.** _____ below.

D.	E. Reason Medicare May Not Pay:	F. Estimated Cost

WHAT YOU NEED TO DO NOW:

- Read this notice, so you can make an informed decision about your care.
- Ask us any questions that you may have after you finish reading.
- Choose an option below about whether to receive the **D.** _____ listed above.

Note: If you choose Option 1 or 2, we may help you to use any other insurance that you might have, but Medicare cannot require us to do this.

G. OPTIONS: Check only one box. We cannot choose a box for you.

☐ **OPTION 1.** I want the **D.** _____ listed above. You may ask to be paid now, but I also want Medicare billed for an official decision on payment, which is sent to me on a Medicare Summary Notice (MSN). I understand that if Medicare doesn't pay, I am responsible for payment, but **I can appeal to Medicare** by following the directions on the MSN. If Medicare does pay, you will refund any payments I made to you, less co-pays or deductibles.

☐ **OPTION 2.** I want the **D.** _____ listed above, but do not bill Medicare. You may ask to be paid now as I am responsible for payment. **I cannot appeal if Medicare is not billed.**

☐ **OPTION 3.** I don't want the **D.** _____ listed above. I understand with this choice I am **not** responsible for payment, and **I cannot appeal to see if Medicare would pay.**

H. Additional Information:

This notice gives our opinion, not an official Medicare decision. If you have other questions on this notice or Medicare billing, call **1-800-MEDICARE** (1-800-633-4227/**TTY:** 1-877-486-2048). Signing below means that you have received and understand this notice. You also receive a copy.

I. Signature:	J. Date:

ALPHABETICAL LISTING OF TESTS

ABO/RH; BLOOD

ALIAS NAME:	**Blood Type** **Blood Group**
TEST CODE:	**3430**
CPT CODE:	**86900, 86901**
SPECIMEN:	**1 pink top preferred.**
COLLECTION:	**EDTA specimen acceptable.**
PERTINENT INFORMATION:	**Useful for determining need for Rh immune Globulin in instances of miscarriage, abortion, amniocentesis, antepartum hemorrhage, or fetal death. Useful in determination of blood type compatibility between donor and recipient.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day; STAT tests - 1 hour.**
METHODOLOGY:	**Agglutination with cells and antiserum.**
REFERENCE RANGE:	**No normals.**

ABO/RH AND ANTIBODY SCREEN WITH CROSS MATCH; BLOOD

ALIAS NAME:	**Type and Screen with Cross Match** **Crossmatch** **Compatibility testing**
CPT CODE:	**86900 - ABO Typing** **86901 - Rh Typing** **86850 - Antibody Screen** **86903 - Antigen screening for compatible unit, if required** **86905 - Antigen testing (unit & patient), if required** **86945 - Irradiation of blood product, each unit, if required** **86880 - Antihuman globulin test (Direct Combs), if required** **86860 - Antibody elution (RBC), if required** **86978 - Antibody absorption, if required** **86870 - Antibody identification** **86920 - Compatibility test, each unit, IS** **86921 - Compatibility test, each unit, incubation** **86922 - Compatibility test, each unit, Antiglobulin** **86923 - Compatibility test, each unit, electronic**
SPECIMEN:	**1 plain pink top tube.**
COLLECTION:	**Label with patient's full name, medical record number, location, date and time of sample, and two signatures OR Associate ID#s of collectors. NOTE: Positive identification of patient must be made with hospital identification bracelet. (For Outpatient transfusion, transfusion date and time must be scheduled with Centralized Scheduling. All patients are instructed to report to WML if transfusion is imminent).**
PERTINENT INFORMATION:	**Necessary for blood transfusion therapy. If antibody screen is positive, antibody will be identified and antigen negative units will be selected. Additional charges for antibody identification and antigen typing.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**Routine inpatient - 6 hours in most cases; STAT - 1 hour in most cases; outpatient - 2 hours with advance notice scheduling; otherwise, 24 hours.**
METHODOLOGY:	**Agglutination with cells and serum/antiserum; includes indirect antiglobulin testing. ABO/Rh - no normals. Antibody screen - none detected (negative). Crossmatches - compatible, compatible units will remain available for 72 hours of the current sample.**

ACETAMINOPHEN

TEST CODE:	**5590**
CPT CODE:	**82003**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen capped, in refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic, colorimetric**
REFERENCE RANGE:	**Acetaminophen (ug/mL) - 10.0 to 20.0**

ALBUMIN

TEST CODE:	**4075**
CPT CODE:	**82040**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE::	**Store centrifuged specimen in refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric.**
REFERENCE RANGE:	**(gm/dL) - 3.2 to 5.4.**

ALBUMIN, BODY FLUID

TEST CODE:	**4510**
CPT CODE:	**82042**
SPECIMEN:	**2 ml pleural or peritoneal fluid in sterile container.**
COLLECTION:	**Note fluid type. Refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric.**
REFERENCE RANGE:	**None determined.**

ALCOHOL BLOOD

ALIAS NAME:	**ETOH** **Ethanol**
TEST CODE:	**4320**
CPT CODE:	**82055**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
COLLECTION:	**Do not use alcohol or other volatile disinfectant at site of venipuncture.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic.**
REFERENCE RANGE:	**See report (Table of toxicity)**

ALKALINE PHOSPHATASE

TEST CODE:	**4130**
CPT CODE:	**84075**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in refrigerator..**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric.**
REFERENCE RANGE:	**Alkaline phosphatase (U/L) - 43 to 122.**

ALT (ALANINE AMINOTRANSFERASE)

ALIAS NAME:	**SGPT**
TEST CODE:	**4125**
CPT CODE:	**84460**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV assay**
REFERENCE RANGE:	**Alanine aminotransferase (U/L) – 5 – 52.**

AMMONIA, PLASMA

ALIAS NAME:	**NH3**
TEST CODE:	**4187**
CPT CODE:	**82140**
SPECIMEN:	**1 lavender on ice**
COLLECTION:	**Place on ice and immediately transfer to lab. Analysis must be performed within 20 – 30 minutes of draw.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic.**
REFERENCE RANGE:	**Ammonia (microMOL/L) - 12 to 54.**

AMYLASE

TEST CODE:	**4160**
CPT CODE:	**82150**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
COLLECTION:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic Colorimetric.**
REFERENCE RANGE:	**Amylase (U/L) - 28 to 110.**

AMYLASE URINE, TIMED

TEST CODE:	**4200**
	82150
CPT CODE:	**Sterile screw-top container(s).**
SPECIMEN:	**Collect all urine voided within a specified amount of hours (most frequently done as a two hour collection). Note hours of collection and send entire specimen to lab for analysis.**
COLLECTION:	
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic Colorimetric.**
REFERENCE RANGE:	**Amylase urine, timed (U/L/hr) - 0 to 300.**

ANTIBODY SCREEN, PLASMA

TEST CODE:	**3440**
CPT CODE:	**86850 - Antibody Screen,** **86870 - Antibody identification, if required** **86900 - ABO Typing** **86901 - Rh Typing** **86905 - Antigen Testing, if required** **86886 - Antibody titer, if required**
SPECIMEN:	**1 pink top tube.**
COLLECTION:	**NOTE: History of transfusion, pregnancy/miscarriage/abortion, and drug therapy is useful.**
PERTINENT INFORMATION:	**ABO/Rh (type) will be added if no record on file. Useful for diagnosis of delayed transfusion reactions due to alloantibody, autoimmune hemolytic anemias, and early detection of possible HDN during pregnancy. If positive, antibody identification will be performed. For prenatal patients, antibody will be titered if capable of causing HDN and father is positive for antigen. Additional charges for antibody identification, titer, and blood type if needed.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day; STAT tests - 1 hour if negative.**
METHODOLOGY:	**Agglutination with cells and serum.**
REFERENCE RANGE:	**None detected/negative.**

ANTIBODY TITER, PLASMA

ALIAS NAME:	**N/A**
TEST CODE:	**N/A, computer ordering will be done by Blood Bank.**
CPT CODE:	**86886**
SPECIMEN:	**1 pink top tube.**
PERTINENT INFORMATION:	**Useful for monitoring prenatal patient with known antibody which may cause HDN and father is positive for antigen e.g. Rh positive.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**4 days; performed by outside reference lab**
METHODOLOGY:	**Serial dilution of serum with agglutination of cells.**
REFERENCE RANGE:	**No normals.**

ANTINUCLEAR ANTIBODIES (ANA)

TEST CODE:	**8001**
CPT CODE:	**86038 - Screen** **86039 - Titer**
SPECIMEN:	**1 SST tube**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
PERTINENT INFORMATION:	**If positive, a titer will be performed and charged separately.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**1 – 3 days, additional time if titer indicated.**
METHODOLOGY:	**Indirect Fluorescent (IFA) using Kallestad Hep-2 Cells.**
REFERENCE RANGE:	**Negative. If positive, pattern will be reported and serum will be titered.**

ARTERIAL BLOOD GASES

ALIAS NAME:	**ABGs**
TEST CODE:	**4013**
CPT CODE:	**82805**
COLLECTION:	**Call respiratory therapy for specific instructions; must be received in the lab on ice within 15 minutes of draw.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**Run immediately upon receiving in lab.**
METHODOLOGY:	**Varies**
REFERENCE RANGE:	**NEW LIS – pH, pCO2, pO2, HCO3, O2 Sat, Base excess – Consult procedure.**

ARTERIAL BLOOD GAS – IONIZED Ca / LACTATE

TEST CODE:	**4024**
CPT CODE:	**82805, 82330, 83605**
COLLECTION:	**Call respiratory therapy for specific instructions; must be received in the lab on ice within 15 minutes of draw.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**Run immediately upon receiving in lab.**
METHODOLOGY:	**Varies**
REFERENCE RANGE:	**NEW LIS – Consult procedure.** **LACTATE ≥4.0 mmol/L**

AST (ASPARTATE AMINOTRANSFERASE)

ALIAS NAME:	**SGOT**
TEST CODE:	**4120**
CPT CODE:	**84450**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV Assay**
REFERENCE RANGE:	**Aspartate aminotransferase (U/L) - 5 to 42.**

B

BACTERIAL VAGINOSIS SCREEN

TEST CODE:	**2002**
CPT CODE:	**87480 (Candida); 87510 (Gardnerella); 87660 (Trichomonas)**
SOURCE:	**BD Affirm™ Ambient Temperature Transport System (ATTS)**
COLLECTION:	**Prepare Sample tube** 1. Open ziplock package for BD Affirm ATTS and remove components. 2. Tear open foil package and remove the ATTS Reagent Dropper. 3. Invert the ATTS Reagent Dropper over the sample tube. Break the ampule inside the ATTS reagent by squeezing the dropper close to its center. 4. Firmly squeeze the ATTS Reagent Dropper to dispense fluid from the dropper into the sample tube. 5. Place empty ATTS Reagent Dropper back into original ziplock package. **Collect Specimen** 1. Place the patient in position for a pelvic examination. Insert a speculum into the vagina to permit visualization of the posterior vaginal fornix. 2. Using the sterile swab, obtain a sample from the posterior vaginal fornix. Twist or roll the swab against the vaginal wall two or three times, ensuring the entire circumference of the swab has touched the vaginal wall. Swab the lateral vaginal wall while removing the swab. 3. Immediately place the swab in the Sample Collection Tube (SCT). 4. Place swab into the tube until the swab tip touches the bottom of the tube and break the shaft at the score line. 5. Place the cap over the exposed end of the swab and firmly press the cap onto the tube. The cap will “snap” onto the tube when it is properly seated. 6. Place patient label on sample tube. 7. Place Sample tube in original ziplock packaging along with empty ATTS Reagent dropper for transport to the laboratory.
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 hour**
METHODOLOGY:	**DNA Probe**
REFERENCE RANGE:	**None detected**

BASIC METABOLIC PROFILE

TEST CODE:	**4019**
CPT CODE:	**80048**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE::	**Store centrifuged specimen in the refrigerator**
PERTINENT INFO:	**Includes Electrolytes, Glucose, BUN, Creatinine and Calcium.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**See individual test**
REFERENCE RANGE:	**See individual test for reference range and critical values**

BETA HCG (QUANTITATIVE) (Not used as a tumor marker)

ALIAS:	**Quantitative Pregnancy**
TEST CODE:	**4452**
CPT CODE:	**84702**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**Routine 1 day. STAT tests done 24 hours a day.**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**HCG Quant (mIU/mL): 0 – 4 negative 5-24 Borderline > 24 consistent with pregnancy**

BILIRUBIN DIRECT

ALIAS NAME:	**D- Bili.**
TEST CODE:	**4110**
CPT CODE:	**82248**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
COLLECTION:	**Protect from light and assay immediately.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric**
REFERENCE RANGE:	**Bilirubin direct (mg/dL) - 0.0 to 0.3.**

BILIRUBIN TOTAL

TEST CODE:	**4105**
CPT CODE:	**82247**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
COLLECTION:	**Protect from light and assay immediately.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Diazo.**
REFERENCE RANGE:	**Bilirubin total (mg/dL) 0.2 to 1.3; CRITICAL VALUES: Greater than 15.0**

BILIRUBIN TOTAL/DIRECT

TEST CODE:	**4106**
CPT CODE:	**82247 and 82248**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
COLLECTION:	**Protect from light and assay immediately.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Diazo method (special), Colorimetric**
REFERENCE RANGE:	**Bilirubin total (mg/dL) 0.2 to 1.3; CRITICAL VALUES: Greater than 15. Bilirubin direct (mg/dL) 0.0 to 0.3**

BLOOD GASES, UMBILICAL VENOUS OR ARTERIAL, CORD (See Cord Gas #1040)

BLOOD GASES, UMBILICAL, CORD

ALIAS NAME:	**Cord Gas** **1040**
TEST CODE:	**82805**
CPT CODE:	**Call respiratory therapy department for specific instructions.**
COLLECTION:	**Monday through Sunday.**
AVAILABILITY:	**Run immediately upon receiving in lab.**
TURNAROUND TIME:	**Varies**
METHODOLOGY:	**NEW LIS – See Report**
REFERENCE RANGE:	

BODY CAVITY FLUID – CYTOLOGY (See Cytology Body Cavity Fluid)

BODY FLUID CELL COUNT & DIFFERENTIAL, ALL BODY FLUIDS EXCEPT CEREBRAL SPINAL FLUID.

ALIAS NAME:	**Cell Count and Differential** **Body Fluid**
TEST CODE:	**6041**
CPT CODE:	**89051**
SPECIMEN:	**2 mL body fluid in lavender top tube (EDTA), minimum 0.5 mL.**
COLLECTION:	**Mix gently by inversion. Deliver to laboratory within 30 minutes of collection. NOTE: Specimen source must be indicated.** **For CSF (cerebral spinal fluid) order 6036 "CSF exam, cell count and diff."**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Chamber count/manual differential.**
REFERENCE RANGE:	**Refer to report.**
PERTINENT INFORMATION:	**If indicated, a pathology review will be performed at an additional charge. (CPT 88108)**

BREAST NIPPLE SMEAR – Cytology (See Cytology Breast Nipple Smear)

BRONCHIAL CYTOLOGY (See Cytology Bronchial)

BUCCAL SMEAR (See Cytology Buccal Smear)

C

CALCIUM, 24 HOUR, URINE

TEST CODE:	**4190**
CPT CODE:	**82340**
SPECIMEN:	**Collect 24 hour urine**
COLLECTION:	**Refrigerate specimen.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**O-Cresolphthalein complexone.**
REFERENCE RANGE:	**Calcium 24 hour urine (mg/24 hours) - 100 to 250.**

CALCIUM

TEST CODE:	**4095**
CPT CODE:	**82310**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**O-Cresolphthalein complexone**
REFERENCE RANGE:	**Calcium (mg/dL) - 8.0 to 10.6; CRITICAL VALUES: less than 6.0 and greater than 14.0.**

CANCER ANTIGEN 125

ALIAS NAME:	**CA 125**
TEST CODE:	**5141**
CPT CODE:	**86304**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUNDTIME:	**1 day**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**0-35 U/mL**

CARBAMAZEPINE

ALIAS NAME:	**Tegretol**
TEST CODE:	**4295**
CPT CODE:	**80156**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzyme immunoassay**
REFERENCE RANGE:	**Carbamazepine (mcg/mL) - 6.0 to 12.0; CRITICAL VALUES: Greater than 18.0 mcg/mL.**

CARBON DIOXIDE

TEST CODE:	**4055**
CPT CODE:	**82374**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store capped, centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV assay**
REFERENCE RANGE:	**Carbon dioxide (MEq/L) - 22 to 34; CRITICAL VALUES: Less than 10 and greater than 40 mEq/L.**

CARCINOEMBRYONIC ANTIGEN (CEA), SERUM

TEST CODE:	**4445**
CPT CODE:	**82378**
SPECIMEN:	**1 SST tube, minimum 2.0 mL of serum.**
STORAGE:	**Store centrifuged specimen in refrigerator**
AVAILABILITY:	**Monday -Sunday**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL).**
REFERENCE RANGE:	**Carcinoembryonic antigen (ng/mL) - 0 to 5.0.**

CRP-HS, (HIGH SENSITIVITY C REACTIVE PROTEIN)

ALIAS :	**High Sensitivity CRP**
TEST CODE:	**5148**
CPT CODE:	**86141**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Immunoturbidimetric Assay**
REFERENCE RANGE:	**0 – 5 mg/L Low risk: < 1.0** **For Cardiac Average Risk: 1.0 – 3.0** **Assessment: High Risk: > 3.0**

CRP, (Non-Cardiac C REACTIVE PROTEIN)

ALIAS :	
TEST CODE:	**4142**
CPT CODE:	**86140**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
AVAILABILITY:	**7 days a week; 24 hours a day**
TURNAROUND TIME:	**1 day; Stats within 60 minutes**
METHODOLOGY:	**Immunoturbidimetric Assay**
REFERENCE RANGE:	**0.6 – 5.0 mg/L**

CBC (COMPLETE BLOOD COUNT) *Includes smear review if indicated.

TEST CODE:	**6012**
CPT CODE:	**85027**
SPECIMEN:	**3mL blood in lavender top tube (EDTA), minimum 2 mL.**
COLLECTION:	**Mix gently by inversion. Refrigerate up to 48 hours. Room temperature stable up to 24 hrs.**
	Includes: Leukocytes (WBC), erythrocytes (RBC), hemoglobin (Hgb), hematocrit (HCT), MCV, MCH, MCHC, RDW, MPV and platelet count
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**1 hour**
METHODOLOGY:	**Coulter DxH 800.**
	Age/sex dependent. See report print out for values:

REFERENCE RANGE:

ADULTS	ADULT MALE	ADULT FEMALE	UNITS
WBC	4.0 – 10.9	4.0 – 10.9	10 E9/L
RBC	4.44 – 5.51	3.89 – 5.03	10 E12/L
Hgb	12.9 – 16.6	11.6 – 14.9	g/dL
HCT	38.6 – 48.0	34.5 – 43.9	%
MCV	81.2 – 95.1	81.6 – 98.3	fL
MCH	27.4 – 33.0	27.4 – 33.0	pg
MCHC	33.3 – 35.5	33.1 – 35.5	g/dL
RDW	11.8 – 15.6	11.9 – 15.5	%
MPV	7.6 – 10.8	7.4 – 10.9	fL
Platelet	150 – 440	150 – 440	1000/mm^3

CRITICAL VALUES: WBC > 50 or <2, Hgb <7 or > 19, Plt < 10 or > 1000 (Adults)
***Includes smear review if indicated.**

CBC (COMPLETE BLOOD COUNT) WITH AUTOMATED DIFFERENTIAL

TEST CODE:	**6022**
CPT CODE:	**85025**
SPECIMEN:	**3 mL blood in lavender top tube (EDTA), minimum 2 mL.**
COLLECTION:	**Mix gently by inversion. Refrigerate up to 48 hours. Room temperature stable up to 24 hours.**
PERTINENT INFORMATION:	**Includes: Leukocytes (WBC), erythrocytes (RBC), hemoglobin (Hgb), hematocrit (HCT), MCV, MCH, MCHC, RDW, MPV and platelet count, leukocyte (WBC) differential (granulocytes, lymphocytes, monocytes, eosinophils, basophils) includes percentage and absolute number. If indicated, a manual differential and/or pathologist review will be performed at an additional charge (CPT 85060)**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Coulter DxH800.**
REFERENCE RANGE:	**Consult procedure**.

CBC (COMPLETE BLOOD COUNT) WITH MANUAL DIFFERENTIAL

TEST CODE:	**6028**
CPT CODE:	**85007 & 85027**
SPECIMEN:	**3 mL blood in lavender top tube (EDTA), minimum 2 mL.**
COLLECTION:	**Mix gently by inversion. Refrigerate up to 48 hours. Room temperature stable up to 24hours..**
PERTINENT INFORMATION:	**Includes: Leukocytes (WBC), erythrocytes (RBC), hemoglobin (Hgb), hematocrit (HCT), MCV, MCH, MCHC, RDW, MPV, platelet count, and manual differential. If indicated, a pathologist review will be performed at an additional charge (CPT 85060)**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Coulter DxH800.**
REFERENCE RANGE:	**Consult Procedure .**

CEREBROSPINAL FLUID (See Cytology Cerebrospinal Fluid)

CHLAMYDIA TRACHOMATIS/NEISSERIA GONORRHOEAE PCR TEST

TEST CODE	2013
CPT CODE	87491 Chlamydia trachomatis 87591 Neisseria gonorrhoeae
SPECIMEN	URINE (Male and Female) or Vaginal/Endocervical Swab
COLLECTION	**Urine Specimens** 1. The patient should not have urinated for at least 1 hour prior to specimen collection. Female patients **should not** cleanse the labial area prior to collecting the specimen. Male subjects should not cleanse the tip of penis prior to collecting specimen. 2. Direct patient to provide **first-catch urine** (approximately 20 to 50 mL of the initial urine stream) into a urine collection cup free of any preservatives. **NOTE:** Collection of larger volumes of urine may result in specimen dilution that may reduce test sensitivity. **Vaginal/Endocervical Specimens** **Clinician-collected vaginal/endocervical swab specimen collection** **You MUST use the Xpert CT/NG Vaginal/Endocervical collection kit.** **Caution:** Do NOT expose swab to Xpert CT/NG Swab Transport Reagent prior to collection. 1. Open the **Xpert CT/NG Vaginal/Endocervical Specimen collection kit.** 2. Before collecting the endocervical specimen with the Xpert CT/NG Vaginal/Endocervical Specimen Collection Kit, remove excess mucus from the cervical os and surrounding mucosa using the large individually wrapped cleaning swab. Partially peel open the larger cleaning swab wrapper and remove the swab. Clean the cervical os and surrounding mucosa and then discard the swab. **Note:** If collecting multiple specimens, excess mucus need only be removed once. 3. Open the package that contains the pink-capped Xpert Swab Transport Reagent tube and individually wrapped collection

	swab. Set the tube aside before proceeding. 4. Open the collection swab wrapper by peeling open the top of the wrapper. 5. Remove the swab, taking care not to touch the tip or lay it down. If the soft tip is touched, the swab is laid down, or the swab is dropped, request a new collection kit. 6. Insert the collection swab into the endocervical canal. 7. Gently rotate the swab clockwise for 10 to 30 seconds in the endocervical canal to ensure adequate sampling. 8. Withdraw the swab carefully. 9. While holding the swab in the same hand, unscrew the cap from the Xpert CT/NG Swab Transport Reagent tube. 10. Do not spill the contents of the tube. If the contents of the tube are spilled, request a new collection kit. 11. Identify the scoreline on the collection swab shaft. Carefully break the swab shaft against the side of the tube at the scoreline and discard the top portion of the swab shaft; use care to avoid splashing contents. 12. Re-cap the swab transport reagent tube and tighten the cap securely. 13. Invert or gently shake the tube 3-4 times to elute material from the swab. Avoid foaming. 14. Label the transport tube with sample identification information, including date of collection, as required. 15. Decontaminate and dispose of all specimens, reagents, and other potentially contaminated materials in accordance with local, state, and country regulations.
STORAGE:	Swab samples stored in Xpert CT/NG Swab Transport Reagent tubes should be transported to the laboratory at 2 °C to 30 °C. Urine samples should be transported immediately to the laboratory at 2 °C to 30 °C. Refrigerate delayed samples.
AVAILABILITY: TURNAROUND TIME:	Monday - Sunday 2 hours
METHODOLOGY:	PCR (Polymerase Chain reaction)
REFERENCE RANGE:	Not Detected

CHLORIDE

TEST CODE:	**4050**
CPT CODE:	**82435**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Ion ISE assay.**
REFERENCE RANGE:	**Chloride (mEq/L) - 101 to 111.**

CHLORIDE 24 HOUR URINE

TEST CODE:	**4205**
CPT CODE:	**82436**
SPECIMEN:	**Collect 24 hour urine.**
COLLECTION:	**Refrigerate** **NOTE: Submit complete 24 hour collection in container(s).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Indirect ISE assay**
REFERENCE RANGE:	**Chloride 24 hour urine (mEq/24 hr.) - 110 to 250.** **NOTE: ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050**

CHOLESTEROL FRACTIONIZATION

ALIAS NAME:	**Lipid profile (fasting)**
TEST CODE:	**4035**
CPT CODE:	**80061**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**NOTE: Draw specimen following an overnight (12 to 14 hour) fast.**
PERTINENT INFORMATION:	**Refrigerate specimen after collection.** **Includes: Cholesterol, triglyceride, HDL, LDL, Chol/HDL Ratio,**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic Colorimetric.**
REFERENCE	**See report.**

CHOLESTEROL

TEST CODE:	**4090**
CPT CODE:	**82465**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic Colorimetric.**
REFERENCE RANGE:	**Desirable: < 200 mg/dL** **Borderline High Risk: 200 – 239 mg/dL** **High Risk ≥ 240 mg/Dl**

CLOSTRIDIUM DIFFICILE –PCR

ALIAS NAME:	**C. diff**
TEST CODE:	**2003**
CPT CODE:	**87493**
SPECIMEN:	**Freshly collected stool in sterile screw-top container. Refrigerate immediately. Specimen may be refrigerated for up to 5 days. Alternatively, specimens may be kept at room temperature for up to 24 hours.** -Detects Toxin B which is produced by virtually all toxigenic C. difficile stains.
Pertinent Information:	**-ONLY PATIENTS WITH 3 OR MORE WATERY, LOOSE, OR UNFORMED STOOLS (STOOLS THAT TAKE THE FORM OF THE CONTAINER) PER DAY QUALIFY FOR C. DIFFICILE TOXIN TESTING.** An important exception is the very rare case where a patient has ileum (obstruction of the intestine due to paralysis of the intestinal muscles) without diarrhea. **- Formed stools submitted for testing will be rejected**. For special exception, please contact the CHC Pathologist at extension 6794. - **ONLY ONE STOOL SAMPLE NEEDS TO BE SENT TO DIAGNOSE OR EXCLUDE C. DIFFICILE**. You should NOT order 3 stool samples to rule out C. difficile. The new test is sensitive enough that a single negative test rules out the infection. **- ONLY ONE TEST PER 7 DAYS** unless there are documented clinical changes. For special exception, please contact the CHC Pathologist at extension 6794. - **THIS IS NOT TEST FOR CURE** since patients may carry the toxigenic C. difficile for months after clinical cure. Repeat testing following a positive test is appropriate if the patient improves with therapy and relapses after the completion of a treatment regimen (Clinical relapse) - **Swab specimens are not appropriate for C. difficile testing.** - **Performance characteristics have not been established for children under 2 years of age.** Request for testing for these patients will be forwarded to a reference lab.
AVAILABILITY:	C. difficile PCR testing will be performed daily.
TURNAROUND TIME:	2 hours.
METHODOLOGY:	PCR (Polymerase Chain Reaction)
REFERENCE RANGE:	Toxigenic C. difficile Negative

CLOSTRIDIUM DIFFICILE TOXIN - EIA

ALIAS NAME:	**C. diff toxin; C diff**
TEST CODE:	2036
CPT CODE:	**87324 + 87449**
SPECIMEN:	**Freshly collected stool in sterile screw-top container, frozen fecal specimens, C&S medium. Refrigerate immediately. Specimen may be refrigerated for up to 72 hours.** -.
Pertinent Information:	**Detects C Diff GDH Antigen and Toxins A & B.** **- ONLY PATIENTS WITH 3 OR MORE WATERY, LOOSE, OR UNFORMED STOOLS (STOOLS THAT TAKE THE FORM OF THE CONTAINER) PER DAY QUALIFY FOR C. DIFFICILE TOXIN TESTING.** An important exception is the very rare case where a patient has ileum (obstruction of the intestine due to paralysis of the intestinal muscles) without diarrhea. **- Formed stools submitted for testing will be rejected**. For special exception, please contact the CHC Pathologist at extension 6794. - **ONLY ONE STOOL SAMPLE NEEDS TO BE SENT TO DIAGNOSE OR EXCLUDE C. DIFFICILE**. You should NOT order 3 stool samples to rule out C. difficile. The new test is sensitive enough that a single negative test rules out the infection. **- ONLY ONE TEST PER 7 DAYS** unless there are documented clinical changes. For special exception, please contact the CHC Pathologist at extension 6794. - **THIS IS NOT TEST FOR CURE** since patients may carry the toxigenic C. difficile for months after clinical cure. Repeat testing following a positive test is appropriate if the patient improves with therapy and relapses after the completion of a treatment regimen (Clinical relapse) - **Swab specimens are not appropriate for C. difficile testing.** - **Performance characteristics have not been established for children under 2 years of age.** Request for testing for these patients will be forwarded to a reference lab.
AVAILABILITY:	C. difficile PCR testing will be performed daily.
TURNAROUND TIME:	2 hours.
METHODOLOGY:	EIA (Enzyme Imunoassay)
REFERENCE RANGE:	Toxigenic C. difficile Negative Comment: Clostridium difficile, PCR (87493), when indicated, will be performed at an additional charge.

COMPREHENSIVE METABOLIC PROFILE

TEST CODE:	**4039**
CPT CODE:	**80053**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in refrigerator.**
PERTINENT INFORMATION:	**Includes Basic Metabolic Profile, Total Protein, Albumin,, Total Bilirubin, AST, Alk Phos and ALT.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**See individual test**
REFERENCE RANGE:	**See individual test for reference range and critical values**

CORD BLOOD (Rh NEGATIVE MOTHER) WHOLE BLOOD

TEST CODE:	**3211**
CPT CODE:	**86900 - ABO** **86901 - Rh**
SPECIMEN:	**1 lavender top (EDTA)**
COLLECTION:	**NOTE: Baby's last name, sex, medical record number, date and time of birth, and mother's full name and medical record number are to be included on label.**
PERTINENT INFORMATION:	**To be ordered on cord blood of baby delivered from Rh negative mother to determine whether mother needs RhIg. If mom also types O, a direct coombs will be done at an additional charge.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**STAT only - 1 hour.**
METHODOLOGY:	**Agglutination with cells and antiserum; direct antiglobulin test.**
REFERENCE RANGE:	**ABO/Rh - no normals.**

CORD BLOOD - O MOTHER, Whole Blood

TEST CODE:	**3212**
CPT CODE:	**86900 – ABO Only if Direct Coombs is Positive** **86901 – Rh Only if Direct Coombs is Positive** **86880 - Direct Coombs**
SPECIMEN:	**1 lavender top (EDTA)**
COLLECTION:	**NOTE: Baby's last name, sex, medical record number, date and time of birth, and mother's full name and medical record number are to be included on label.**
PERTINENT INFORMATION:	**To be ordered on cord blood of baby delivered from Group O mother to determine if mother's isoagglutinins are coating the baby's red cells. Includes direct coombs (DAT). If DAT is positive an ABO/Rh will be performed at an additional charge.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**ROUTINE only - 1 day.**
METHODOLOGY:	**Agglutination with cells and antiserum; direct antiglobulin test.**
REFERENCE RANGE:	**ABO/Rh - no normals. DAT - negative.**

CORTISOL, TOTAL

TEST CODE:	**4523**
CPT CODE:	**82533**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**Morning (8:00 a.m.) and afternoon (4:00 p.m.) specimens are desirable to evaluate baseline diurnal variation.**
AVAILABILITY:	**Sunday - Saturday.**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Electro Chemiluminescent Immunoassay.**
REFERENCE RANGE:	**See report.**

CPK (TOTAL CREATINE PHOSPHOKINASE)

ALIAS NAME:	**CK** **Creatine kinase**
TEST CODE:	**4140**
CPT CODE:	**82550**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE **:**	**Store centrifuged specimen in refrigerator**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV.**
REFERENCE RANGE:	**CPK (U/L) – 35 to 289**

CREATININE (includes eGFR)

TEST CODE:	**4080**
CPT CODE:	**82565**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**IDMS traceable Jaffe reaction**
REFERENCE RANGE:	**Creatinine (mg/dL) - 0.5 to 1.4.**

CREATININE, BODY FLUID

TEST CODE:	**4515**
CPT CODE:	**82570**
SPECIMEN:	**Collect 2 mL pleural or peritoneal fluid in sterile container.**
COLLECTION:	**Note fluid type. Refrigerate.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Jaffe Reaction**
REFERENCE RANGE:	**None determined.**

CREATININE CLEARANCE, 24 HOUR URINE

TEST CODE:	**4215**
CPT CODE:	**82575**
SPECIMEN:	**Collect 24 hour urine (call lab for protocol); also collect 1 SST tube, minimum 2.0 mL of serum.**
COLLECTION:	**NOTE: Submit complete 24 hour collection in container(s). Serum specimen to be stored centrifuged and refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Jaffe Reaction**
REFERENCE RANGE:	**See report.**

CREATININE, 24 HOUR URINE

TEST CODE:	**4210**
CPT CODE:	**82570**
SPECIMEN:	**Collect 24 hour urine (call lab for protocol). Refrigerate.**
COLLECTION:	**Serum specimen to be stored, centrifuged and refrigerated. NOTE: Submit complete 24 hour collection in container(s).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Jaffe**
REFERENCE RANGE:	**See report**

CRYPTOCOCCUS ANTIGEN, SPINAL FLUID

TEST CODE:	**8012**
CPT CODE:	**86403**
SPECIMEN:	**0.5 mL of spinal fluid.**
COLLECTION:	**Send to lab immediately.**
AVAILABILITY:	**Sunday - Saturday.**
TURNAROUND TIME:	**Same day**
METHODOLOGY:	**Latex agglutination**
REFERENCE RANGE:	**Negative**

CRYSTALS, SYNOVIAL FLUID

TEST CODE:	**6110**
CPT CODE:	**89060**
SPECIMEN:	**2 mL fluid in green or red top tube, minimum 0.5 mL. EDTA tube not acceptable**
COLLECTION:	**Deliver to laboratory within 30 minutes of collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Polarized microscopy.**
REFERENCE RANGE:	**Negative.**

CSF EXAM, CELL COUNT AND DIFF., CEREBROSPINAL FLUID

ALIAS NAME:	**Cell count and diff.** **CSF/spinal fluid**
TEST CODE:	**6036**
CPT CODE:	**89051**
SPECIMEN:	**1 mL in sterile CSF tube, minimum 0.5 mL.**
COLLECTION:	**Deliver to laboratory within 30 minutes of collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Manual chamber count/differential.**
REFERENCE RANGE:	**Clear, colorless. WBC - less than 5. RBC - 0.**

CEREBROSPINAL FLUID

VOLUMES & TUBE REQUIREMENTS

Tube and Volume requirements for CSF (Cerebrospinal Fluid)

The following tube and volume requirements are general guidelines only. The physician may indicate test(s) to be done on different tube numbers. After obtaining the CSF please send the sample to the laboratory immediately accompanied by the original physician order sheet.

Tube #	Test usually ordered	Volume	LIS Test Number
1 and 4 (1st & last If not indicated)	Cell Count and Diff	1.5ml	6036
2	Protein & Glucose	0.5ml	5005 Prot, 5000 Gluc
	Microbiology:		
2	Culture & Gram Stain	1.0ml	2125
	(Neonates)	0.5ml	
3	AFB Culture	2.0mL	2210
2	Fungus Culture	2.0mL	2220
	TOTAL	5.0mL	
4	Cryptococcus	0.2mL	8012
1	Cytology	1.0mL	6820

NOTE: If any other test is ordered, please call Hematology ext. 6799 for volumes.

CULTURE, ACID FAST BACTERIA - SPECIMEN COLLECTION INFORMATION

SPECIMEN TYPE	SPECIMEN REQUIREMENTS	SPECIAL INSTRUCTIONS	UNACCEPTABLE SPECIMENS
Abscess contents, aspiration fluid	As much as possible in syringe with Luer tip cap	Cleanse skin with alcohol before aspirating sample. Collect specimen on swab and place in transport medium only if volume is insufficient for aspiration by needle and syringe.	Dry swab.
Blood	10mL green top (heparinized) blood collection tube	Disinfect site as for routine blood culture. Mix tube contents immediately after collection. Deliver to Micro Lab within 30 minutes. Sent to Reference Lab (Mon - Fri) for testing	Blood collected in EDTA, which greatly inhibits mycobacterial growth even in trace amounts and Coagulated Blood.
Body fluids, e.g. pleural, pericardial, peritoneal, etc.	As much as possible (10-15 mL minimum) in sterile container. Collect bloody specimens into green top heparinized blood collection tubes	Disinfect site with alcohol if collecting by needle and syringe. Since many of these fluids may contain fibrinogen, it may be necessary to add anticoagulant (SPS or heparin) to collection containers.	
Bone	Bone in sterile container without fixative or preservative		Specimen submitted in formalin or preservative.
Bone marrow	As much as possible in green top heparinized blood collection tube	Collect aseptically. Mix tube contents immediately following collection. Sent to Reference Lab (Mon-Fri) for culture.	
Bronchoalveolar lavage or bronchial washings	20 to 40 mL in sterile container	Avoid contaminating bronchoscope with tap water. Saprophytic mycobacteria may produce false-positive culture or smear results.	
Cerebrospinal fluid	2 mL in sterile container	Use maximum volume attainable.	

SPECIMEN TYPE	SPECIMEN REQUIREMENTS	SPECIAL INSTRUCTIONS	UNACCEPTABLE SPECIMENS
Gastric lavage fluid	**Minimum of 10 mL in sterile container. Collect in the morning soon after patient awakens in order to obtain sputum swallowed during sleep**	**Collect fasting early morning specimen on three consecutive days. Use sterile saline. Adjust to neutral pH with 100 mg of sodium carbonate immediately following collection. Microbiology Lab should provide collection tube containing sodium carbonate.**	**Specimen that has not been neutralized.**
Lymph node	**Node or portion in sterile container without fixative or preservative**	**Collect aseptically and avoid indigenous microbiota. Select caseous portion if available. Do not immerse in saline or other fluid or wrap in gauze. Freezing decreases yield. Transport to lab immediately.**	**Specimen submitted in formalin.**
Skin lesion material	**Submit biopsy specimen in sterile container without fixative or preservative. Submit aspirate in syringe with Luer tip cap.**	**Swabs in transport medium (Port-a-cul) are acceptable only if biopsy sample or aspirate is not obtainable. For cutaneous ulcer, collect biopsy sample from periphery of lesion, or aspirate material from under margin of lesion.**	
Smear on slides	**Smear specimen over 1.5 x 1.5 cm area of clear slide.**	**Heat fix smears. Transport slide container taped closed and labeled BIOHAZARD, with patient name and second identifier.**	
Sputum	**Minimum of 10 mL in sterile, sealed leak-proof container. Collect an early morning specimen from deep productive cough on at least three consecutive days. Do not pool specimens. For follow-up of patients on therapy, collect at weekly intervals beginning three weeks after initiation of therapy. Please note: In patients with clinical and chest x-ray findings compatible with tuberculosis, it is recommended that 3 sputum specimens be collected over an 8 - 24 hour period of time to include at**	**For expectorated specimen, instruct patient on how to produce sputum specimens as distinct from saliva or nasopharyngeal discharge. Have 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 the 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. Indicate on request if specimen is induced sputum.**	**24 hour pooled specimens.** **Sputum with >25 SEC's/lpf and <10 PMN's/lpf**

SPECIMEN TYPE	SPECIMEN REQUIREMENTS	SPECIAL INSTRUCTIONS	UNACCEPTABLE SPECIMENS
	least one first morning specimen.		
Stool	1 g in sterile, wax-free, disposable container.	Collect specimen directly into container, or transfer from bedpan or plastic wrap stretched over toilet bowl. Wax from container may produce false-positive smear.	Frozen specimen. Utility of culturing stool for acid-fast bacilli remains controversial.
Tissue biopsy sample	1 g of tissue, if possible, in sterile container without fixative or preservative.	Collect aseptically, and avoid indigenous microbiota. Select caseous portion if available. Do not immerse in saline or other fluid or wrap in gauze. Freezing decreases yield.	Specimen submitted in formalin.
Transtracheal aspirate	As much as possible in syringe with Luer tip cap or other sterile container.		
Urine	As much as possible, minimum 40 mL, of first morning specimen obtained by catheterization or of midstream clean catch urine in sterile container. For suprapubic tap, as much as possible in syringe with Luer tip cap or other sterile container.	Collect first morning specimen on 3 consecutive days. Accept only one specimen per day. Organisms accumulate in bladder overnight, so first morning void provides best yield. Specimens collected at other times are dilute and are not optimal.	24-hour pooled specimens; urine from catheter bag; specimens of <40 mL unless larger volume is not attainable.
Wound material	See biopsy or aspirate	Swabs are acceptable only if biopsy or aspirate is not attainable. If used, they must be placed in transport medium (Port-a-cult). Negative results are not reliable.	

CULTURE - ACID FAST BACTERIA (BLOOD), BLOOD AND BONE MARROW

TEST CODE:	**2212**
CPT CODE:	**87206**
SPECIMEN:	**Blood in 10 mL green top (heparinized) tube.**
COLLECTION:	**Test referred to Reference Lab. Disinfect venipuncture site as for blood culture. Collect blood in 10 mL green top tube. Mix contents immediately after collection. NOTE: Deliver to lab within 30 minutes. Blood collected in EDTA tube is unacceptable. Includes acid fast smear.**
PERTINENT INFORMATION:	**Monday through Friday, cut off time is 0830 a.m. Smear, 24 to 48 hours. Culture, 8 weeks.**
AVAILABILITY:	**Smear and culture.**
TURNAROUND TIME:	**Normal = no AFB isolated.**
METHODOLOGY:	
REFERENCE RANGE:	COMMENT: Positive isolates may be identified at an additional charge (CPT 87149**)**

CULTURE, ANAEROBIC (ISOLATION & IDENTIFICATION ONLY)

TEST CODE:	**2100**
CPT CODE:	**87075/87205**
COLLECTION:	**Specimen requirements: <u>Superficial lesions</u> - are unsuitable for anaerobic studies. <u>Deep wounds</u> - (1) Disinfect surface with 70% alcohol and then with an iodine solution. (2) Aspirate the deepest portion of the lesion, avoiding contamination by the wound surface.**
PERTINENT INFORMATION:	**NOTE: Aspiration of the exudate by syringe is the best way to collect wound specimens because it allows for maximum recovery of organisms, including anaerobes. Cultures may also be collected with <u>two sterile swabs</u> which are saturated with exudate, then placed in a <u>Port-a-cul transport tube.</u> Please specify if actinomyces is suspected. Includes gram stain.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**3 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Negative = No anaerobes isolated in 7 days.**
	COMMENT: Identification of isolates, when indicated, will be performed at an additional charge (CPT 87076), and beta-lactamase, when indicated, will be performed at an additional charge (CPT 87185)

CULTURE, ANAEROBIC ACTINOMYCES

TEST CODE:	**2101**
CPT CODE:	**87075/87205**
SPECIMEN:	**See "CULTURE, ANAEROBIC".**
COLLECTION:	**See "CULTURE, ANAEROBIC".**
PERTINENT INFORMATION:	**Includes gram stain.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**10 to 14 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Negative = No Actinomyces isolated.** **COMMENT: Identification of isolates, when indicated, will be performed at an additional charge (CPT 87076), and beta lactamase, when indicated, will be performed at an additional charge (CPT 87185)**

CULTURE, ANTHRAX

TEST CODE:	**2102**
CPT CODE:	**87081, 87205**
SPECIMEN :	**Sputum, Lesion, Blood (See Test #2103 "Culture – Anthrax (Blood) Nasopharyngeal swabs are recommended only if the patient is asymptomatic but the potential for exposure is known to have existed. BLOOD is the specimen of choice for the diagnosis of anthrax in symptomatic patients.**
COLLECTION:	**1. Blood – refer to "Culture – Anthrax (Blood)" - Test 2103** **2. Sputum – Submit respiratory secretions in a sterile container** **3. Wound (lesions) – Submit specimen on 2 swabs in "Port-a-cul" tube transport media or in aerobic transport system (available from Carroll Hospital Center Laboratory) Absorb fluid from lesions onto swabs. Tissue is also acceptable** **4. Nasopharyngeal – collect with aerobic transport system swab**
PERTINENT INFORMATION:	**Screen to rule out the presence of anthrax (Bacillus anthracis); <u>presumptive identification only</u>; suspect organisms to be forwarded to reference lab for definitive identification; includes gram stain**
AVAILABILITY:	**Monday – Sunday**
TURNAROUND TIME:	**1 – 3 days**
METHODOLOGY:	**Culture**
REFERENCE RANGE:	**No Bacillus anthracis isolated.** **Comment: Additional tests for presumptive identification (CPT 87184) will be performed at an additional charge when indicated.**

CULTURE, ANTHRAX (BLOOD)

TEST CODE:	**2103**
CPT CODE:	**87040, 87205**
SPECIMEN :	**20 mL blood per set (10 mL in each of 1 blue (SA), l purple (SN) blood culture bottle**
COLLECTION:	**Patient prep listed under "Culture, Blood" NOTE: Transport to Lab within ½ hour.**
PERTINENT INFORMATION:	**To rule out the presence of anthrax (Bacillus anthracis). Includes gram stain.**
AVAILABILITY:	**Monday – Sunday**
TURNAROUND TIME:	**1 – 5 days**
METHODOLOGY:	**Culture**
REFERENCE RANGE:	**No Bacillus anthracis isolated.** **Comment: Includes presumptive identification; suspect organisms will be forwarded to reference lab for definitive identification; additional testing (CPT 87184) , if necessary, will be performed at an additional charge.**

CULTURE, AUTOPSY

TEST CODE:	**2095**
CPT CODE:	**87070/ 87205**
COLLECTION:	**<u>Swabs</u> - Submit two swabs in Port-a-cul tube transport media.** **<u>Tissues</u> - Submit in sterile petri dish or sterile screw-top container.**
PERTINENT INFORMATION:	**NOTE: Must specify source.** **Includes gram stain.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.**
	COMMENT: Identification of isolates, when indicated, will be performed at an additional charge (CPT 87077/87076/87106)

CULTURE, BETA STREP ONLY

TEST CODE:	**2050**
CPT CODE:	**87081**
COLLECTION:	**Collect using aerobic transport system swab (available from Carroll Hospital Center Laboratory).** **(1) Depress tongue gently with tongue depressor.** **(2) Sweep the swab back and forth across the posterior throat, tonsillar areas, and any inflamed or ulcerated area.** **(3) AVOID TOUCHING CHEEKS, TONGUE, UVULA OR LIPS.**
PERTINENT INFORMATION:	**To rule out the presence of beta hemolytic Streptococcus**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal Flora, No beta hemolytic Streptococcus.**
	COMMENT: Identification of isolates, when indicated, will be performed at an additional charge (CPT 87077)

CULTURE, BLOOD

TEST CODE:	**2190**
CPT CODE:	**87040**
SPECIMEN:	**ADULTS: 16-20 mL blood per set (8-10 mL in each of 1 blue (Plus Aerobic/F), 1 purple (Lytic 10 Anaerobic/F) blood culture bottles.**
COLLECTION:	**INFANTS/CHILDREN/DIFFICULT VENIPUNCTURE: ≤5 mL in one pink (Peds Plus/F) blood culture bottle.** **1. Identify patient as per hospital policy.** **2. Explain to patient that the physician has ordered a series of tests and you may have to stick them several times.** **3. Assemble Supplies:** **a. ChloraPrep applicator or iodine tincture 2% sepp.** **b. 70% alcohol preps** **c. Tourniquet** **d. Gloves** **e. Vacutainer needle holder (barrel).** **f. 21 G winged collection set** **g. BACTEC blood culture bottles (one blue top (Aerobic), one purple top (Anaerobic). For children under 14 or difficult sticks, one pink top (Peds).** ***Note: Pediatric blood culture bottles should only be used for adults in instances where less than 5 mL are collected.** **h. Gauze** **i. Paper tape** **4. ARM PREP** **a. Chloraprep Method (preferred):** **NEVER USE CHLOROPREP ON INFANTS 2 MONTHS AND YOUNGER (See Iodine/Alcohol Prep). Cleanse venipuncture site with a 70% isopropyl alcohol prep.** **i. Prepare the antecubital area using a ChloraPrep applicator. Hold the applicator with the sponge facing down (do not touch the sponge) and gently pinch once to break the ampule (you should hear it pop).** **ii. Saturate the sponge with ChloraPrep by gently pressing it against the treatment area.** **iii. Using back and forth scrubbing motion, completely wet the treatment area, 30 seconds for dry sites and 2 minutes for wet sites. Allow the area to dry completely. Do not blot or wipe the solution away.** **vi. Discard the ChloraPrep applicator after a single use.** **b. SKIN PREP WITH IODINE/ALCOHOL:** **i. Using a 70% alcohol swab, make concentric circles from the inside out.** **ii. Perform the same procedure again, this time using iodine tincture 2% sepp. Never overlap any area that has already been cleansed.** **iii. Allow the iodine to dry 1 to 2 minutes before proceeding with the venipuncture.** **iv. Be sure the sterilization technique is not broken.** **c. SKIN PREP WITH 10% POVIDONE-IODING SWABSTICK** **i. Remove swabstick from pack by tearing at slit, pulling across to expose end of swabstick.d.** **ii. Apply generously to the procedural site.** **iii. Allow to air dry.** **5. VENIPUNCTURE**

NUMBER & TIMING	**a. Inspect blood culture bottles for cracks, contamination and expiration date. The broth will appear cloudy if contaminated.** **b. It is important that the recommended amount of blood is collected for each bottle type:** **3 - 10mL for adult bottles (Blue or Purple) 8 – 10 mL optimal ≤ 5 mL for pediatric bottles (pink) (1-3mL optimal)** **c. It is recommended to mark both blood culture bottles to indicate the fill line prior to venipuncture in order to ensure that the blood culture bottle is filled with a sufficient amount of blood:** **• Mark original fluid amount by making a line where the fluid ends in the bottle when it is sitting upright, then estimate 10 mL for adult blood culture bottles by using the 5 mL graduated marks on the bottle (blue, purple, green or orange bottles).bottles).** **• For pediatric blood cultures, estimate 1-3 mL (pink bottles).** **d. Remove the plastic caps from the blood culture bottles and cleanse the rubber stopper of each bottle individually with 70% alcohol preps.** **e. Attach barrel to the winged collection set.** **f. Perform venipuncture.** **g. MONITOR the direct draw process closely at all times during collection to assure proper flow is obtained and to avoid flow of the bottle contents into the tubing. Due to the presence of chemical additives in the culture** **bottle, it is important to prevent possible backflow and subsequent adverse reaction by following all steps below:** **i. Hold culture bottle at a position below the patient's arm with the bottle in an upright position (stopper uppermost).** **ii. Collect the blood using a butterfly collection set and vacutainer needle holder or barrel.** **iii Insert blue (first) blood culture bottle and draw to the 10 ml- marked line.** **iv. Release the tourniquet as soon as the blood starts to flow into the culture bottle or within 2 minutes of application.** **v. Insert the purple bottle. AVOID OVERFILL (a maximum of 10 mL in each blue and purple bottle OR a maximum of 5 mL in each pink bottle).** **h. Try to get at least 3 mL in each of the blue and purple top bottles, and at least 0.5 mL in the pink bottle.** **i. Do not allow the culture bottle contents to touch the stopper or the end of the needle during the collection procedure.** **j. Label each tube with the patient's name, date & time collected, and collector ID.** **k. Gently mix each bottle to avoid clotting.** **l. Bandage the patient.** **m. Discard entire collection set (including needle holders) in sharps container.** **n. Clean any blood off tops of bottles with alcohol preps.** **o. Deliver specimens to the Microbiology Department immediately (STAT) to be accessioned and processed immediately (placed in BACTEC instrument in less than one half hour).** **DURING SEPTIC EPISODES, recommend 2 sets drawn at the same time from different venipunctures sites, preferably before starting antimicrobial** **therapy. In most infections in adults, it is necessary to collect a maximum** **of only two or three blood specimens in the initial 24-hour period or per patient septic episode.** **Acute sepsis, meningitis, osteomyelitis, arthritis, acute untreated**

AVAILABILITY: *TURNAROUND TIME:* *METHOLODOLOGY:* *REFERENCE RANGE:*	**pneumoniae, or pyelonephritis – Immediately obtain 2 sets of blood cultures at the same time from 2 separate sites (for a total of 20 to 40 mL)** **so that antimicrobic therapy can be instituted.** **Acute Endocarditis – Obtain 3 blood cultures with 3 separate venipunctures during the first one to two hours of evaluation, and begin therapy.** **Subacute Endocarditis – Obtain 3 blood cultures on day 1 (ideally 15 minutes or more apart); if all are negative in 24 hours, obtain 3 more.** **From undiagnosed patients who have received antimicrobial agents in the** **week or two before admission, obtain two separate blood cultures on each** **of three successive days. Although prior antimicrobial therapy may result** **in negative cultures, it more often causes delayed growth.** **Fever of Unknown Origin (occult abscesses, typhoid fever, or brucellosis) – Obtain two separate blood cultures initially; 24 to 36 hours** **later, obtain 2 more just before the expected (usually afternoon) temperature elevation.** **Single blood culture collection from adults is inappropriate. Some bacteremia are intermittent in nature and their detection often depends on** **the collection of at least two blood cultures that include an aerobic and anaerobic culture in a 24-hour period.** **The volume of blood collected is critical. The higher the volume, the greater the recovery rate of microorganisms. At this time, we recommend** **a minimum of 16 to 20 mL (ideally 20mL) of blood per collection from adults,** **and in infants and young children, ≤ 5 mL of blood per collection when possible.** **Monday through Sunday.** **5 days.** **Culture.** **Positive results will be called upon initial detection.** **Negative = No growth in 5 days. *COMMENT: Identifications (CPT 87077 /87076/87106/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185) when indicated, will be performed at an additional charge.***

CULTURE, BODY FLUID, STERILE

TEST CODE:	**2105**
CPT CODE:	**87070/87205**
SPECIMEN:	**Percutaneous aspiration of body fluid (pleural, pericardial, peritoneal, cul-de-sac, amniotic, or synovial) in syringe (remove needle before transport) or sterile screw top container. Excludes cerebrospinal fluid, urine, and blood.**
COLLECTION:	**1. Clean the needle puncture site with alcohol and disinfect it with an iodine solution (1-2% tincture of iodine or a 10% solution of povidone-iodine) to prevent introduction of infection.** **2. The physician will aseptically perform percutaneous aspiration to obtain pleural, pericardial, peritoneal or synovial fluids.** **3. Transport to the lab IMMEDIATELY in syringe , sterile blood collection tube without preservative or sterile screw top container.**
PERTINENT INFORMATION:	**NOTE: Must specify site. If gonococcal arthritis is suspected, also order "CULTURE, GC" (2070).** **Includes gram stain, and may include concentration of specimen (CPT 87015)**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE	**Negative = no growth in 7 days.** ***COMMENT: Identifications (CPT 87077/87076/87106) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated.***

CULTURE, BODY FLUID, CULTURE BOTTLES

TEST CODE:	**2200**
CPT CODE:	**87070**
SPECIMEN:	**Aerobic (blue top) SA and anaerobic (purple top) SN BacT/Alert blood culture bottles.**
COLLECTION:	**1. Clean bottle tops with alcohol. 2. Transfer specimen to bottles with syringe (5 to 10 mL of specimen to each bottle).** **NOTE: Must specify source. Never label over barcode on bottles.** **Transport to lab within 1/2 hour of collection.**
PERTINENT INFORMATION:	
AVAILABILITY:	**Includes anaerobic culture.**
TURNAROUND TIME:	**Monday through Sunday.**
METHODOLOGY:	**2 to 5 days.**
REFERENCE RANGE:	**Culture.** **Negative = No growth in 5 days** ***COMMENT: Identifications,*** ***(CPT 87077/87076/87106) and antibiotic sensitivities (CPT 87184, 87186, 87185 or 87181), when indicated, will be performed at an additional charge.***

CULTURE, BONE MARROW (REFER TO Culture, Tissue)

CULTURE, BRONCHIAL

TEST CODE:	2065
CPT CODE:	87070/87205
SPECIMEN:	Includes bronchial washings, transbronchial biopsy specimens, bronchial lavages (BAL), and lung aspirates, all to be submitted in a sterile, leak-proof container.
COLLECTION:	**Bronchial washings** are obtained by instilling a small amount of sterile physiologic saline into the bronchial tree and withdrawing the fluid. **Transbronchial Biopsy** is collected during a bronchoscopy and is immediately submitted to the lab in a sterile container of non-bacteriostatic saline. **Bronchial Lavage** samples are collected from distal bronchioles and alveoli. A large volume of non-bacteriostatic saline is instilled and suctioned out by a vacuum to collect the specimen (25 to 30 ml) **Lung Aspirate**-material is aspirated from lesions or cavities that are located on the periphery of the lung **Lung Biopsy** – tissue from a lung segment is collected and
PERTINENT INFORMATION:	immediately submitted to the lab in a sterile container of non-bacteriostatic saline.
AVAILABILITY:	Includes gram stain
TURNAROUND TIME:	Monday through Sunday.
METHODOLOGY:	2 to 4 days.
REFERENCE RANGE:	Culture. Not applicable. COMMENT: Identification, (CPT 87077/87076/87106/87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, BRUSHING

TEST CODE:	**2135**
CPT CODE:	**87070/87205**
COLLECTION:	**A small brush is placed within a double cannula. The end of the outermost tube or cannula is closed with a disposable plug made of polyethylene glycol. Once the cannula has been inserted to the proper area, the inner cannula is pushed out, dislodging the protective plug. Then the brush is extended beyond the inner cannula, the specimen is collected, and the brush is removed. Sever brush from the retracting wire and place directly into 3 mL of sterile Ringer's lactate solution (without preservatives) or in 1 ml non-bacteriostatic saline, in a sterile, leak-proof container.**
PERTINENT INFORMATION:	**Includes gram stain**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.** ***COMMENT: Identifications (CPT87077/87076/87106/87107/87158) and antibiotic sensitivities (CPT 87184,87186, 87181 or 87185), when indicated, will be performed at an additional charge.***

CULTURE, CATHETER TIP, I.V. CANNULA

TEST CODE:	**2110**
CPT CODE:	**87070**
COLLECTION:	**Cleanse skin around catheter site with alcohol. Aseptically withdraw the I.V. device slowly, taking care not to touch the surrounding skin. Using sterile scissors, cut off the distal 1/3 of device and drop into sterile screw-top container. DO NOT PUT IN PORT-A-CUL TUBED MEDIA. Transport to Lab immediately. NOTE: Foley catheter tips are unacceptable.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Semiquantitative Culture. Reported in CFU's (Colony Forming Units);- >15 CFU's or < 15 CFU's*It is recommended that 2 blood cultures be collected at the same time the cath tip is submitted, one through the catheter, one from a peripheral site. Carefully label the blood specimens with the correct source.***
REFERENCE RANGE:	***Negative = No growth in 96 hours.*** ***COMMENT: Identifications (CPT 87077/87076/87106) and antibiotic sensitivities (CPT 87184, 87186, or 87181), when indicated, will be performed at an additional charge.***

CULTURE, CHLAMYDIA TRACHOMATIS

TEST CODE:	**9440**
CPT CODE:	**87110**
SPECIMEN:	**Cell culture.** **Cervical, urethral, rectal or eye swab.** **Infants – nasopharyngeal aspirate wash.** **<u>Unacceptable Culture Sites:</u>** **Urine, vagina, or any discharges.**
COLLECTION:	**Send in viral transport media. Media can be obtained from Lab at ext. 6799.**
AVAILABILITY:	**Sunday – Saturday.**
TURNAROUND TIME:	**5 days.**
METHODOLOGY:	**Cell Culture.**

CULTURE, CSF, ROUTINE

TEST CODE:	**2125**
CPT CODE:	**87070/87205**
SPECIMEN:	**Cerebrospinal fluid in sterile, leak-proof tubes.**
COLLECTION:	**1. Clean the puncture site with antiseptic solution and alcohol.** **2. Perform lumbar puncture and collect CSF in sterile, leak-proof tubes.** **3. Three tubes are generally required for microbiology, hematology, and chemistry testing. The second tube collected will go to microbiology unless otherwise specified.** **4. Transport CSF to Lab immediately.**
PERTINENT INFORMATION:	**NOTE: Microbiology will perform only those tests specified. Any remaining CSF specimen will be held for two weeks in the event further studies are desired.** **Includes STAT gram stain and may include concentration of specimen (CPT 87015).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Negative = no growth in 5 days.**
	COMMENT: Identifications (CPT 87077/87076/87106) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, EAR

TEST CODE:	**2120**
CPT CODE:	**87070**
COLLECTION:	**Collect specimen using aerobic transport system swab.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.**
	COMMENT: Identifications (CPT 87077/87076/87106/87107) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, ENVIRONMENTAL

TEST CODE:	**2140**
CPT CODE:	**87070**
COLLECTION:	**EXTERNAL SURFACES AND ACCESSIBLE INTERNAL CHANNELS:** **1. Moisten sterile aerobic transport swab in sterile distilled water.** **2. Slowly rotate moistened swab over area to be cultured.** **3. Return to aerobic transport tube (culturette) and transport to lab for culture.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.** ***COMMENT: Identifications (CPT 87077) will be performed at an additional charge.***

CULTURE, ENVIRONMENTAL (QUANTITATIVE)

TEST CODE:	**2142**
CPT CODE:	**87999**
COLLECTION:	**DEVICES WITH INTERNAL CHANNELS (e.g. ENDOSCOPES): shall be cultured by flushing the internal channel with sterile distilled water.** **1. The volume of water used to flush the internal channels should be 2 to 3 times the volume of the channels.** **2. Collect the effluent from the lumen in a sterile, screw-top container which contains sterile phosphate buffer (pH 7.2). The final volume of the effluent plus phosphate buffer should be between 55mL and 100 mL. The greater the volume, the better.** **NOTE: The purpose of flushing with sterile water is to remove residual broth or saline in the devices. The purpose of adding the effluent to phosphate buffer for transport to the lab is to create as isotonic an environment as possible. The purpose of having the final volume as large as possible is to neutralize the activity of any residual disinfectant which may be present on the device.** **3. Refrigerate specimen at 4^{o}C until culture. MUST BE DONE WITHIN 24 HOURS OF SAMPLE COLLECTION.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.** ***Comment: Identifications (CPT 87077) will be performed at an additional charge.***

CULTURE, EYE

TEST CODE:	**2115**
CPT CODE:	**87070/87205**
COLLECTION:	**Collect using sterile aerobic transport swab.**
PERTINENT INFORMATION:	**Includes gram stain.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.**
	COMMENT: Identifications (CPT 87077/87076) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, GC (GONOCOCCAL)

TEST CODE:	**2070**
CPT CODE:	**87081**
COLLECTION:	**Refer to "CULTURE, GENITAL" for specimen collection. DO NOT REFRIGERATE.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Negative = no Neisseria gonorrhoeae isolated.**
	COMMENT: Identifications (CPT 87077 or 87106) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, GENITAL

TEST CODE:	**2075**
CPT CODE:	**87070**
COLLECTION:	**FEMALE:** **AMNIOTIC FLUID: Aspirate fluid by catheter, at cesarean section, or at amniocentesis.** **BARTHOLIN GLAND: Decontaminate the skin with povidone-iodine, and aspirate material from the duct(s).** **CERVIX: (1) Do not use lubricant during procedure. (2) Wipe the cervix clean of vaginal secretion and mucus. (3) Rotate a sterile swab and obtain exudate from the endocervical glands. (4) If no exudate is seen, insert a sterile swab into the endocervical canal and rotate the swab.** **ENDOMETRIUM: Collect endometrial specimens by transcervical aspiration through a telescoping catheter.** **FALLOPIAN TUBES: Obtain aspirates (preferably) or swab specimens during surgery. Bronchoscopy cytology brushes may be used if exudate is not expressed.** **RECTAL SWABS: Used primarily to detect *N. gonorrhoeae, Shigella* species, and anal carriage of *S. pyogenes*. Pass the tip of a sterile swab approximately 1 in. beyond the anal sphincter. Carefully rotate the swab to sample the anal crypts and withdraw it. Send the swab in a swab transport or *N. gonorrhoeae* transport system.** **URETHRA: (1) Collect specimens 1 hour or more after patient has urinated. Stimulate discharge by gently massaging the urethra against the pubic symphysis through the vagina. (2) Collect the discharge with a sterile swab. (3) If discharge cannot be obtained, wash external urethra with betadine soap and rinse with water. Insert an urethrogenital swab 2 to 4 cm into the endourethra, gently rotate the swab, and leave it in place for 1 to 2 seconds. Withdraw the swab and submit it in the appropriate transport system for culture.** **VAGINA: Specimens are also useful in the detection of group A streptococci in children. Use a speculum without lubricant. Collect secretions from the mucosa high in the vaginal canal with sterile pipette or swab.** **VULVA: (1) Clean the surface of the lesion with 0.85% NaCl. If there is a crust on the lesion, remove it. (2) Scrape the lesion until serous fluid emerges. (3) Wipe away fluid and debris with sterile gauze. (Try to avoid bleeding.) (4) Press the base of the lesion until clear fluid is expressed. (5) Aspirate vesicular fluid with a 26 to 27 gauge needle. -OR- (6) Scrape the base of an open vesicle with a sterile scalpel blade and then rub the base vigorously with a sterile swab.** **MALE:** **ANAL SWAB: Submitted primarily for the detection of *N. gonorrhoeae*, Shigella species and anal carriage of *S. pyogenes*. Pass the tip of a sterile swab approximately 1 inch beyond the anal sphincter. Carefully rotate the swab to sample the anal crypts and withdraw it. Send the swab in a swab transport or *N. gonorrhoeae* transport system.** **EPIDIDYMIS: Used primarily to diagnose nonspecific bacterial** **epididymitis and sexually transmitted epididymitis. Bacterial epididymitis is most commonly due to members of the family *Enterobacteriaceae* or pseudomonads and generally occurs in men over 35 years of age. *M. tuberculosis* infections generally occur after**

	involvement of the prostate or seminal vesicles. Sexually transmitted epididymitis is most commonly due to *C. trachomatis* and *N. gonorrhoeae*. Use a needle and a syringe to aspirate material from the epididymis. **<u>PENILE LESION:</u> Used primarily to detect *N. gonorrhoeae*. (1) Clean the surface of the lesion with 0.85% NaCl. If there is a crust on the lesion remove it. (2) Scrape the lesion until serous fluid emerges. (3) Wipe away fluid and debris with a sterile gauze. (Try to avoid bleeding.) (4) Press the base of the lesion until clear fluid is expressed. (5) Aspirate vesicular fluid with a 26-27 gauge needle. (6) Scrape the base of an open vesicle with a sterile scalpel blade and rub the base vigorously with a sterile swab.** **<u>PROSTATIC MASSAGE:</u> Use primarily to diagnose acute or chronic prostatitis. For both diseases, gram-negative enteric organisms are the most frequently isolated pathogens. *N. gonorrhoeae* is found infrequently but is sometimes implicated in acute prostatitis.** **(1) Perform a digital massage through the rectum. (2) Collect the specimen in a sterile tube or on a sterile swab.** **<u>URETHRA:</u> Used primarily to detect *N. gonorrhoeae*. (1) Collect specimens at least 2 hours after the patient has urinated. (2) Insert a thin urogenital swab 2 to 4 cm into the endourethra, gently rotate it, leave it in place for 1 to 2 seconds, and withdraw it.** **NOTE: (1) Must specify source of specimen. (2) Collect with aerobic transport swab and deliver to lab immediately (within one hour). (3) DO NOT REFRIGERATE SPECIMENS. (4) A marked decrease in viability of certain fastidious microorganisms may be demonstrated after 24 hours storage thus emphasizing the importance of rapid transport of the specimen to the lab.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal = normal flora with no Neisseria gonorrhoeae isolated.** ***COMMENT: Identifications (CPT 87077 or 87106) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.***

CULTURE, LEGIONELLA

ALIAS NAME:	**Legionnaire's Disease**
TEST CODE:	**9900**
CPT CODE:	**87081**
SPECIMEN:	**See collection.**
COLLECTION:	**Test referred to an outside Reference Lab. Bronchial washings, brochoalveolar lavage, bronchus fluid, chest fluid, chest tube drainage, empyema, endotracheal fluid, fresh lung tissue, induced sputum, lingula (lung), lung biopsy, protected catheter brush, pericardial fluid, sputum, thoracentesis fluid, tracheal secretion, transbronchial biopsy or transbronchial aspirate should be sent in a screw-capped, sterile container, refrigerated. If transtracheal tube is sent, maintain sterility and forward promptly. NOTE: Culture site is required on request form for processing.**
AVAILABILITY:	**Sunday - Saturday.**
TURNAROUND TIME:	**10 days.**
METHODOLOGY:	**Conventional Culture with Fluorescent Antibody Procedure utilized for identification of positive culture.**

CULTURE, MRSA SCREEN

TEST CODE:	**2052**
CPT CODE:	**87081**
COLLECTION:	**Collect using sterile transport swab.**
PERTINENT INFORMATION:	**To rule out the presence of Methicillin resistant Staphylococcus aureus; antibiotic sensitivities done only by special request at an additional charge.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**24 to 72 hours**
METHODOLOGY:	**Culture**
REFERENCE RANGE:	**No MRSA Isolated** ***Comment: Identification (CPT 87077) and antibiotic sensitivities (CPT 87186/87184), when indicated, will be performed at an additional charge.***

CULTURE, MRSA SURVEILLANCE

TEST CODE:	**2054**
CPT CODE :	**87081** **To be used for Surveillance of Carroll Hospital Center patients only. Not for outpatient use.**
SOURCE :	**Nares/nostril only.**
COLLECTION:	**Ask the patient to tilt his/her head back. Insert both dry swabs approximately 1-2 cm into one nostril. Rotate the swabs against the inside of the nostril for 3 second. Apply slight pressure with a finger on the outside of the nose to help assure good contact between the swab and the inside of the nose. Using the same two swabs, repeat for the second nostril, trying not to touch anything but the inside of the nose. Remove the plastic transport tube. Twist off the tube cap and discard it. Place the swabs into the plastic transport tube.**
:	
PERTINENT INFORMATION:	**To rule out the presence of Methicillin resistant Staphylococcus aureus; antibiotic sensitivities done only by special request at an additional charge.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**2 to 3 days**
METHODOLOGY:	**Culture**
REFERENCE RANGE:	**No MRSA isolated.** ***Comment: Identification (CPT 87077) and antibiotic sensitivities (CPT 87186/87184), when indicated, will be performed at an additional charge.***

CULTURE, NASOPHARYNX

TEST CODE:	**2055**
CPT CODE:	**87070**
SPECIMEN:	**Collect using aerobic transport swab.**
COLLECTION:	**(1) Insert a sterile swab into the nose until resistance is met at the level of the turbinates (approximately 1 inch into the nose).** **(2) Rotate swab against the nasal mucosa.** **(3) Repeat the process on the other side.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal = normal flora at 48 hours.**
	COMMENT: Identifications (CPT 87077, 87106, or 87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, NOSE

TEST CODE:	**2087**
CPT CODE:	**87070/87205**
SPECIMEN:	**Collect using aerobic transport swab.**
PERTINENT INFORMATION:	**Includes gram stain; all organisms identified.**
COLLECTION:	**Same as culture, Nasopharynx**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal Flora**
	COMMENT: Identifications (CPT 87077, 87106, 87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed an additional charge.

CULTURE, QUANTITATIVE RESPIRATORY

TEST CODE:	**2138**
CPT CODE:	**87070/ 87205**
SPECIMEN:	**Done on bronchoalveolar lavages (BAL) and bronchial brushes only.**
COLLECTION:	**<u>BRONCHIAL BRUSH:</u> Sever brush and submit to lab in 3 mL sterile saline or lactated ringers. ONE BRUSH PER TEST. You must submit separate brushes for each of the following: (1) Microbiology culture. (2) Cytologic examination.** **<u>BRONCHOALVEOLAR LAVAGE:</u> Submit 20 to 40 mL specimen for culture. If cytologic examination and/or cell counts are also ordered, the O.R. must submit separate specimens.**
PERTINENT INFORMATION:	**NOTE: TRANSPORT SPECIMENS TO LAB IMMEDIATELY.** **To facilitate therapeutic decisions in serious bacterial pneumoniae. Includes gram stain & colony count.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 4 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**All organisms are reported in colony forming units (CFU's)/mL. The following thresholds have been suggested as clinically significant: (1) B.A.L. - 10,000 CFU's/mL. (2) Brush - 1,000 CFU's/mL.** ***COMMENT: Identifications (CPT 87077/87106/87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.***

CULTURE, SINUS

TEST CODE:	**2086**
CPT CODE:	**87070, 87205**
SPECIMEN COLLECTION:	**Collect with 2 sterile swabs which are saturated with specimen then placed in a Port-a-cul transport tube - Specify source**
PERTINENT INFORMATION:	**Includes gram stain.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**2 to 7 days**
METHODOLOGY:	**Culture**
REFERENCE RANGE:	**NA** ***COMMENT: Identifications (CPT 87077/87076/87106/87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.***

CULTURE, SPUTUM

TEST CODE:	2060
CPT CODE:	87070/87205
SPECIMEN:	Collect a minimum of 1 mL of specimen in sterile screw-top container or specimen sputum collection unit (TRAP). **Swab specimens are unacceptable**. Transport to Lab immediately. If delayed >2 hours, specimen may be refrigerated overnight.
COLLECTION:	**EXPECTORATED SPUTUM**: (1) Have patient rinse mouth and gargle with water prior to sputum collection (**do not use tap water**). (2) Instruct patient not to expectorate saliva or post-nasal discharge into container. (3) Collect specimen resulting from deep cough. **INDUCED SPUTUM**: (1) Using a wet toothbrush and sterile water or saline, brush buccal mucosa, tongue and gums prior to procedure. Do not use toothpaste (2) Rinse patient's mouth thoroughly with sterile water. (3) Using an ultrasonic nebulizer, have the patient inhale approximately 20 to 30 mL of 3 to 10% 0.85% NaCl and collect induced specimen. **TRACHEOSTOMY AND ENDOTRACHEAL ASPIRATIONS**: Aspirate specimen into sterile sputum trap. NOTE: Tracheostomy is followed by colonization within 24 hours of insertion of the tube. Results must be correlated with clinical findings such as fever or infiltrate on chest x-ray.
PERTINENT INFORMATION:	**Includes gram stain. Quality of specimen will be graded as follows:** **Acceptable specimens** - Any sputum with >25 PMN's per low power field (regardless of the number of squamous epithelial cells). **Unacceptable specimens** - Any sputum with >10 squamous epithelial cells per low power field and <25 PMN's per low power field. Suggest a repeat culture. Unacceptable specimens will be held for 48 hours in case further studies are requested by the physician.
AVAILABILITY:	Monday through Sunday.
TURNAROUND TIME:	2 to 4 days.
METHODOLOGY:	Culture.
REFERENCE RANGE:	Normal = Normal Flora at 48 hours. COMMENT: Identifications (CPT 87077/87106/87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181, or 87185), when indicated, will be performed at an additional charge.

CULTURE, STOOL

TEST CODE:	**2180**
CPT CODE:	**87045, 87046 x 2, 87015, 87899 X 2**
COLLECTION :	Recommend 3 specimens; one each day for 3 days (only 1 per day accepted); specimens received from patients hospitalized > 3 to 4 days will be rejected: 1. Pass stool directly into a sterile, wide-mouth, leakproof container with a tight-fitting lid -OR- 2. Pass stool into a clean, dry bedpan and transfer into a sterile, leak proof container with a tight-fitting lid. NOTE: Do not use toilet paper to collect stool. Toilet paper may be impregnated with barium salts which are inhibitory for some fecal pathogens. 3. **Transport specimen to the CHC Med Lab immediately after collection. If transport/testing is delayed more than 2 hours, transfer a portion of the stool to a vial of "Para-Pak C&S" (available from the CHC Med Lab), then refrigerate until transport** (see procedure below)**.** 4. **Note: Rectal Swabs** are not acceptable for Shiga toxin testing. ***For Nursing Home and Outpatients*** **(when transport to the CHC Microbiology Department is delayed more than 2 hours), add specimen to Para-Pak C&S Transport Vial (available from the CHC Med Lab) as follows:** 1. Using the collection spoon provided in the cap of the container, select a sample from an appropriate area (bloody, slimy, watery), then add enough stool to the vial to reach the "fill to here" line. 2. Agitate the specimen with the spoon along the sides of the container, tighten cap and shake vigorously to mix. 3. ***The vials should be properly labeled with the following information:*** • The patient's name and second patient identifier. • Date and time specimen is collected. • Consistency of stool (formed, soft, loose, or watery). 4. ***Refrigerate Specimen/Para-Pak C&S vial until ready for transport*** (Para-Pak C&S vial may be refrigerated for up to 3 days).
PERTINENT INFORMATION:	**To routinely rule out presence of Campylobacter, E.coli 0157, Salmonella, Shigella, Vibrio, Yersinia and Shiga Toxins 1 & 2.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 4 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal = normal enteric flora with no Campylobacter, E.coli 0157 Salmonella, Shigella, Vibrio, or Yersinia isolated. Negative for Shiga Toxins 1 and 2.** ***COMMENT: Identifications (CPT 87077/87106), serotyping (Salmonella or Shigella CPT 87147), and antibiotic sensitivities (CPT 87184 or 87186), when indicated, will be performed at an additional charge.***

CULTURE, THROAT

TEST CODE:	**2045**
CPT CODE:	**87070**
COLLECTION:	**Collect using aerobic transport swab (available from Carroll Hospital Center laboratory). (1) Depress tongue gently with tongue depressor. (2) Sweep the swab back and forth across the posterior throat, tonsillar areas and inflamed or ulcerated areas. (3) AVOID TOUCHING CHEEKS, TONGUE, UVULA, OR LIPS.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 to 3 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal = normal flora at 48 hours.**
	COMMENT: Identifications (CPT 87077/87106/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.

CULTURE, TISSUE

TEST CODE:	**2090**
CPT CODE:	**87070/87205/87176**
COLLECTION:	**Submit specimen in sterile container. DELIVER TO LAB IMMUEDIATELY. NOTE: If processing is delayed, cover specimen with sterilize saline and hold at room temperature.** (Exception – Bone Marrow – See below.) **COLLECTION – (Includes Tissue, Fine Needle Aspirates, Bone and Bone Marrow)** **Tissue –** Tissue and biopsy specimens should be collected from areas within and adjacent to the area of infection. Large enough tissue samples should be collected to perform all tests required (i.e., 3 to 4-mm biopsy samples). **Note: do not accept specimens submitted in containers of formalin.** **Fine Needle Aspirates –** Insert needle into the tissue, using various directions, if possible. **Do not submit needle to the laboratory.** **Bone –** submit bone is sterile cup **Bone Marrow –** collect in a sterile petri dish or sterile red-top vacutainer tube for routine and fungus cultures, and in a green top heparinized blood collection tube for AFB cultures. Note: bone marrow should be reserved for specific organisms such as Brucella, Salmonella, Listeria, fungi and mycobacteria
PERTINENT INFORMATION:	**Place specimen in sterile petri dish or screw top container and DELIVER TO LAB IMMEDIATELY. NOTE: If processing is delayed, cover specimen with sterile saline and refrigerate. Please specify tests, e.g., Routine, Anaerobic, AFB, and/or Fungus cultures. Includes gram stain, and tissue grinding.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.** ***COMMENT: Identifications (CPT 87076/87077/87106/87107/87158) and antibiotic sensitivities (CPT 87184, 87186, or 87181), when indicated, will be performed at an additional charge.***

CULTURE, TRANSFUSION REACTION

TEST CODE:	**2130**
CPT CODE:	**87040/87205**
COLLECTION:	**Submit unit of blood with attached segments of blood for testing.**
PERTINENT INFORMATION:	**Includes gram stain and cultures at 4ºC, 26ºC, 35ºC.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Normal = no growth in 7 days.**
	COMMENT: Identifications (CPT 87077/87076/87106) and antibiotic sensitivities (CPT 87184, 87186, or 87181), when indicated, will be performed at an additional charge.

CULTURE, URINE

TEST CODE:	**2160**
CPT CODE:	**87086**
COLLECTION:	**<u>TIMING OF COLLECTION:</u>** **1. Obtain early-morning specimens whenever possible because of spread of increased bacterial counts after overnight incubation in the bladder.** **2. Do not force fluids in order to have the patient void urine. Excessive fluid intake will dilute the urine.** **3. Collect three consecutive early-morning specimens from asymptomatic patients.** **<u>SPECIMEN COLLECTION:</u>** **<u>MIDSTREAM CLEAN CAUGHT SPECIMEN</u>** **1. Assist patient to the bathroom or onto a bedpan.** **2. For a female, cleanse the perineal area and labial area with towelettes. Keep labia separated during urination.** **3. Begin urination to clean out any contamination in the urethra.** **5. As urination continues, bring collection device into stream to obtain a clean voided specimen. Fill jar only half full.** **6. Screw cap on container and label the container with the patient's name, date and time of specimen collection.** **<u>STRAIGHT CATHETER URINE (IN/OUT CATHETER URINE)</u>** **In/out catheter urine specimen are useful when clean-catch urines cannot be obtained or when results from clean-catch urine specimens are equivocal and a diagnosis is critical.** **1. Prior to catheterization, the patient should force fluids until the bladder is full. (Forcing fluids may reduce the organism number.)** **2. Clean the patient's urethral opening (and in females, the vaginal vestibule) with soap, and carefully rinse area with water.** **3. Using sterile technique, pass a catheter into the bladder.** **4. Collect the initial 15 to 30 mL of urine and discard it from the mouth of the catheter.** **5. Collect a sample from the mid or later flow of the urine in a sterile container.** **<u>INDWELLING CATHETER URINE</u>** **Indwelling catheters are used for patients who are unable to pass urine.** **1. Clean the catheter collection port with a 70% alcohol wipe.** **2. Using sterile technique, puncture the collection port with a needle attached to a syringe. NOTE: Do not collect urine from collection bag.** **3. Aspirate the urine and place it in a sterile container.** **<u>SPECIMENS FROM INFANTS AND TODDLERS</u>** **1. Clean perineum and urinary opening area with sterile water and soap on 3 sterile sponges. Then pour sterile water over perineum and wipe with a dry sterile sponge. Air dry.** **2. Apply U-bag.** **3. Remove U-bag when specimen is obtained. There must not be any fecal material in the specimen.** **4. Pull off the blue plastic covering over the drainage opening at the bottom of the U-bag. Tilt the urine to the side of the bag to avoid leakage.** **5. Cleanse bag opening with an alcohol swab.** **6. While pouring urine out of the bag, obtain the specimen from the**

	middle of the stream in a sterile container. **7. Cap and label the container.** **<u>SPECIMEN TRANSPORT:</u>** **1. Transport urine to the laboratory as soon as possible after collection.** **2. Culture urine specimens within 2 hours after collection, or refrigerate and culture them within 8 hours whenever possible.** **3. Refrigerated urine specimens may be held for up to 24 hours because bacterial counts usually remain stable for 24 hours at 4ºC.** **4. Request a repeat urine specimen when there is no evidence of refrigeration and the specimen is >2 hours old.** **5. If an improperly collected, transported, or handled and specimen cannot be replaced, document in the final report that specimen quality may have been compromised.** **6. Refrigeration is not necessary if urine specimens are collected in transport tubes with preservatives.**
AVAILABILITY: ***TURNAROUND TIME:*** ***METHODOLOGY:*** ***REFERENCE RANGE:***	**7. Place at least 3 mL of urine into a transport tube containing a preservative to avoid inhibiting or diluting effect on the microorganisms.** **Monday through Sunday.** **2 to 4 days.** **Culture.** **Normal = no growth in 48 hours.** ***COMMENT: Identifications (CPT 87077, 87088, 87106) and antibiotic sensitivities (CPT 87184, 87186, or 87181), when indicated, will be performed at an additional charge.***

CULTURE, VIRUS, NOT CSF

TEST CODE:	**9056**
CPT CODE:	**87252 X 5 – Tissue culture** **87253 X 2 – Additional studies**
SPECIMEN:	**Throat swab, sputum, nasopharyngeal wash or swab, throat washings. Throat swabs must be submitted in Viral Transport media (do not use wooden shafted swab) Sputum: submit in sterile container Washings: submit in sterile container. Deliver specimen to laboratory as soon as possible. Viral media available in Lab – ext. 6799.**
COLLECTION:	**Test referred to an outside Reference Lab. NOTE: Culture site required on request form. Specimen cannot be frozen.**
PERTINENT INFORMATION:	**Includes: Influenza A & B, RSV Culture, Parainfluenza, Adenovirus and Enterovirus.**
AVAILABILITY:	**If additional virus indicated, please specify.**
TURNAROUND TIME:	**Sunday – Saturday**
METHODOLOGY:	**Negatives reported in 14 days. Positives, when detected.** **Cell Culture No virus isolated.**

CULTURE, VIRUS, SPINAL FLUID

TEST CODE:	**9052**
CPT CODE:	**87252 X 5 – Viral culture** **87253 X 2 – Additional studies** **87254 X 2 – Shell Viral**
SPECIMEN:	**2.0 mL (pediatric 0.5 mL) of spinal fluid in a screw-capped sterile vial.**
COLLECTION:	**Test referred to an outside Reference Lab. Send specimen refrigerated.**
PERTINENT INFORMATION:	**Includes: Enterovirus group, mumps, rubeola adenovirus and CMV. If additional virus indicated, please specify.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**Negatives reported in 14 days. Positives, when detected.**
METHODOLOGY:	**Cell Culture/IFA stain for CMV early antigen**
REFERENCE RANGE:	**Negative.**

CULTURE, VANCOMYCIN RESISTANT ENTEROCOCCUS SCREEN

TEST CODE:	**2051**
CPT CODE:	**87081**
COLLECTION:	**Collect using sterile transport swab**
PERTINENT INFORMATION:	**To rule out the presence of Vancomycin resistant Enterococcus; antibiotic sensitivities done only by special request at an additional charge.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 4 days**
METHODOLOGY:	**Culture**
REFERENCE RANGE:	**No Vancomycin Resistant Enterococcus isolated.** ***COMMENT: Identifications (CPT 87077) and antibiotic sensitivities (CPT 87186/87184/87181), when indicated, will be performed at an additional charge.***

CULTURE, WASHINGS

TEST CODE:	**2150**
CPT CODE:	**87070/87205**
COLLECTION:	**Collect in a sterile, screw-top container. NOTE: (1) Specify source (2) TRANSPORT TO LAB IMMEDIATELY.**
PERTINENT INFORMATION:	**Includes gram stain**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 to 7 days.**
METHODOLOGY:	**Culture.**
REFERENCE RANGE:	**Not applicable.** ***COMMENT: Identifications (CPT 87077, 87106, 87107/87158) and antibiotic sensitivities (CPT 87184, 87186, 87181 or 87185), when indicated, will be performed at an additional charge.***

CULTURE, WOUND

TEST CODE:	**2085**
CPT CODE:	**87070/87205**
COLLECTION:	**(1) Aspiration of the exudate by syringe is the best way to collect wound specimens because it allows for maximum recovery of organisms, including anaerobes. (2) Cultures may also be collected with 2 sterile swabs which are saturated with exudate then placed in a Port-a-cul transport tube.**
PERTINENT INFORMATION:	**NOTE: (1) DELIVER TO LAB IMMEDIATELY. (2) MUST specify source.**
AVAILABILITY:	**Includes gram stain. If an anaerobic infection is suspected, please order "CULTURE, ANAEROBIC" (2100).**
TURNAROUND TIME:	**Monday through Sunday.**
METHODOLOGY:	**2 to 7 days.**
REFERENCE RANGE:	**Culture.** **Not applicable.** ***COMMENT: Identifications (CPT 87077/87076/87106/87158) and antibiotic sensitivities (CPST 87184, 87186,87181* or *87185), when indicated, will be performed at an additional charge.***

CYTOLOGY, BODY CAVITY FLUID

TEST CODE:	**6820**
CPT CODE:	**88112, 88305 (if applicable)**
SPECIMEN:	**Pericardial, Peritoneal, Pleural, Synovial**
COLLECTION:	**50 ml (or more) of fresh specimen collected in vacutainer bottle, specimen cup or syringe (without needle). No anticoagulant (heparin) should be added to specimen. Pelvic washing specimens should be obtained by using balanced saline not sterile water.** **1) Label container with patient's name, date of birth or medical record number, date, & time collected & source.** **2) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** **3) Deliver to the laboratory immediately, if delayed refrigerate specimen.** ***NOTE: An*y specimen requiring microbiology studies must be collected in a sterile container.**
Turnaround Time:	**2 days to 2 weeks**

CYTOLOGY, BREAST NIPPLE SMEAR

TEST CODE:	**6820**
CPT CODE:	**88160**
SPECIMEN:	**Slide(s) spray fixed or fixed in 95% alcohol.**
COLLECTION:	**1. Using a pencil label slides with patient's name and date of birth.** **2. Gently express material from nipple.** **3. Pull the slide across the material collected on the nipple and immediately fix smear.** **4. Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** ***NOTE: To prepare an optimal smear material must be evenly distributed and fixed immediately.***
Turnaround Time:	2 days

CYTOLOGY, BRONCHIAL

TEST CODE:	**6820** **6822 Silver Stain for PCP**
CPT CODE:	**88112**
SPECIMEN:	**Bronchial Brushing, Bronchial Washing, BAL (Lavage), Transbronchial Aspiration, BAL Cell Differential.** **Brush intact in normal saline.** **Preferably at least 20 ml fresh lavage material.**
COLLECTION:	**1) Place clipped brush within protective sleeve in a container of normal saline.** **2) Label all specimen containers with patient's name, MR#, site of specimen, date & time collected.** **3) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** **4) Deliver all specimens immediately to the laboratory, if delayed refrigerate.** ***NOTE: Any specimen requiring microbiology studies must be collected in a separate sterile container.***
Turnaround Time:	***2 days to 2 weeks.***

CYTOLOGY, CEREBROSPINAL FLUID

TEST CODE:	**6820**
CPT CODE:	**88112 or 88108**
SPECIMEN:	**Tube #1 – 3 ml of fresh specimen.**
***COLLECTION*:**	**1) Label container with patient's name, date & time collected.** **2) If several samples are obtained the second or third tube should be submitted to cytology.** **3) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** **4) Immediately deliver specimen to laboratory, if delayed refrigerate.** **NOTE: With prompt refrigeration, morphology of cells within the CSF can be adequately maintained for 24 hours.**
Turnaround Time:	2 days to 2 weeks

CYTOLOGY, FINE NEEDLE ASPIRATION

TEST CODE:	6820
CPT CODE:	10021 Without imaging guidance (pathologist collected). 10022 With imaging guidance (pathologist collected). 88173 Interpretation and report. 88172 Specimen adequacy, first evaluation. 88177 Specimen adequacy, additional evaluation.
OUTREACH SPECIMEN:	1) 2 air dried slides per pass. 2) CytoLyt Solution container with needle rinse.
INHOUSE SPECIMEN:	1) Paired slides per pass; 1 air dried, 1 fixed in 95% alcohol. 2) Sterile saline container with needle rinse. 3) Sterilize saline container with tissue core biopsy (if applicable).
COLLECTION:	1) Aspiration procedure should be performed using a 23-25 gauge needle to prevent dilution with blood. 2) Place 0.5 or 1.0 mL of air in syringe before insertion. 3) Insert needle into the mass. While in the target use short ½ - 1 cm. reciprocating up and down strokes approximately 6-10 times. Immediately remove needle if blood appears in the needle hub. 4) Repeat procedure 3-5 times to obtain appropriate sample.
SPECIMEN PREPARATION:	1) Using a graphite pencil, label slides with patient's name, DOB and site (i.e. right upper pole, left lower pole) prior to starting procedure. 2) Label container with patient's name and site (i.e. right upper pole, left lower pole) prior to starting procedure**. Each site sampled must be placed in a separate container.** *3)* Place 1-2 drops on slide. Place the second slide on top of the slide allow the sample to spread, then gently pull the slides apart horizontally. Allow slides to air dry or alcohol fix completely. 4) Rinse remaining specimen from syringe into the CytoLyt solution container or sterile saline. 5) Complete NON-GYN Cytopathology Request form or place order in the computer. Form Includes: Patient Information Ordering Physician Information ICD-9 Code Physician Signature Date Collected/Time Collected FNA (site) ***NOTE: Technical assistance in specimen preparation and specimen adequacy assessment can be scheduled with the Pathology Department at ext. 7190 or 7979.***
Turnaround Time:	2 days to 2 weeks

CYTOLOGY, GASTROINTESTINAL SPECIMENS

TEST CODE:	**6820**
CPT CODE:	**88112**
SPECIMEN:	**Brushing/Washing (colonic, Duodenal/Biliary, Esophogeal,Gastric)**
COLLECTION:	**Brush received intact in normal saline.** **Wash containing aspiration of at least 10 ml from the region of suspected lesion.** **1) Place clipped brush within protective sleeve in a container with normal saline.** **2) Place aspirate sample in an appropriate container. No lubricants other than glycerin should be used in the lavage procedure.** **3) Label container with patient's name, MR#, source of specimen, date & time collected.** **4) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** **5) Deliver all specimens immediately to the laboratory, if delayed refrigerate specimen.** ***NOTE: Instruct patient to fast overnight or for a minimum of 6 hours prior to procedure. Using standard endoscopy technique, identify the lesion in questions and obtain a brushing sample of the lesion.***
Turnaround Time:	**2 days to 2 weeks.**

CYTOLOGY, HERPES SMEAR (For viral infection identification – Tzanck)

ALIAS :	**Tzanck Smear**
TEST CODE:	**6823**
CPT CODE:	**88104**
SPECIMEN:	**Slide(s) spray fixed or air dried.**
COLLECTION:	**1. Using a pencil label slide(s) with patient name and date of birth.** **2) If the lesion is vesicular, remove top of vesicle to expose the base of the lesion. If lesion is dry or purulent remove debris.** **3. Scrape base of lesion with a tongue depressor or blade and smear material onto slide.** **4. Immediately spray fix slide(s) by using a smooth steady motion and holding the fixative 10 to 12 inches from the slide or air dry or rinse into ThinPrep vial.** **5.) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** ***NOTE: If lesion(s) located on vulva or vagina order Pap Smear***
Turnaround Time:	2 days

CYTOLOGY, PAP SMEAR - CONVENTIONAL (Combined endocervical brush and spatula)

ALIAS:	**Pap Smear**
TEST CODE:	**6821**
CPT CODE:	**Medicare** **<u>Screening Pap Smear</u>:** **P3000 Technologist Review or Rescreen Review** **P3001 Pathologist Review** **Medicare/Non-Medicare** **<u>Diagnostic Pap Smear</u>:** **88164 Technologist Review** **88141 Pathologist Review** **88165 Rescreen Review**
SPECIMEN:	**Slide(s) spray fixed.**
COLLECTION:	**1) Label slide with the patient's name and date of birth using a pencil.** **2) Place the small end of the spatula into the cervical canal, rotate the spatula 360 degrees, sampling the ecto/endocervical area.** **3) Remove spatula, scrape material from spatula onto slide but do not smear.** **4) Insert brush into endocervical canal and rotate brush 90 degrees.** **5) Withdraw the brush slowly from the endocervical canal using a continuous rotation motion.** **6) Roll brush through the spatula material on the slide 2-3 times until all the material is uniformly distributed across the slide.** **7) Spray fix the slide immediately by holding the fixative 10 to 12 inches away from the slide and using a smooth and steady motion to saturate the smear.** **8) Allow the smear to dry before placing the slide into the slide carrier.** **9) Complete a cytology request form with patient information, date collected and pertinent history. In-patient Pap test must be ordered in the computer in addition to the GYN Cytopathology Request form.** **NOTE: The appropriate ICD-10-CM code must be used to indicate the patient's symptoms or abnormal condition.** ***COMMENT: If Pap smear requires pathologist's review an additional fee will be charged.***
Turnaround Time:	**2 to 10 days**

CYTOLOGY – THIN PREP PAP TEST

ALIAS :	**Pap – GYN Cytology**
TEST CODE:	**6821**
CPT CODE:	**Medicare** **Screening Pap Smear: G0123Technologist Review** **G0124 Pathologist Review** **G0143 Rescreen Review** **Medicare/Non-Medicare** **Diagnostic Pap Smear: 88142 Technologist Review** **88141 Pathologist Review** **88143 Rescreen Review**
SPECIMEN:	**ThinPrep Pap Test vial**
COLLECTION:	**ENDOCERVICAL BRUSH/PLASTIC SPATULA PROTOCOL** **1) Label solution vial with patient's name.** **2) Place small end of plastic spatula into endocervical canal, rotate 360 degrees rinse spatula into PreservCyt solution vial by swirling the spatula vigorously in the vial 10 times.** **3) Insert endocervical brush into the cervical canal until only the bottom most fibers are exposed. Slowly rotate the brush 90 degrees in one direction. Rinse brush in the solution vial by swirling 10 times and rubbing the wall of the vial to dislodge material within the brush.** **4) Tighten cap onto vial so that the line on the cap passes the line on the vial.** **5) Complete a cytology request with patient information, date collected and pertinent history. Inpatient Pap tests must be ordered in the computer also, by: Pap (Cyto Form Required) test code 6821.** BROOM-LIKE DEVICE PROTOCOL **1) Label solution vial with the patient's name.** **2) Insert the central bristles if the broom into the endocervical canal deep enough to allow the shorter bristles to fully contact the ectocervix.** **3) Push gently and rotate the broom in a clockwise direction 5 times.** **4) Rinse the broom into the PreservCyt solution vial by pushing the broom into the bottom of the vial 10 times, forcing the bristles apart. Swirl the broom vigorously to further release material. Discard the collection device.** **5) Tighten the cap onto the vial so that the line on the cap passes the line on the vial.** **6) Complete a cytology request with patient information, date collected and pertinent history. Inpatient Pap tests must be ordered in the computer also, by: Pap (Cyto Form Required) test code 6821.** **NOTE*: T*he appropriate ICD-10-CM code must be used to indicate the patient's symptoms or abnormal condition.** ***COMMENT: If the Pap test requires a pathologist review an additional fee will be charged.***
Additional Tests:	***-HPV DNA testing is available as a reflex or screening order.*** ***-C trachomatis and N. gonorrhea testing is available by APTIMA.***

CYTOLOGY, SPUTUM

TEST CODE:	**6820**
CPT CODE:	**88112**
SPECIMEN:	**5 ml fresh deep cough specimen.**
COLLECTION:	**1) Label container with the patient's name, date of birth or medical record number, date & time collected.** **2) Rinse and clear mouth of food matter and bacteria.** **3) Morning specimens of deep cough material originating from the chest. Saliva is of no diagnostic value. Samples should be collected on three consecutive days.** **4) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** ***NOTE: Induced sputum collection by inhalant method may be required to achieve satisfactory deep cough material.*** ***Any specimen requiring microbiology studies must be collected in a sterile container.***
Turnaround Time:	**2 days**

CYTOLOGY, TZANCK SMEAR (For viral infection identification)

TEST CODE:	**6823**
CPT CODE:	**88104**
SPECIMEN:	**Slide(s) spray fixed or air dried.**
COLLECTION:	**1. Using a pencil label slide(s) with patient name and date of birth.** **2) If the lesion is vesicular, remove top of vesicle to expose the base of the lesion. If lesion is dry or purulent remove debris.** **3. Scrape base of lesion with a tongue depressor or blade and smear material onto slide.** **4. Immediately spray fix slide(s) by using a smooth steady motion and holding the fixative 10 to 12 inches from the slide or air dry.** **5. Place order in computer or complete a Non-Gyn Cytopathology Request form with patient information, source of specimen, date and time collected** ***NOTE: If lesion(s) located on vulva or vagina order Pap Smear.***

CYTOLOGY, URINE (Clean catch voided, catheterized, bladder washing)

TEST CODE:	**6820**
CPT CODE:	**88112**
SPECIMEN:	**Voided catheterized, bladder washing, renal pelvis washing, ureteral brushing.**
COLLECTION:	**1) Label container with patient's name, source, date & time collected.** **2) Collect specimen (See note.)** **3) Place order in computer or complete a Non-Gyn Cytology Cytopathology Request form with patient information, source of specimen, date and time collected.** **4) Deliver specimen to laboratory as soon as possible or refrigerate if transportation of specimen is delayed.** **5) UroVysion FISH (see UroVysion FISH) testing can be ordered directly or will be reflexed at the discretion of the pathologist. Specimen requirements is 50 ml.** ***NOTE: For a clean catch voided urine it is recommended that the patient be well hydrated. It is recommended that urine be collected on three consecutive days & sent to the Lab each day of collection. Any specimen requiring microbiology studies must be collected in a sterile container.***
Turnaround Time:	**2 days to 2 weeks**

D

DIGOXIN

TEST CODE:	**4250**
CPT CODE:	**80162**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**Collect 6 + 8 hrs post drug administration**
STORAGE::	**Store centrifuged specimen in the refrigerator for up to 24 hours.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Kinetic interaction of microparticles in solution (KIMS).**
REFERENCE RANGE:	**Digoxin (ng/mL) - 0.5 to 2.0.** **Critical > 3.0 ng/mL**

DIRECT COOMBS, RED CELLS

ALIAS NAME:	**DAT** **Antihuman Globulin Test** **Direct** **Direct Antiglobulin Test** **Coombs Test, Direct**
TEST CODE:	**3640**
CPT CODE:	**86880 - 1 DAT** **86880 - DAT, each antiserum** **86850 - Antibody screen** **86870 - Antibody identification**
SPECIMEN:	**1 lavender top tube (EDTA specimen) or pink top tube.**
PERTINENT INFORMATION:	**Useful for detection of globulin/complement coating of red blood cells. Initial testing performed with polyspecific anti-human globulin. If positive, specimen will be tested with anti-IgG. If testing with anti-IgG is negative or if physician requests, specimen will be sent to reference lab for testing with anti-complement antisera. May require elution and antibody identification. Additional charges for profile, elution, and antibody identification.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**Routine - 1 day. STAT - 1 hour.**
METHODOLOGY:	**Agglutination of cells with anti-serum.**
REFERENCE RANGE:	**Negative.**

D-DIMER

***TEST CODE*:**	**6522**
CPT CODE:	**85379**
SPECIMEN:	**1 Light Blue top tube (Sodium Citrate)**
COLLECTION:	**Draw 1 Light Blue top tube & send to Lab within 4 hours of collection.**
AVAILABILITY:	**7 days/week**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Immunoturbidimetric**
***REFERENCE RANGE*:**	**See report.**

DRUGS OF ABUSE SCREEN, (Preliminary Screening Test)

ALIAS NAME:	DOA
TEST CODE:	4331
CPT CODE:	Varies
COLLECTION:	Collect random urine specimen.
PERTINENT INFORMATION:	NOTE: Includes Amphetamines, Barbituates, Benzodiazepines, Cocaine, Opiates, Oxycodone, Phencyclidine, Cannabinoids, Methadone.
AVAILABILITY:	Monday through Sunday.
TURNAROUND TIME:	1 hr
METHODS	KIMS
REFERENCE RANGE:	Drugs of Abuse Screen - None detected for all (qualitative)

E

ELECTROLYTE PROFILE

ALIAS NAME:	**Lytes**
TEST CODE:	**4006**
CPT CODE:	**80051**
SPECIMEN:	**Preferred 1 green top(lithium heparin), acceptable 1 SST tube**
STORAGE :	**Store centrifuged specimen in refrigerator.**
PERTINENT INFORMATION:	**Includes Sodium, Potassium, Chloride and Carbon Dioxide**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day**
MTHODOLOGY:	**See individual test**
REFERENCE RANGE:	**See individual test for reference range and critical values**

EOSINOPHIL SMEAR

ALIAS NAME:	**Nasal smear for eosinophils** **Smear for eosinophils, nasal**
TEST CODE:	**6047**
CPT CODE:	**89190**
COLLECTION:	**1. <u>SPUTUM:</u> Collect in clean cytology or microbiology container.** **2. <u>NASAL:</u> Minimum of two slides labeled with the patient's full name and medical record number. Nasal specimens should be collected by having the patient blow his/her nose onto waxed paper (ordinary tissue paper may add microscopic artifact). Using gloves and plastic or wooden applicator sticks, the secretions are spread thinly on a glass microscope slide. Appropriately label slides "left" and/or "right" along with the patient's full name and medical record number are submitted in to lab.** **3. <u>URINE</u> – submit random urine in sterile container.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Microscopic examination.**
REFERENCE RANGE:	**No eos seen.**

FERRITIN

TEST CODE:	**5074**
CPT CODE:	**82728**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL).**
REFERENCE RANGE:	**Male 18-30 years old - 18.7 to 323.0 ng/mL.** **Male 31-60 years old - 16.4 to 293.9 ng/mL** **Female, premenopausal - 6.9 to 282.5 ng/mL.** **Female, postmenopausal - 14.0 to 233.1 ng/mL.**

FETAL FIBRONECTIN

TEST CODE:	**8112**
CPT CODE:	**82731**
SPECIMEN:	**Cervicovaginal secretions using the ADEZA Collection Kit.**
COLLECTION:	**Do not contaminate the secretions or swab with soaps, lubricants, disinfectants or creams (e.g. K-Y Jelly lubricant, Betadine disinfectant, Monistat cream).**
AVAILABILITY:	**Sunday-Saturday**
TURNAROUND TIME:	**90 minutes**
METHODOLOGY:	**Solid Phase/Immunochromatographic System.**
REFERENCE RANGE:	**Negative**

FETAL BLEEDSCREEN, WHOLE BLOOD

ALIAS NAME:	**Fetal/Maternal hemorrhage**
	N/A - computer ordering will be done by Blood Bank.
TEST CODE:	**84561**
CPT CODE:	**1 lavender top (EDTA) tube.**
SPECIMEN:	**Collect A.S.A.P. at least 1 hour past delivery of Rh+ baby.**
COLLECTION:	**Used for detection of fetal/maternal hemorrhage to ensure adequate administration of Rh immune globulin in Rh- females. If fetal screen is positive, a Kleihauer-Behtke will be performed at additional charge to approximate the degree of hemorrhage.**
PERTINENT INFORMATION:	**Monday through Sunday.** **2 hours.**
AVAILABILITY:	**Red cell rosetting.**
TURNAROUND TIME:	**Normal = indicates 1 vial of Rh immune globulin.**
METHODOLOGY:	
REFERENCE RANGE:	

FIBRINOGEN QUANTITATIVE, PLASMA

TEST CODE:	**6715**
CPT CODE:	**85384**
SPECIMEN:	**1 light blue top tube (3.2% sodium citrate).**
COLLECTION:	**Tube must be full draw. Must be processed within 4 hours of collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Electromagnetic Mechanical Clot Detection System.**
REFERENCE RANGE:	**200-400 mg.**

FINE NEEDLE ASPIRATION OF A DEEP MASS (See Cytology Fine Needle Aspiration of a Deep Mass)

FINE NEEDLE ASPIRATION OF PALPABLE MASS (See Cytology – Fine Needle Aspiration of Palpable Mass)

FOLATE

ALIAS NAME:	**Folic Acid**
TEST CODE:	**5071**
CPT CODE:	**82746**
SPECIMEN:	**Draw 1 SST tube.**
STABILITY:	**Stable for 2 hours at 20 – 25° C**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL).**
REFERENCE RANGE:	**Normal: 3.1 ng/mL – 17.5 ng/mL**

FOLLICLE STIMULATING HORMONE (FSH)

TEST CODE:	**5076.**
CPT CODE:	**83001**
SPECIMEN:	**Draw 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL).**
REFERENCE RANGE:	**Male: 1 to 8 mIU/mL Female: Follicular phase - 4 to 13 mIU/mL. Mid-cycle peak - 5 to 22 mIU/mL. Luteal Phase - 2 to 13 mIU/L. Post-menopausal - 20 to 138 mIU/mL.**

G

GASTROINTESTINAL SPECIMENS (See Cytology Gastrointestinal Specimens)

GENTAMICIN PEAK

TEST CODE:	**4260**
CPT CODE:	**80170**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Fluorescence polarization**
REFERENCE RANGE:	**Gentamicin Peak (mcg/mL) - 5 to 10.** **CRITICAL VALUES: Greater than 12.0 mcg/mL.**

GENTAMICIN RANDOM

TEST CODE:	**4266**
CPT CODE:	**80170**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Fluorescence polarization**
REFERENCE RANGE:	**Gentamicin random (ug/mL) - Check with clinical pharmacist.**

GENTAMICIN TROUGH

TEST CODE:	**4265**
CPT CODE:	**80170**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Fluorescence polarization**
REFERENCE RANGE:	**Gentamicin Trough: < 2.0 mcg/mL** **CRITICAL VALUES: greater than 2.5 mcg/mL.**

GGTP, (GAMMA-GLUTAMYLTRANSFERASE) OR GAMMA GLUTAMYL TRANSPEPTIDASE

TEST CODE:	**4135**
CPT CODE:	**82977**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic Colorimetric**
REFERENCE RANGE:	**GGTP (U/L) - 8 to 78.**

GLUCOSE, BODY FLUID

TEST CODE:	**4495**
CPT CODE:	**82945**
SPECIMEN:	**Collect 2 ml pleural – peritoneal fluid in sterile container Synovial/joint fluid, pericardial fluid will be sent to reference lab.**
COLLECTION:	**Note fluid type. Refrigerate.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV test, Enzymatic reference method with Hexokinase**
REFERENCE RANGE:	**No reference range.**

GLUCOSE 2 HOUR P.P.

TEST CODE:	**4061**
CPT CODE:	**82950**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Hexokinase.**
REFERENCE RANGE:	**Glucose 2 hr. P.P.: 65 to 110.**

GLUCOSE 24 HOUR URINE, URINE

TEST CODE:	**4220**
CPT CODE:	**82945**
SPECIMEN:	**Preferred: 24 hour urine container (No Additives).**
COLLECTION:	**Refrigerate sample during collection. NOTE: Submit complete 24 hour collection in container(s).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV test. Enzymatic reference method with Hexokinase..**
REFERENCE RANGE:	**Glucose 24 hour urine - 0 to 250 mg/24 hr..** **NOTE: ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050**

GLUCOSE, C.S.F. (CEREBROSPINAL FLUID)

TEST CODE:	**5000**
CPT CODE:	**82945**
SPECIMEN:	**0.5 mL of cerebrospinal fluid.**
COLLECTION:	**Send to lab immediately.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV test/Enzymatic reference method with hexokinase**
REFERENCE RANGE:	**Glucose CSF (mg/dL) - 45 to 75 mg/dL.**

GLUCOSE

ALIAS NAME:	**Blood sugar. (fasting)**
TEST CODE:	**4060**
CPT CODE:	**82947**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Hexokinase.**
REFERENCE RANGE:	**65 – 110 mg/dl**

GLUCOSE OBSTETRICS CHALLENGE

ALIAS NAME:	**OB Glucose** **OB blood sugar**
TEST CODE:	**4595**
CPT CODE:	**82950**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Hexokinase.**
REFERENCE RANGE:	**Glucose OB (mg/dL) - 65 to 140.**

GLUCOSE TOLERANCE TEST (2 HOUR)

TEST CODE:	**4466**
CPT CODE:	**82951, 82952**
COLLECTION:	**Call laboratory to schedule an appointment.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Hexokinase.**
REFERENCE RANGE:	**GTT fasting (mg/dL) – 60 to 117** **GTT ½ hour (mg/dL) - 60 to 150** **GTT 1 hour (mg/dL) – 60 to 195** **GTT 2 hour (mg/dL) – 60 to 205**

GLYCATED HEMOGLOBIN, EDTA WHOLE BLOOD

ALIAS NAME:	**"Glycosylated" Hemoglobin** **HbA1C, Hemoglobin A1C**
TEST CODE:	**5082**
CPT CODE:	**83036**
SPECIMEN:	**1 lavender top (EDTA) tube.**
COLLECTION:	**Refrigerate specimen after collection.**
AVAILABILITY:	**Monday – Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Immunoturbidimetric.**
REFERENCE RANGE:	**Hemoglobin A1C (%) - 4.4 – 6.4%**

GRAM STAIN ONLY

TEST CODE:	**2145**
CPT CODE:	**87205**
COLLECTION:	**Submit specimen on clean glass slide. Print patient's name/identification in pencil on frosted end. Can also submit specimen in sterile container or suitable transport media. Specify culture site.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day. (STATS = 1 hour)**
METHODOLOGY:	**Gram stain.**
REFERENCE RANGE:	**Not applicable.**

H

HCG (BETA) QUANTITATIVE (See Beta HCG)

HAPTOGLOBIN

TEST CODE:	**4188**
CPT CODE:	**83010**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Immunoturbidimetric**
REFERENCE RANGE:	**30 – 200 mg/dL**

HDL (HIGH DENSITY LIPOPROTEIN)

TEST CODE:	**4150**
CPT CODE:	**83718**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**NOTE: Preferable to draw specimen following an overnight (12 to 14 hour) fast. Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric**
REFERENCE RANGE:	**Low risk: ≥ 60 mg/dL**

HEPATIC PROFILE

TEST CODE:	**5011**
CPT CODE:	**80076**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
PERTINENT INFORMATION:	**Includes Albumin, Total Bilirubin, Direct Bilirubin, AST, ALT, Alk Phos and Total Protein.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day; See individual test.**
METHODOLOGY:	**See individual test for reference range and critical values.**
REFERENCE RANGE:	

HEPATITIS A ANTIBODY IgM, SERUM

ALIAS NAME:	**HAV-IgM**
TEST CODE:	**4425**
CPT CODE:	**86709**
SPECIMEN:	**1 SST tube (minimum 2.0 mL of serum).**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday, Wednesday, Friday**
TURNAROUND TIME:	**1 - 3 days.**
METHODOLOGY:	**Electrochemiluminescence**
REFERENCE RANGE:	**Anti-HAV IgM - Negative.**

HEPATITIS B ANTIBODY, SERUM

ALIAS NAME:	**HBsAB** **Anti-HBsAg**
TEST CODE:	**4400**
CPT CODE:	**86706**
SPECIMEN:	**1 SST tube (minimum 2.0 mL of serum).**
STORAGE:	**Store centrifuged serum refrigerated (up to 6 days) ; or frozen.**
AVAILABILITY:	**Monday, Wednesday, Friday**
TURNAROUND TIME:	**1 - 3 days.**
METHODOLOGY:	**Electrochemiluminescence**
REFERENCE RANGE:	**Depends upon status, i.e. immune**

HEPATITIS B CORE ANTIBODY-IgM, SERUM

ALIAS NAME:	**Anti-HBc (IgM)**
TEST CODE:	**4396**
CPT CODE:	**86705**
SPECIMEN:	**Draw 1 SST tube (minimum 2.0 mL of serum)**
STORAGE:	**Store centrifuged serum refrigerated (up to 7 days); or frozen.**
AVAILABILITY:	**Monday, Wednesday, Friday**
TURNAROUND TIME:	**1 - 3 days.**
METHODOLOGY:	**Electrochemiluminescence**
REFERENCE RANGE:	**Anti HBC IgM – Negative**

HEPATITIS B SURFACE ANTIGEN, SERUM

ALIAS NAME:	**HBsAg**
TEST CODE:	**4390**
CPT CODE:	**87340**
SPECIMEN:	**1 SST tube**
STORAGE::	**Store centrifuged serum refrigerated (up to 5 days) or frozen.**
AVAILABILITY:	**Monday, Wednesday, Friday**
TURNAROUND TIME:	**1- 3 days.**
METHODOLOGY:	**Electrochemiluminescence**
REFERENCE RANGE:	**HBsAg - Negative.**

HEPATITIS C ANTIBODY, SERUM

ALIAS NAME:	**HCV** **Anti-HCV**
TEST CODE:	**4410**
CPT CODE:	**86803**
SPECIMEN:	**1 SST tube (minimum 2.0 mL of plasma or serum).**
STORAGE:	**Store centrifuged serum refrigerated.**
AVAILABILITY:	**Monday, Wednesday, Friday**
TURNAROUND TIME:	**1 - 3 days.**
METHODOLOGY:	**Electrochemiluminescence**
REFERENCE RANGE:	**Anti-HCV - Negative.**

HEPATITIS PANEL – ACUTE, SERUM

TEST CODE:	**4386**
CPT CODE:	**80074**
SPECIMEN:	**1 SST tube**
STORAGE::	**Store serum refrigerated or frozen.**
PERTINENT INFORMATION:	**Panel includes: Hepatitis B surface antigen, hepatitis B core IgM antibody, HAVAB-IgM hepatitis C antibody.**
AVAILABILITY:	**Monday, Wednesday, Friday**
TURNAROUND TIME:	**1 - 3 days.**
METHODOLOGY:	**Electrochemiluminescence**
REFERENCE RANGE:	**See individual test listings.**

HERPES SMEAR (See Cytology Herpes smear for viral infection, p. 91)

HGB-HCT (HEMOGLOBIN-HEMATOCRIT), BLOOD

TEST CODE:	**6027**
CPT CODE:	**85018, 85014**
SPECIMEN:	**3 mL blood in lavender top tube (EDTA), (minimum 2 mL).**
COLLECTION:	**Mix gently by inversion. Refrigerate.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Coulter DxH 800.**
REFERENCE RANGE:	**Age/Sex dependent. See print out for values:** **ADULT MALE - Hgb = 12.9 to 16.6 g/dL. Hct = 38.6 to 48%.** **ADULT FEMALE - Hgb = 11.6 to 14.9 g/dL. Hct = 34.5 to 43.9%.** **CRITICAL VALUES (ADULT): Hgb less than 7.0 g/dL or greater than 19.0 g/dL.**

HIV 1/ 2 Ag Ab COMBINATION

TEST CODE:	**4415**
CPT CODE:	**86703**
SPECIMEN:	**Gold Top (preferred) Red Top (Acceptable) Serum**
COLLECTION:	**1 gold top tube. Samples are stable for 7 days if stored at refrigerator temperatures of 2 – 8◦ C**
PERTINENT INFORMATION:	**This test requires informed patient counseling, which is the responsibility of the ordering physician. Documentation of patient counseling must be recorded in the medical record. A signed consent form is no longer required for HIV testing. NOTE: Stat testing only for accidental needle sticks and FBP to determine status at time of delivery. Call Chemistry for further details.**
AVAILABILITY:	**Monday thru Friday dayshift (exceptions above).**
TURNAROUND TIME:	**Up to three days.**
METHODOLOGY:	**Rapid.**
REFERENCE RANGE:	**HIV ½ Antibody screen – Non-reactive.-p24 Antigen screen – non-reactive - Reactive samples are sent to reference lab for confirmation at an additional charge.**

I

IRON AND IRON BINDING CAPACITY

ALIAS NAME:	**TIBC (Iron binding capacity and iron)** **Fe (Iron & iron binding capacity)**
TEST CODE:	**4175**
CPT CODE:	**83540, 83550**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday - Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric/Direct determination with FerroZine**
REFERENCE RANGE:	**Iron (mcg/dL): 35 to 170.** **TIBC (mcg/dL): 112 - 346**

K

KLEIHAUER BEHTKE, WHOLE BLOOD

ALIAS NAME:	**Fetal Cell Stain** **Fetal Hemoglobin** **Fetal/Maternal Bleed**
TEST CODE:	**3490**
CPT CODE:	**85460**
SPECIMEN:	**1 lavender or pink top (EDTA) tube of maternal blood.**
COLLECTION:	**NOTE: Collect from mother at least 1 hour post delivery of Rh positive baby or delivery of all products of conception.**
PERTINENT INFORMATION:	**Useful for approximation of degree of fetal-maternal hemorrhage (FMH) after delivery (when fetal screen is positive) to determine dosage of Rh immune globulin for Rh negative mother of Rh positive babies. May be used to determine FMH after delivery in cases of unexplained low neonatal Hct/Hgb. Usefulness is questionable in determining the degree of FMH in cases of maternal abdominal trauma. Not for hereditary persistence of fetal hemoglobin.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Clayton Modification of Kleihauer Stain Method.**
REFERENCE RANGE:	**Normal = less than 15 mL. Red blood cells (30 mL fetal whole blood) less than 0.0045 fetal/adult RBC ratio. Normal values have not been established for uses other than Rh immune globulin administration.**

L

LACTATE

TEST CODE:	**4027**
CPT CODE:	**83605**
SPECIMEN:	**Green top tube on ice – immediately transported to the lab.**
COLLECTION:	**Since lactate level increases rapidly with physical exercise, it is recommended that the subject be at rest 30 minutes prior to collection. Blood sample should be drawn from a stasis-free vein. However, minimal hemostasis (less than 30 seconds) will no affect lactate levels. Avoid the use of a tourniquet, if possible.**
AVAILABILITY:	**Sunday - Saturday**
TURNAROUND TIME:	**Stats within 30 minutes**
METHODOLOGY:	**Electrodes: potentiometry**
REFERENCE RANGE	**0.5 – 2.2 mmol/L**
CRITICAL VALUE:	**≥ 4 mmol/L**

LDH (LACTATE DEHYDROGENASE), BODY FLUID

TEST CODE:	**4545**
CPT CODE:	**83615**
SPECIMEN:	**Collect 2 mL pleural or peritoneal fluid in sterile container.**
COLLECTION:	**Note fluid type. Refrigerate**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV assay**
REFERENCE RANGE:	**None determined**

LDH (LACTATE DEHYDROGENASE)

TEST CODE:	**4115**
CPT CODE:	**83615**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Do not refrigerate; centrifuge and store at room temperature.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV assay**
REFERENCE RANGE:	**LDH (U/L) – Age related: Adult female: 135 - 214** **Adult male: 135 – 225**

LIPASE

TEST CODE:	**4165**
CPT CODE:	**83690**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric.**
REFERENCE RANGE:	**Lipase 13-60 U/L.**

LITHIUM, SERUM

TEST CODE:	**5006**
CPT CODE:	**80178**
SPECIMEN:	**1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric.**
REFERENCE RANGE:	**Lithium (mEq/L) - 0.6 to 1.2 therapeutic**

LYME PCR, URINE, CSF, OTHER FLUID

TEST CODE:	**7264**
CPT CODE:	**87476**
SPECIMEN:	**1.0 mL of fluid.**
AVAILABILITY:	**Tuesday, Thursday & Saturday**
TURNAROUND TIME:	**6 days.**
METHODOLOGY:	**PCR**
REFERENCE RANGE:	**See report.**

LYME DISEASE, IgG & IgM

TEST CODE:	**6033**
CPT CODE:	**86618** **86617 - Confirmation**
SPECIMEN:	**Serum: 1 SST Tube preferred**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
PERTINENT INFORMATION:	**If positive, a confirmation Western Blot will be referred to Reference Lab for an additional charge.**
AVAILABILITY:	**Tuesday & Friday**
METHODOLOGY:	**Mini Vidas**
REFERENCE RANGE:	**Negative**

M

MAGNESIUM

TEST CODE:	**4170**
CPT CODE:	**83735**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**Centrifuge SST tube 10 minutes after draw. Refrigerate after collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric with Chlorophosphonazo III**
REFERENCE RANGE:	**Magnesium (mg/dL) - 1.8 to 3.0 Critical Values: <1.0 and >3.0**

MAGNESIUM, OB MONITOR

TEST CODE:	**4333**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
REFERENCE RANGE:	**4.0 – 8.0 mg/dL Critical = >8.0 mg/dL**

MALARIA/PARASITE BLOOD SMEAR

TEST CODE:	**6095**
CPT CODE:	**87207**
SPECIMEN:	**1 EDTA lavender top tube**
COLLECTION:	**Send blood to laboratory within 30 minutes of collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 days.**
METHODOLOGY:	**Microscopic examination.**
REFERENCE RANGE:	**Negative.**

MICROALBUMIN, URINE

TEST CODE:	**5007**
CPT CODE:	**82043 & 82570**
SPECIMEN:	**40 mL from a urine collection (24 hr urine also acceptable)**
COLLECTION:	**Send specimen refrigerated**
AVAILABILITY:	**Monday – Sunday.**
TURNAROUND TIME:	**2 days**
METHODOLOGY:	**Immunoturbidimetric**
REFERENCE RANGE:	**Microalbumin (mg/dL): 0 – 2.9** **Creatinine (mg/ld): No reference range.** **Microalbumin Creatinine Ratio: 0 – 30 mg/g**

MONO TEST, SERUM

ALIAS NAME:	**Heterophile Antibodies** **Monospot**.
TEST CODE:	**8055**
CPT CODE:	**86308**
SPECIMEN:	**Preferred: 1 SST Tube ; Acceptable: 1 red top tube**
STORAGE:	**Refrigerate serum up to 24 hours.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Agglutination.**
REFERENCE RANGE:	**Negative.**

MRSA SURVEILLANCE (PCR)

TEST CODE:	**2001**
CPT CODE:	**87641**
SPECIMEN:	**Nasal swab**
COLLECTION:	**Requires special collection swab (Copan Venturi Transystem) supplied by CHC SPD Department** **Use 1 swab for both nostrils. Insert both swabs 1 to 2 cm. into one nostril. Rotate swabs against the inside of the nostril for 3 seconds. Using same two swabs, repeat for the second nostril, trying not to touch anything but the inside of the nose.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**3 hours (0600 – 1500)**
METHODOLOGY:	**PCR (Polymerase Chain Reaction)**
Pertinent Information:	**Surveillance tool available for use by CHC CCU and patients admitted from long-term healthcare facilities, ASC and outpatient pre-op for joint replacement surgery only.** **-Is considered a "presumptive" test because it does not provide susceptibilities.** **-Strictly a surveillance tool that checks for colonization of MRSA from a nasal specimen** **-Must order a separate culture and sensitivity if susceptibility testing is needed.**
REFERENCE RANGE:	**Negative.**

N

NT PRO BNP	
ALIAS:	**Pro BNP**
TEST CODE:	**4422**
CPT:	**83880**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
AVAILABILITY:	**Sunday – Saturday**
TURNAROUND TIME:	**1 hour**
METHOLOGY:	**Immunoassay**
REFERENCE RANGE:	**A clinically significant change is a doubling or halving of earlier concentration in tests done in 24 hours or more.**

O

OCCULT BLOOD, STOOL

ALIAS NAME:	**Guaiac**
TEST CODE:	**7515 (7212 if three samples)**
CPT CODE:	**82270**
SPECIMEN:	**Fresh stool specimen or stool applied to Seracult slide.**
COLLECTION:	**A small stool sample should be applied as a very thin smear onto both windows of the Seracult slide. DO NOT REFRIGERATE. Slides should be protected from heat, sunlight, fluorescent light and ultraviolet radiation. The patient should be placed on a meat-free, low peroxidase diet two days before testing. Some foods to avoid are as follows: Cauliflower, horseradish, red radishes, turnips, broccoli, cantaloupe, vitamin C in excess of 250 mg/day, Iron-rich supplements, aspirin.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Guaiac.**
REFERENCE RANGE:	**Negative**

OCCULT BLOOD, GASTRIC

TEST CODE:	**7517**
CPT CODE:	**82271**
SPECIMEN:	**Gastric aspirate or vomitus**
COLLECTION:	**Submit gastric aspirate or vomitus in a sterile container**
AVAILABILITY:	**Sunday – Saturday**
TURNAROUND TIME:	**l hour**
METHODOLOGY:	**Guaiac method**
REFERENCE RANGE:	**Negative**

OSMOLALITY, SERUM

TEST CODE:	**4251**
CPT CODE:	**83930**
SPECIMEN:	**1 Gold Top Tube**
COLLECTION:	**Centrifuge and submit to lab, refrigerate. Minimum volume = 1.5 ml**
AVAILABILITY:	**Sunday - Saturday.**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Freezing Point Depression.**
REFERENCE RANGE	**See Report.**

OSMOLALITY, URINE

TEST CODE:	**4252**
CPT CODE:	**83935**
SPECIMEN:	**Random urine or 24 hr urine.**
COLLECTION:	**Clean, dry container, refrigerator.**
AVAILABILITY:	**Sunday through Saturday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Freezing Point Depression.**
REFERENCE RANGE:	**See Report.**

P

PAP SMEAR (See Cytology Pap smear)

PARATHYROID HORMONE (INTACT) (PTH) (Recommend ordering total calcium with PTH)

TEST CODE:	**5142**
CPT CODE:	**83970**
SPECIMEN:	**Collect one SST tube and send to Lab.**
STORAGE:	**Store centrifuged specimen refrigerator for up to 2 days.**
AVAILABILITY:	**Monday – Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**15-65 pg/mL**

PHENOBARBITAL

TEST CODE:	**4270**
CPT CODE:	**80184**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**KIMS**
REFERENCE RANGE:	**Phenobarbital (mcg/mL) - 15.0 to 40.0.** **CRITICAL VALUES: greater than 60.0.**

PHENYTOIN

TEST CODE:	**4255**
CPT CODE:	**80185**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE :	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY: REFERENCE RANGE:	**KIMS** **Phenytoin (mcg/mL) - 10 to 20. CRITICAL VALUES: Greater than 30**

PHOSPHORUS

TEST CODE:	**4100**
CPT CODE:	**84100**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Molybdate - UV.**
REFERENCE RANGE:	**Phosphorus (mg/dL) - 2.5 to 4.5.** **Critical Values 0 -18 yrs. - < 2 or >8** **All Other Critical Values < 1.0 and > 7.0**

PHOSPHORUS, 24 HOUR URINE

TEST CODE:	**4225**
CPT CODE:	**84105**
SPECIMEN:	**Collect 24 hour urine (call lab for protocol).**
COLLECTION:	**Refrigerate sample prior to analysis. NOTE: Submit complete 24 hour collection in container(s).**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Molybdate – UV.**
REFERENCE RANGE	**Phosphorus 24 hour urine (gm/24 hr.) - 0.9 to 1.3.** **NOTE: ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050**

PINWORM SCOTCH TAPE PREP

TEST CODE:	**2025**
CPT CODE:	**87172**
SPECIMEN	
COLLECTION:	1. Using a CLEAR piece of cellulose tape (Scotch tape) - 3/4 inch wide is best about 4 to 5 inches in length, looped over a tongue depressor with sticky side out, press the sticky tape surface against the skin of the anal area. The eggs which have been deposited by the female pinworm will adhere to the tape. 2. Take a clean glass slide and attach or deposit tape on top of slide sticky side down. Label the slide with the patient's name and a second identifier. Send slide and tape together to lab for examination. If Enterobiasis vermicularis is present, the ova can be seen adherent to the tape. NOTE: Specimens collected on frosted (cloudy) tape are unacceptable. Perform procedure early in morning before the patient bathes or uses the toilet.
AVAILABILITY:	Preparations should be taken for at least 4 to 6 consecutive days with negative results before the patient is considered free of infection.
TURNAROUND TIME:	Monday through Sunday.
METHODOLOGY:	1 day.
REFERENCE RANGE:	Microscopic exam. Normal = No ova detected.

PLATELET COUNT, WHOLE BLOOD

TEST CODE:	**6121**
CPT CODE:	**85049**
SPECIMEN:	**3 mL blood in lavender top tube (minimum 2.0 mL whole blood).**
COLLECTION:	**Mix gently by inversion. Refrigerate. Stable for 48 hours if refrigerated. Room temperature - stable for 24 hours.**
PERTINENT INFORMATION:	
AVAILABILITY:	**Included as part of a CBC.**
TURNAROUND TIME:	**Monday through Sunday.**
METHODOLOGY:	**1 hour.**
REFERENCE RANGE:	**Impedence**
	150 to 440 (1000/mm^3) CRITICAL VALUES: Less than 10 (1000/mm^3)or greater than 1000 (1000/mm^3) .

PNEUMOCYSTIS CARINII (See Cytology, Bronchial)

POTASSIUM

TEST CODE:	**4045**
CPT CODE:	**84132**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**ISE indirect.**
REFERENCE RANGE:	**Potassium (mEq/L) - 3.6 to 5.0.**

PRE-ALBUMIN (PAB), SERUM

TEST CODE:	**5145**
CPT CODE:	**84134**
SPECIMEN:	**Draw 1 Gold top tube from fasting patient.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Immunoturbidometric**
REFERENCE RANGE:	**20-40 mg/dL**

PREGNANCY TEST, URINE, QUALITATIVE

ALIAS NAME:	**HCG, Urine.**
TEST CODE:	**8030**
CPT CODE:	**84703**
SPECIMEN:	**10 mL random urine specimen in screw top urine container. Store up to 2 days in refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Immunoassay.**
REFERENCE RANGE:	**Negative.**

PROGESTERONE,SERUM

TEST CODE:	**9026**
CPT CODE:	**84144**
COLLECTION:	**Draw 1 red-top tube and send 1.0 mL of serum. Test referred to an outside Reference Lab.**
AVAILABILITY:	**Monday through Saturday.**
TURNAROUND TIME:	**2 days.**
METHODOLOGY:	**EIA**
REFERENCE RANGE:	**Age and sex dependent, see report.**

PROTEIN, BODY FLUID

ALIAS NAME:	**Total Protein**
TEST CODE:	**4505**
CPT CODE:	**84157**
SPECIMEN:	**Collect 2 ml pleural – peritoneal fluid in sterile container Synovial/joint fluid, pericardial fluid will be sent to reference lab.**
COLLECTION:	**Note fluid type. Refrigerate.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric**
REFERENCE RANGE:	**None determined.**

PROTEIN, CEREBROSPINAL FLUID

TEST CODE:	**5005**
CPT CODE:	**84157**
SPECIMEN:	**0.5 mL of cerebrospinal fluid.**
COLLECTION:	**Send to lab ASAP.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Turbidimetric.**
REFERENCE RANGE:	**15 to 45 mcg/dL**

PROTEIN, TOTAL

TEST CODE:	**4070**
CPT CODE:	**84155**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Colorimetric.**
REFERENCE RANGE:	**Protein, Total (mg/dL) - 6.0 to 8.0.**

PROTEIN, TOTAL, 24-URINE

TEST CODE:	**4032**
CPT CODE:	**84156**
SPECIMEN:	**24-hour urine, no preservative.**
COLLECTION:	**Collect 24 hour urine. Refrigerate sample prior to analysis.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**2 days.**
METHODOLOGY:	**Turbidimetric**
REFERENCE RANGE:	**See report.** **NOTE: ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050**

PROTHROMBIN TIME, PLASMA

ALIAS NAME:	**PT/INR** **Pro Time**
TEST CODE:	**6761**
CPT CODE:	**85610**
SPECIMEN:	**Draw one light blue top tube (3.2% sodium citrate). Tube must be full draw. Do not overfill.**
COLLECTION:	**Mix gently by inversion. NOTE: Must be processed within 24 hours of collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Clot Detection, Automated.**
REFERENCE RANGE:	**PT – 11.9 – 14.6 seconds; CRITICAL VALUES: INR >5.0. See report.**

PSA (PROSTATE SPECIFIC ANTIGEN), MEDICARE SCREENING

TEST CODE:	**5003**
CPT CODE:	**84153**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday – Friday.**
TURNAROUND TIME:	**2 days**
METHODOLOGY:	**Immunometric**
REFERENCE RANGE:	**PSA (ng/mL) 0 – 4.0**

PSA (PROSTATE SPECIFIC ANTIGEN)

TEST CODE:	**5001**
CPT CODE:	**84153**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Same as above.**
AVAILABILITY:	**Monday - Friday.**
TURNAROUND TIME:	**2 days.**
METHODOLOGY:	**Immunometric**
REFERENCE RANGE:	**PSA (ng/mL) - 0 to 4.0.**

PT/INR and aPTT, plasma

ALIAS NAME:	**PT/INR and aPTT**
TEST CODE:	**6768 PT/APTT, 6761 PT, 6764 APTT**
CPT CODE:	**85610, 85730**
SPECIMEN:	**Draw one light blue top tube (3.2% sodium citrate). Tube must be full draw. Do not overfill.**
COLLECTION:	**Mix gently by inversion. Must be processed within 24 hours of collection. (PT) & 4 hours of collection (APTT).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Clot Detection, Automated.**
REFERENCE RANGE:	**PT – 11.9 – 14.6 seconds; CRITICAL VALUE: INR > 5.0.** **aPTT - 23.0 – 36.1 seconds; CRITICAL VALUES: > 120.0 seconds** **NOTE: If drawn through indwelling catheter, flush with saline & discard the first 5-10 mL of blood.**

aPTT, PLASMA

ALIAS NAME:	**aPTT** **Activated Partial Thromboplastin Time**
TEST CODE:	**6764**
CPT CODE:	**85730**
SPECIMEN:	**Draw one light blue top tube (3.2% sodium citrate). Tube must be full draw. Do not overfill.**
COLLECTION:	**Mix gently by inversion. NOTE: Must be processed within 4 hours of collection.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Clot detection, Automated.**
REFERENCE RANGE:	**aPTT - 23.0 – 36.1 seconds; CRITICAL VALUES: > 120.0 seconds. See report.** **NOTE: If drawn through indwelling catheter, flush with saline & discard the first 5-10 mL of blood.**

R

RAPID STREP TEST, THROAT (PHARYNX)

TEST CODE:	**2035**
CPT CODE:	**87430**
SPECIMEN:	**Collect using aerobic transport swabs which are available from CHC Laboratory.**

COLLECTION:	**1. Depress tongue gently with tongue depressor.** **2. Sweep the swab back and forth across the posterior throat, tonsillar areas and any inflamed or ulcerated areas.** **3. AVOID TOUCHING CHEEKS, TONGUE, UVULA, OR LIPS.**
PERTINENT INFORMATION:	**NOTE: Do not use calcium alginate swabs, semi-solid transport media, or media containing charcoal, agar, or gelatin.** **"Culture - Beta Strep Only" - 2050 (CPT 87081) done in addition to Rapid Strep Test when Rapid Strep is negative or inconclusive for all pediatric patients (<18 years old)**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour (for STAT requests).**
METHODOLOGY:	**Enzyme Immunoassay.**
REFERENCE RANGE:	**Normal = Negative.**

RENAL FUNCTION PANEL

TEST CODE:	**5004**
CPT CODE:	**80069**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
PERTINENT INFORMATION:	**Includes Basic Metabolic Profile, Albumin and Phosphorous.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**See individual test**
REFERENCE RANGE:	**See individual test for reference range and critical values**

RETICULOCYTE COUNT, BLOOD

TEST CODE:	**6100**
CPT CODE:	**85046**
SPECIMEN:	**3 mL blood in lavender top tube (minimum 2.0 mL).**
COLLECTION:	**Mix gently by inversion. SAMPLE IS STABLE FOR 24 HOURS.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Automated**
REFERENCE RANGE:	**0.5% to 1.5% (adults)**

RF (RHEUMATOID FACTOR), SERUM

ALIAS NAME:	**RA Screen. Rheumatoid Factor.**
TEST CODE:	**8060**
CPT CODE:	**86430**
SPECIMEN:	**Red top tube or SST.**
STORAGE:	**Store centrifuged specimen in refrigerator.**
STABILITY:	**2 – 8C up to 8 days**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	Rapitex RF ™ Particle enhancing reactions
REFERENCE RANGE:	**Negative. <20 IU/ml.**

	If positive, results will be titered.

Rh IMMUNE GLOBULIN, BLOOD

ALIAS NAME:	**RhIG** **RhoGam**
TEST CODE:	**3420**
CPT CODE:	**90281, 90782**
SPECIMEN:	**Antepartum, miscarriage, abortion - 1 pink top tube.** **Postpartum -1 lavender top tube.**
COLLECTION:	**Collect A.S.A.P. at least 1 hour post delivery of Rh+ baby.** **ABO/Rh and Antibody Screen are included in RhIG order.**
PERTINENT INFORMATION:	**Rh Immune Globulin is to be administered to Rh- women during pregnancy and following delivery of an Rh+ baby or following miscarriage/abortion, or amniocentesis to prevent immunization to the D antigen which may be present on the fetus' red cells. If postpartum, a Fetal Screen will be done to determine the extent of fetal/maternal hemorrhage and ensure that appropriate does of RhIG is administered. There is an additional charge for the Fetal Screen.**
AVAILABILITY:	**Inpatient - Monday through Sunday, 6 a.m. to 4 p.m.** **Outpatient -** **Monday through Friday, 7 a.m. to 1 p.m.**
TURNAROUND TIME:	**2 hours. Blood Bank will contact nursing unit when RhIG is available.**
METHODOLOGY:	**Verification of Eligibility by Agglutination Tests with Serum and Cells.**
REFERENCE RANGE:	**Normal = 1 vial RhIG. Appropriate utilization of RhIG is as follows:** **NOTE: RhIG is to be administered at approximately 28 weeks antepartum. RhIG is to be administered within 72 hours of miscarriage/abortion, amniocentesis, or delivery of Rh+ baby.**

RPR (RAPID PLASMA REAGIN), SERUM

ALIAS NAME:	**STS (Serologic Test for Syphilis).**
TEST CODE:	**8070**
CPT CODE:	**86592**
SPECIMEN:	**Red top tube or SST.**
STORAGE:	**Store centrifuged specimen in the refrigerator**
AVAILABILITY:	**Monday, Wednesday, Friday.**
TURNAROUND TIME:	**2 hours.**
METHODOLOGY:	**Flocculation/Agglutination.**
REFERENCE RANGE:	**Non-reactive. Reactives will be sent to the State for FTA at an additional charge.**

RSV Ag NASOPHARYNGEAL ASPIRATE

TEST CODE:	**8085**
CPT CODE:	**87420**
SPECIMEN:	**Nasopharyngeal aspirate or wash is the preferred specimen. 2mL-3mL sterile saline into a sterile tube.**
COLLECTION:	**Specimen must be delivered to the lab within 30 minutes of collection. NOTE: Fresh specimens are preferred for testing.**
AVAILABILITY:	**Monday through Sunday, 24 hours**
TURNAROUND TIME:	**4 hours.**
METHODOLOGY:	**Chromatographic assay**
REFERENCE RANGE:	**Negative.**

S

SALICYLATE

ALIAS NAME:	**Aspirin** **Acetylsalicylic Acid**
TEST CODE:	**4290**
CPT CODE:	**80196**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**UV**
REFERENCE RANGE:	**Salicylate (mcg/mL) - 115 to 300.** **CRITICAL VALUES: Greater than 350 mcg/mL.**

SEDIMENTATION RATE, BLOOD

TEST CODE:	**6046**
CPT CODE:	**85651**
SPECIMEN:	**3 mL blood in lavender top tube (minimum 2.0 mL).**
COLLECTION:	**Mix gently by inversion. MUST BE PROCESSED WITHIN 4 HOURS OF COLLECTION.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**2 hours.**
METHODOLOGY:	**Westergren, Modified.**
REFERENCE RANGE:	**Age/Sex dependent. See report.**

SEMEN ANALYSIS, POST VASECTOMY, SEMEN

TEST CODE:	**7505**
CPT CODE:	**89321**
SPECIMEN:	**Semen in urine screw-top container.**
COLLECTION:	**NOTE: Specimen must be delivered to laboratory within 30 minutes of collection.**
AVAILABILITY:	**Monday through Friday 8 – 2pm**
TURNAROUND TIME:	**3 hours.**
METHODOLOGY:	**Microscopic examination.**
REFERENCE RANGE:	**SEMEN, POST VASECTOMY (NORMAL VALUES): Negative for sperm.**

SHIGA TOXIN (STOOL) - Refer to Culture, Stool

SODIUM

TEST CODE:	**4040**
CPT CODE:	**84295**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**ISE indirect.**
REFERENCE RANGE:	**Sodium (mEq/L) - 135 to 145. CRITICAL VALUES: <120 and >160.**

SODIUM 24 HOUR, URINE

TEST CODE:	**4195**
CPT CODE:	**84300**
SPECIMEN:	**Collect 24 hour urine (call lab for protocol). No additives.**
COLLECTION:	**Refrigerate sample prior to analysis. NOTE: Submit complete 24 hour urine collection in container(s).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**ISE indirect**
REFERENCE RANGE:	**Sodium 24 hour (mEq/24hr.) - 130 to 260.** **NOTE: ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050**

SPUTUM – CYTOLOGY (See Cytology Sputum)

SURGICAL PATHOLOGY GROSS AND MICROSCOPIC

TEST CODE:	**1305/1307**
CPT CODE:	**88302 through 88309 - tissue specific.**
SPECIMEN:	**Tissue in 10% formalin. Specimen jars containing formalin are supplied by Carroll Hospital Center Lab.**
COLLECTION:	**NOTE: (1) Source is required on request form for processing. Please complete a Carroll Hospital Center" Tissue Examination Request Form" and forward it with the specimen. Requisitions for this procedure cannot be processed unless the information requested is supplied.**
AVAILABILITY:	**Monday through Friday.**
TURNAROUND TIME:	**1 to 3 days.**
REFERENCE RANGE:	**Descriptive report.**

T4 (THROXINE) FREE

TEST CODE:	**4033**
CPT CODE:	**84439**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**0.71 to 1.85 ng/dL.**

TESTOSTERONE, TOTAL

TEST CODE:	**5143**
CPT CODE:	**84403**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE::	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday – Sunday.**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**Testosterone (ng/mL): 2.8 – 8.0 – Adult Male** **0.03 – 0.48 – Adult Female**

THERAPEUTIC PHLEBOTOMY

TEST CODE:	**3470**
CPT CODE:	**99195**
SPECIMEN:	**Call posting (ext. 7678) to schedule. NOTE: Physician order with**
COLLECTION:	**diagnosis is required. If multiple phlebotomies are ordered, a hemoglobin (hematocrit) cut off value must be prescribed.**
AVAILABILITY:	**INPATIENT: A.S.A.P when time can be scheduled between nursing and blood bank. OUTPATIENT: Monday, Wednesday and Friday by appointment only.**
TURNAROUND TIME:	**Not applicable.**
METHODOLOGY:	**Phlebotomy.**
REFERENCE RANGE:	**No normals.**

THEOPHYLLINE, SERUM

ALIAS NAME:	**Aminophylline** **Theo-Dur**
TEST CODE:	**4300**
CPT CODE:	**80198**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Kinetic interaction of microparticles in solution (KIMS)**
REFERENCE RANGE:	**Theophylline (mcg/mL) - 10.0 to 20.0.** **Critical = >25**

THYROID STIMULATING HORMONE, (TSH)

TEST CODE:	**4430**
CPT CODE:	**84443**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**TSH (ulU/mL) - 0.46 to 4.98.**

TOBRAMYCIN PEAK

TEST CODE:	**9013**
CPT CODE:	**80200**
SPECIMEN:	**Preferred: 1 red top tube, Acceptable: 1 SST tube.**
CCLLECTION	**Test referred to an outside Reference Lab.**
AVAILABILITY:	**Sunday - Saturday.**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Fluorescence Polarization Immunoassay**
REFERENCE RANGE:	**Tobramycin Peak: 5 – 10 ug/mL**

TOBRAMYCIN TROUGH

TEST CODE:	**9017**
CPT CODE:	**80200**
SPECIMEN:	**Preferred: 1 red top tube, Acceptable: 1 SST tube.**
COLLECTION	**Test referred to Sinai Hospital, Baltimore, MD.**
AVAILABILITY:	**Sunday - Saturday.**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Fluorescence Polarization Immunoassay**
REFERENCE RANGE:	**Tobramycin Trough: 0.5 – 2.0 ug/mL**

TRIGLYCERIDES

TEST CODE:	**4145**
CPT CODE:	**84478**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
COLLECTION:	**Preferably draw specimen following an overnight (12-14 hour) fast.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic colorimetric.**
REFERENCE RANGE:	**< 150 mg/dL desirable**

TROPONIN T, (Myocardium specific)

TEST CODE:	**4373**
CPT CODE:	**84484**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Centrifuge specimen stable 24 hours; freeze if longer storage required.**
AVAILABILITY:	**Monday through Sunday**
TURNAROUND TIME:	**1 day**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**Trop T(ng/mL): 0 – 0.1** **CRITICAL >0.111**

Tzanck Smear – (See Cytology Tzanck Smear) see p. 91

U

UREA NITROGEN

ALIAS NAME:	**BUN (Blood Urea Nitrogen)**
TEST CODE:	**4065**
CPT CODE:	**84520**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Kinetic test with urease & glutamate dehydrogenase**
REFERENCE RANGE:	**Urea Nitrogen (mg/dL) - 5.0 to 25.0.** **Critical > 100**

URIC ACID

TEST CODE:	**4085**
CPT CODE:	**84550**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic colorimetric.**
REFERENCE RANGE:	**Uric Acid (mg/dL) - 2.5 to 7.5.**

URIC ACID, 24 HOUR URINE

TEST CODE:	**4192**
CPT CODE:	**84560**
SPECIMEN:	**Collect 24 hour urine (call lab for protocol).**
COLLECTION:	**Refrigerate sample prior to analysis. NOTE: Submit complete 24 hour urine collecting in container(s).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzymatic colorimetric**
REFERENCE RANGE:	**Uric Acid 24 hour urine (mg/24 hr) - 250 to 750.** **NOTE: ALL 24 HOUR URINES INCLUDE A CHARGE FOR VOLUME MEASUREMENT – CPT CODE 81050**

URINE VOLUME MEASUREMENT

CPT CODE:	**81050**
PERTINENT INFOMRATION:	***No charge for time urine calcium or clearance tests.*** ***Charge included with all 24 hour urines for volume measurement*.**

URINALYSIS, DIPSTICK ONLY

TEST CODE:	**7005**
CPT CODE:	**81003**
SPECIMEN:	**10 mL fresh void urine in urine screw-top container (minimum 3.0 mL) or container with boric acid preservative.**
COLLECTION:	**Prefer first morning void or early morning specimen. A clean-cath specimen is desirable. Specimen must be delivered to urinalysis laboratory within 2 hours of collection. If there is a delay, specimens must be kept refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Dipstick Chemical Reactions**
REFERENCE RANGE	**See Report.**

URINALYSIS, ROUTINE

TEST CODE:	**7002**
CPT CODE:	**81001 or 81003 if no micro**
SPECIMEN:	**10 mL fresh void specimen (minimum 3.0 mL).**
COLLECTION:	**Prefer first morning void or early morning specimen. A clean-catch specimen is desirable. Specimen must be delivered to laboratory within 2 hours of collection. If there is a delay, specimen must be kept refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Dipstick Chemical Reactions/Microscopic Examination if indicated.**
REFERENCE RANGE:	**See Report.**

URINE – CYTOLOGY (See Cytology Urine)

V

VALPROIC ACID

TEST CODE:	**4315**
CPT CODE:	**80164**
SPECIMEN:	**Preferred: 1 green top (Lithium heparin), Acceptable: 1 SST tube.**
STORAGE:	**Store centrifuged specimen in the refrigerator.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzyme Immunoassay**
REFERENCE RANGE:	**Valproic Acid (mcg/mL) - 50 to 100. CRITICAL VALUES: >150.**

VANCOMYCIN PEAK

TEST CODE:	**4330**
CPT CODE:	**80202**
SPECIMEN:	**1 red top**
COLLECTION:	**Collect 1 hour post infusion.**
STORAGE:	**Send to lab immediately or centrifuge and separate. Store refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**KIMS.**
REFERENCE RANGE:	**Vancomycin Peak (mcg/mL) - 20 to 40 mcg/mL. CRITICAL VALUES: >50.0.**

VANCOMYCIN RANDOM

TEST CODE:	**4326**
CPT CODE:	**80202**
SPECIMEN:	**1 red top**
STORAGE:	**Send to lab immediately or centrifuge and separate. Store refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**KIMS.**
REFERENCE RANGE:	**Vancomycin Random (KIMS) - Check with Clinical Pharmacist for assessment of random levels.**

VANCOMYCIN TROUGH

TEST CODE:	**4325**
CPT CODE:	**80202**
SPECIMEN:	**1 red top**
COLLECTION:	**Collect ≤ 30 minutes prior to next dose.**
STORAGE:	**Send to lab immediately or centrifuge and separate. Store refrigerated.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Enzyme Immunoassay.**
REFERENCE RANGE:	**Vancomycin Trough (mcg/mL) – 10 to 20. CRITICAL VALUES: >20.0.**

VENIPUNCTURE (PHLEBOTOMY)

TEST CODE:	**5990**
CPT CODE:	**36415**
PERTINENT INFORMATION:	**A venipuncture fee will be charged whenever blood is drawn by a Carroll Hospital Center phlebotomist on an outreach patient or nursing home resident.**

VENOUS BLOOD GAS

TEST CODE:	**5075**
CPT CODE:	**82803**
COLLECTION:	**Call Respiratory Therapy Department for specific instructions.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**Run immediately upon receiving in lab.**
METHODOLOGY:	**Ion Selective Electrode.**
REFERENCE RANGE:	**pH: 7.30 – 7.40; PCO2: 40 - 50 mm Hg; PO2: 30 - 40 mm Hg; HCO3: 22-26 mmol/L**

VITAMIN B12 and FOLATE

ALIAS NAME:	**B12. Folic acid.**
TEST CODE:	**B12 – 5072, Folic Acid - 5071**
CPT CODE:	**82607, 82746**
SPECIMEN:	**Draw 1 full SST tube.**
STABILITY:	**Stable 2 days refrigerated.**
AVAILABILITY:	**Monday - Sunday**
TURNAROUND TIME:	**1 day.**
METHODOLOGY:	**Electrochemiluminescence (ECL)**
REFERENCE RANGE:	**Vitamin B12 (pg/mL): 211 – 946** **Folate (ng/mL): Normal 3.1 – 17.5** **Borderline Deficient 2.2 – 3.0** **Deficient < 2.2**

WBC SMEAR, STOOL

ALIAS NAME:	**Fecal WBC**
TEST CODE:	**6115**
CPT CODE:	**89055**
SPECIMEN:	**Fresh random stool specimen in a screw-top container (minimum 1 g).**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Microscopic Examination.**
REFERENCE RANGE:	**Negative.**

WET PREP

TEST CODE:	**2020**
CPT CODE:	**87210**
SPECIMEN:	**Collect specimen with cotton swab and place in small amount of sterile saline (enough to cover tip) in sterile tube.**
COLLECTION:	**NOTE: Transport to lab immediately. DO NOT refrigerate.**
AVAILABILITY:	**Monday through Sunday.**
TURNAROUND TIME:	**1 hour.**
METHODOLOGY:	**Microscopic Exam.**
REFERENCE RANGE:	**Normal - no yeast, Trichomonas or clue cells seen.**
	COMMENT: To rule out the presence of yeast, Trichomonas and clue cells.

ALPHABETICAL LISTING OF TESTS